Bridging the science-policy gap: development and reception of a joint research agenda on sustainable food consumption

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To increase the uptake of research findings by policy makers and to encourage European researchers to better reflect policy needs, we facilitated the development of a joint research agenda (JRA) on sustainable food consumption (SFC) involving scientists, policy makers, and other stakeholders. Pursuing interpretive action research and using a number of data sources, we tried to understand how the "fit" between the characteristics of policy makers' organizational contexts and the attributes of the JRA development process affects the reception of the JRA and its outcomes. Our framework was based on three distinct formations of discursive and material practices related to the use of knowledge in public policy making: bureaucratic, managerial, and communicative. Two dominant patterns seem to be represented in SFC consumption in the European Union: a transition between the bureaucratic and the managerial formation and a highly developed managerial formation with occasional communicative practices. We found that reflecting national policy priorities would help overcome some of the structural barriers between science and policy, whereas other barriers could be addressed by designing the process to better fit with the logics of the three formations, such as the fragmentation of knowledge (bureaucratic formation) or breadth of participation (communicative formation).

KEYWORDS: policy research, workshops, food consumption, participatory planning, stakeholders

Introduction

Increasing the uptake of research findings by policy makers and aligning research priorities to better reflect policy needs are two mutually reinforcing objectives of the science-policy interface. Shortcomings in the use of available evidence and scientific expertise in sustainable development and environmental policy making have been well documented (e.g., Pouyat, 1999; EC, 2008; Holmes & Clark, 2008; Likens, 2010; see also EC, 2001). In response, the European Commission (EC) decided to fund, through the Seventh Framework Program for Research and Technological Development (FP7), a series of knowledge-brokerage projects addressing the science-policy interface in a number of areas of sustainable development and environmental governance. CORPUS (Enhancing the Connectivity Between Research and Policy-Making in Sustainable Consumption) was one of the funded projects, focusing on three sustainable consumption areas: food, mobility, and housing.

One of the means chosen by the CORPUS project consortium to bolster the uptake of scientific evidence by policy makers was development of a joint research agenda (JRA) for each of these areas. This article reflects the JRA experience on sustainable food consumption (SFC). A JRA typically identifies priority areas and specific topics (for example, in the form of research questions, as in Pretty et al. 2010), but also goals, methods and/or expected results of research (cf. Sutherland et al. 2011). Its development involves scientists and policy makers, as well as representatives from both industry and civil society organizations (CSOs), and others. Joint or collaborative research agendas are one means of aligning research priorities between science and policy to produce policy-usable knowledge. Other approaches include high-level scientific committees involving policy makers, purpose-bound budgets for state-research agencies, high-level scientific reports, and dedicated research programs that “attempt both to focus on short-term political agendas and develop long-term research capacities” (Nowotny et al. 2003). JRAs are becoming more widely used in various areas with recent examples focused on sustainable food including ETP (2007), Niggli et al. (2008), and Pretty et al. (2010). In the current case, development of the JRA consisted of several stages conducted before, during, and after two workshops held in January and May 2011. Two of the authors of this article were actively involved as facilitators and observers throughout the entire JRA development process.

This aspect of the project was supplemented with interpretive action research. We simultaneously facilitated the process and conducted research to im-
prove its usefulness to participants. Our research had an interpretive dimension, since we hypothesized that the ways participants make sense of the JRA development process are to a significant extent determined by their organizational contexts—the constitutive social settings of their everyday work—and the interpretive parts of our methodology enabled us to acquire a richer understanding of those contexts. We theorize that organizational contexts simultaneously enable and constrain the ways in which policy makers are able to (and learn to) use knowledge and thereby influence what outcomes can be achieved in terms of further use of a JRA or change of policy makers’ practices. Our research design is presented in the subsections entitled Research Before, During, and After JRA Development and Theoretical and Methodological Framework; the JRA development is discussed in Preparation and Design of JRA Development.

During preparatory research stages, we developed a heuristic classifying three distinct knowledge formations that describe patterns of discursive and material practices related to the understanding, creation, circulation, and use of knowledge in public-policy making. We termed these ideal-types the bureaucratic, the managerial, and the communicative formations. Their historical context is presented in the section entitled Key Historical Developments of Public Administration and the formations themselves are explained in Toward Praxis/Discourse Formations of Knowledge in Public Policy.

In a European Union (EU)-wide survey, we observed two dominant patterns that seem to be represented in SFC policy: a transition between the bureaucratic and the managerial formations and a highly developed managerial formation with occasional communicative practices. These findings are presented in the section Knowledge Formations in European SFC Policy Making: Organizational Contexts. In an attempt to increase reception and enhance potential outcomes of the JRA development, we designed the process so it would have characteristics of both the managerial and the communicative formations, as presented in the section Design of the JRA Development: Attributes of the Process. We encountered a number of challenges when striving to achieve structural similarities between the process and participants’ contexts and this situation is outlined in the section Fit Between Context and Process and Achieving Outcomes. A broader discussion critically reflecting on our conceptual framework is presented in the section Broadening the Picture. In the concluding section, we summarize the main findings and formulate avenues for future research.

Research Design, Methodology, and Process Design

The research objective was to accompany the development of a JRA on sustainable food. In other words, we sought to develop an interactive process of aligning research priorities on SFC and to better understand the factors of the JRA’s reception (in particular by policy organizations) and outcomes one year after the process. Figure 1 depicts both 1) the preparation, design, and oversight of the JRA development process (grey boxes) and 2) the research itself consisting of preparatory research and development of heuristic analytical tools, accompanying evaluation, and follow-up research one year after the JRA development process (white boxes).

Research Before, During, and After JRA Development

In our research, we tried to understand how a fit between important characteristics of participants’ organizational contexts and the attributes of the JRA development process influence the production of outcomes. The notion of “fit” refers to structural similarity between the process of research-agenda development and the participants’ everyday organizational contexts, and is tied to the assumption that a tighter fit would make the process of research-agenda development more understandable and its outcomes more useful to its participants. Our research encompassed several stages and different sources of data.

First, before the start and during the process, we conducted an extensive literature review on the role of knowledge in the political process and the everyday work of public administrators to produce a heu-
ristic framework for understanding policy makers’ organizational contexts. Second, we conducted a preparatory survey on the interaction of EU national level policy makers with scientific information. Using purposive sampling, we identified a pool of national sustainable development coordinators and officials responsible for the sustainable consumption and production agenda in EU member states. We conducted 25 semi-structured telephone interviews, primarily in English. The findings helped us to better understand participants’ organizational contexts.

Third, during the whole JRA development process, we carried out unstructured participant observation, adopting the role of observer-as-participant and taking notes on working atmosphere, intensity of interactions, and anecdotal information on interactions between scientists and policy makers. The observation was accompanied by a group reflection on process-design choices. The resultant data sources were observation notes and reflections.

Fourth, an evaluation report was produced immediately following every event. The documents used, among others, the following additional data sources: participant observation, qualitative interviews with two participants per workshop (one policy maker and one researcher), feedback questionnaires (response rate 77% for the second workshop and 65% for the third workshop), and content analysis of participants’ journals (response rate 34% and 16%, respectively).

Fifth, to better understand the outcomes, ten months after the last workshop we conducted a series of semi-structured telephone interviews on the reception of the JRA development process and the uses of the resultant document. We conducted purposive sampling to cover the perspectives of both policy makers and researchers (with a stronger focus on policy makers), and applied the concentration principle (with prescreening of the potential interviewees) to arrive at interesting and promising cases. Four policy makers and two researchers participated. The interviews were conducted in English and the results were anonymized. Interviews were transcribed and analyzed using two different methods, “fine structure analysis” (Feinstrukturanalyse) (see Froschauer & Lueger, 2003) and content analysis. Fine structure analysis is an interpretive method based in objective hermeneutics, helping to uncover latent meaning structures and through them understanding of objective meanings in (especially spoken) text. Its key theoretical proposition is that behind subjective meanings expressed in text are objective meanings that reflect the attributes of the speakers’ social systems, in this case their organizational contexts. Among the attributes of social systems uncovered by this (quite time-consuming) method typically are boundaries, internal differentiation, rules, dynamics, and complexities; we used it to collect data on the organizational contexts of researchers and policy makers to be able to better judge the fit between these contexts and the development of the research agenda. Content analysis was used to identify individual outcomes.

Finally, we conducted a qualitative content analysis of documents produced during the project. Our corpus consisted primarily of the project-inception report, workshop agendas, lists of participants, and moderation notes.

**Theoretical and Methodological Framework**

Our methodological framework took into account three different categories of variables and their interaction: 1) process variables relating to the design decisions made for the JRA development process and its resulting features; 2) variables representing the organizational contexts of individual participants, i.e., characteristics of the existing patterns of knowledge and related practices in their work organizations; 3) the outcomes of the JRA process. We hypothesized relationships among these three categories of variables as depicted in Figure 2. The fit between the characteristics of the process and the characteristics of the participants’ organizational contexts is key in how the JRA is received and the outcomes it will produce over time. For each of these categories, we formulated individual variables and corresponding concepts. We collected data for each concept across several sources (see section entitled Research Before, During, and After JRA Development).

The literature stresses the relevance of research users’ organizational context (Landry et al. 2001, Nutley et al. 2007). Evidence from healthcare, in particular, highlights the importance of the intensity of personal or institutional interaction, collaboration, or contact with researchers (e.g., Lomas, 2000; Hanney et al. 2003; Landry et al. 2003). We hypothesized that the organizational contexts of participants would, to a significant extent, determine the JRA outcomes. We understood participants and their con-

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**Figure 2 Conceptual model.**

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texts to be locked into a reflexive relationship (cf. Bourdieu & Wacquant, 2006). On one hand, contexts constitute social settings in which policy makers work, interact, and learn—thereby shaping their skills, dispositions, and values—and provide both resources for and constraints on policy actions and practices. On the other hand, contexts are continually reproduced through everyday practices conducted by policy makers (and to a smaller extent other actors). We identified the following independent variables as representing relevant characteristics of organizational contexts that we observed: 1) regularity and character of exchange with researchers; 2) criteria of political legitimacy and scientific credibility; 3) flows and distribution of knowledge; and 4) perspectives on stakeholder participation. Data sources for context variables were qualitative interviews conducted as part of the preparatory survey as well as after the JRA process.

Process variables to a large extent reflected our decisions when designing the JRA development process. We identified the following (independent) variables: 1) diversity and plurality of views and values; 2) plurality of knowledge forms; 3) political legitimacy and scientific credibility; and 4) ease of bringing in individual perspectives and influencing the result. Data sources for process variables included observation notes and reflections, evaluation reports using several evaluation methods (see above) and other documents, as well as qualitative interviews after the JRA process. Based on context and process variables, we were able to assess the measure of fit.

Outcomes represent the reception of the JRA. We expected several possible outcomes in the form of, for example, changes in policy makers’ practices, adjustments in the priorities of researchers, initiation of new research partnerships, increased uptake of evidence in policy making, and/or follow-up activities. It was quite clear that the listed context and process variables would not be the only factors affecting the reception of the JRA, but we nevertheless focused our research on these items. A broader discussion can be found in the section Findings and Discussion. Data sources for the outcomes were qualitative interviews after the JRA process as well as evaluation reports.

Preparation and Design of JRA Development

We designed a “joint development of policy-led research agenda on innovative policy/instrumental approaches” that sought to achieve three objectives. First, we aimed to help identify the most pressing and urgent issues in SFC. Second, we tried to assist EU researchers in increasing their awareness of policy challenges, needs, and agendas. Finally, we strived to support evidence-based policy learning, community building, and knowledge exchange and discussion. The process consisted of several stages conducted before, during, and after the second and third workshops on SFC held in January and May 2011.

Before the start of the series of workshops, we identified the most relevant potential participants. Because the whole project was designed to improve the science-policy interface, two primary stakeholder groups were policy makers and researchers. Representatives of CSOs formed a stakeholder group of a second degree of relevance, and businesses were almost entirely excluded (although their contribution to the JRA could have been beneficial). We invested a great deal of effort to identify and target policy makers directly responsible for SFC policies in all EU countries.

As a first stage of the actual JRA development process, we undertook ten stocktaking telephone interviews with researchers from eight EU member states and the United States to gather a number of research topics and needs to be used as input in Stage 2. Researchers were chosen for their track record in SFC. To ensure coherence and enable initial clustering into a smaller number of themes, we complemented the interviews with desktop research of academic literature and recent policy documents (primarily at the EU level).

For Stage 2, we held an interactive session at the second project workshop on SFC in January 2011. Participants included eighteen policy makers, fourteen researchers, and six other experts from a total of fourteen EU member states, complemented by nineteen consortium partners (representing primarily researchers). We loosely based the format on the world café method. The participants interacted in and exchanged views across four “knowledge islands,” each representing a cluster of related topics, where through discussion they refined initial research priorities or identified new ones, implicitly also prioritizing the topics. Although we planned a little over 90 minutes for the session, this proved somewhat insufficient.

In Stage 3, we compiled the first draft JRA document based on the results of Stage 2 complemented with the input of experts from the project consortium. We next conducted a round of written feedback using the project’s online platform and including participants of the first interactive session, interviewees from the first stage, and all registered platform users. This process lasted several weeks. We received only

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1. See http://www.theworldcafe.com/method.html.
2. The clusters focused on 1) research needs related to consumers; 2) research needs related to production and distribution; 3) research needs related to policy instruments and processes; and 4) exchange between science and policy.
a few responses, so there were no significant modifications when we prepared the second draft JRA as input for Stage 4.3 Similarly to Stage 2, the fourth stage had the form of another 90-minute interactive session. It was held at the third food-related workshop (May 2011) and included thirteen policy makers, seventeen researchers, and seven other experts from fourteen EU member states and two other European countries, complemented by sixteen consortium partners (representing primarily researchers). Apart from the consortium partners, eighteen participants were the same as in Stage 2 and nineteen participants were new to the process. Each participant could choose between one of the four working groups, each corresponding to one of the four thematic clusters from the second draft.4 Participants rephrased, amended, and generally improved the already identified research needs and voted on their prioritization. This time, the duration of the session allowed for intensive exchange of experience and opinions.

Stage 5 was similar to Stage 3. We amended the document with input from the second interactive exercise (producing the third draft) and conducted a second feedback round. Afterward, we included the comments that we received and finalized the JRA document which, in addition to being uploaded to the platform with a notice sent to all registered users, will being imp enetrable silos—“in so far as it can, [bu -realogy] hides its knowledge and action from criti -cism” (Weber, 1946; see also the importance of the concept of the “official secret,” Weber, 1964). As a result, clear connection or direct contact between policy and science (or other societal actors) was not common for bureaucracies, although science (as formalized bodies of knowledge) has been linked to specific administrative mechanisms from the late nineteenth century (Rutherford, 1999), enabling policy to classify and manage the “body of the population” and its territory (de Certeau, 1984).

After World War II, it became clear that the ideal of completely rational decision making was unattainable. Scholars started to develop concepts and decision-making principles to better cope with the encountered deficiencies (e.g., incremental “muddling through,” Lindblom, 1959; bounded rationality, Simon, 1961; principles of tension, mutual adjustment, and routinization, Sharkansky, 1970). During the 1970s, a number of scholars became increasingly critical of bureaucracy’s failings such as duplications and overlaps (Weiss, 1979a), rigidity of procedural rules (Barton, 1979), and inability to solve increas-

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3 The online platform of the project had over 300 registered members at that time (although only about 10% of them were policy makers), and rich and continually updated content (“knowledge units” and information on published research and upcoming policy events). Nevertheless, there was little activity by the participants themselves, particularly by the policy makers (for example in the forums).

4 The clusters were related to 1) sustainable food-supply chains; 2) sustainable diets; 3) drivers of food consumption; and 4) policy issues and knowledge brokerage.

5 More details pertaining specifically to policies of the environment, food, and sustainable consumption are provided in this issue’s editorial by Reisch et al. (2013).

6 Bureaucracy was supposed to attain the ideal of a dehumanized, objective, and rational set of practices, devoid of elements that escape calculation. For Weber (1946), bureaucracy has “a ‘ra -tional’ character: rules, means, ends, and matter-of-factness dominate its bearing.”
ingly complex problems (related to, for example, development, energy provision, new technologies, or security).

During the 1980s (and in central and eastern Europe during the 1990s), a range of reforms with similar neoliberal characteristics were taking place in public administration. Their leading image was, as Foucault (2004) noted, “how the overall exercise of political power can be modelled on the principles of market economy,” i.e., “taking the formal principles of a market economy and referring and relating them to, or projecting them on to a general art of government.” The reforms transformed not only how society was being governed, but also how the governing was organized internally. To increase efficiency through economic competition among government units, the reforms introduced a results orientation and explicit standards and measures of performance, while monolithic bureaucratic structures were disaggregated and decentralized into more autonomous “corporatized units around products,” characterized by low-trust decentralized into more autonomous “corporatized units around products,” characterized by low-trust principal/agent relationships, contracts, and public tendering procedures (cf. Hood, 1991). Doctrines of public accountability and organizational good practice were introduced and linked to what became known as “new public management” (Hood, 1995).

It was also becoming more common to address some problems of bureaucracy through securing information (i.e., “evidence”) that should be “more impartial, more independent of particular perspectives, and…generalizable” or “the product of disinterested social science research” (Cohen & Lindblom, 1979). The underlying image for this move was that of two separate communities, knowledge producers and knowledge users (Caplan, 1979; cf. Jasonoff, 1990), and the knowledge gap between them, calling for explicit “knowledge management.” The translator as a third, boundary actor (“policy middle men” in Heclo, 1974; “policy entrepreneurs” in Kingdon, 1995; “knowledge brokers” in Lomas, 1997) was recognized. This was a role often carried out by think tanks and other new types of advisers, forming a “new invention in government” (Dror, 1979; cf. Page & Wright, 2007). The provision of knowledge (policy advice) by external experts was expected to improve policies; after the title of Wildavsky’s book (1979) this became known as the “speaking truth to power” model. Nevertheless, policy analysts soon recognized that the two-community model brought a range of new problems. Inputs from external experts “overload collective decision processes, undermine consensus and coalition maintenance, and disrupt incremental decision-making patterns,” contradicting “the experience-based legitimation of most bureaucracies” (Dror, 1979) and introduce a somewhat naïve and dangerous expectation of conclusiveness and impartiality (Cohen & Lindblom, 1979). Also, despite the aspirations of the two-community model, empirically there seems to be no clear separation in time or content between science (knowledge production) and policy (design of decisions) (Weingart, 2001).

Think tanks and other sources of external policy advice such as ministerial advisers, private consultants, and interest groups have been involved in policy making since the 1940s, but their role has been growing particularly since the 1970s. At the same time, “there is evidence that the civil service as a source of policy advice is declining” (Page & Wright, 2007). Also, due to the fiscal crisis of the 1980s and 1990s and other societal developments, public authorities “do not have the necessary capabilities to realize hierarchical interventions” (van Buuren & Eshuis, 2010). The ideal of more collaboration with stakeholders and of participation, where citizens become partners (rather than customers), is formulated as “governance.” The state acts as a “partner, animator and facilitator for a variety of independent agents and powers, and should exercise only limited powers of its own, steering and regulating rather than rowing and providing” (Rose, 2000). Governing is done “at a distance” (Rhodes, 1997) through regeneration and reactivation of the ethical values “that are now believed to regulate individual conduct and that help maintain order and obedience to law by binding individuals into shared moral norms and values” (Rose, 2000). Public administrators become less managers and more partners, who must be “responsive,” in the sense that they are “reactive, sympathetic, sensitive, and capable of feeling the public’s needs and opinions” (Vigoda, 2002), and stakeholder representatives are drawn into the sphere of state-policy processes as reflected, for example, by the concept of the “policy worker” (Colebatch, 2006).

**Toward Praxis/Discourse Formations of Knowledge in Public Policy**

Our understanding of formations of knowledge in public policy aligns with Reckwitz’s (2008) notion of “praxis/discourse formations” or Foucault’s (1995) power-knowledge formations. These formations consist of strategically interwoven discourses, institutions, actors, artefacts, and rules for the internal workings of public administration, or, from the per-

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7 Wildavsky (1979) does not rule out public participation in the “hybrid of social interaction and intellectual cogitation” that he calls policy advice, but expert knowledge plays a privileged role.

8 As a result of these forces, some commentators speak of a move of the organization of societies away from hierarchies toward “horizontal networks of connected, free and equal actors” (Turnhout, 2010; cf. O’Toole, 1997).
Table 1 Key differences among formations of knowledge in public policy.

| Metaphor               | Bureaucratic Formation | Managerial Formation | Communicative Formation |
|------------------------|------------------------|----------------------|-------------------------|
| Important forms of knowledge | Tacit knowledge of trained professionals; rules, procedures, and organizational structures | Explicit knowledge (reports) that is standardized, transferrable, storabe, applicable | Local knowledge that is multiperspectival, plural, citizen-originating |
| Relation of knowledge to context | Context-bound | Context-independent | Situational or “sticky” knowledge |
| Legitimacy through paradigm | Experience | Usability | Authenticity |
| Knowledge carrier | Well-trained, experienced, professional public servant | The “expert” (scientist, consultant, advisor, knowledge broker) | Citizen, partner, member of the public, stakeholder |
| Structure and concentration | Silos: centralized formal vertical hierarchies insulated from outside interference with knowledge segmented across units and staff | Hub and spokes: matrix and project structures cutting across organizational units, value- and paradigm-sharing communities | Networks: decentralized discursive communities with knowledge distributed throughout the network |
| Circulation | Relatively slow monodirectional vertical flows, predefined channels with limited points of input and output, hidden from criticism | Fast monodirectional flows, knowledge explicitly managed (capture, transfer, storage, retrieval, dissemination, application), mobile (e.g., international) | Interactive, fluid, ephemeral, multidirectional flows |
| Accumulation | Internal: slow accumulation through personal experience and filing, aggregation and translation into rules and procedures | Conversion of tacit knowledge into explicit, storing, capacity building | Co-production within social relationships, limited accumulation |
| Science | “Doctors” with ideals of prevention and cure, internally driven taxonomy of scientific disciplines, traditional quality control (peer review) | Social system separate from policy, problem- and application-oriented, inter- and transdisciplinary, different systems of quality control | Post-normal, participative, citizen-oriented, transdisciplinary |

In the following three sections, we highlight the specificities of each ideal-type formation from the perspective of knowledge characteristics such as purposes and patterns of circulation and use (see also Table 1).

**The Bureaucratic Formation**

The central metaphor of the bureaucratic formation is hierarchy. In a bureaucracy, knowledge is considered impartial and value free and is kept separated from politics (Scharpf, 1973). Two particular forms of knowledge dominate: On one hand, there is what Polanyi (1966) termed tacit knowledge, which referred to knowledge that is typically problem- and sector-specific, acquired by trained professionals through long-term experience in the service (the “professional bureaucracy,” see Lam, 2000). On the other hand, there is knowledge that is “encoded” and “embrained” in the (mostly explicit) rules, procedures, and institutional structures of a bureaucratic organization (the “machine bureaucracy,” see Bonora & Revang, 1993; Lam, 2000). Knowledge of these rules also represents “a special technical learning which the officials possess” (Weber, 1946). In both
of its aspects, knowledge is fragmented, distributed across functionally differentiated organizational units and staff in a “meticulous functional dissection and separation of tasks” (Bauman, 1989). The “practical and mental distance from the final product means…that most functionaries of the bureaucratic hierarchy may give commands without full knowledge of their effect” (Bauman, 1989). Of course, documents (“the files” of Weber, 1946 or “inscribed knowledge”) as artifacts containing explicit knowledge constitute a vital form of knowledge, but they also again bring into the foreground the required tacit knowledge of the professional in navigating, understanding, and interpreting.

In the bureaucratic formation, knowledge circulates primarily within the “policy silo” with few points of input and output, hidden from external actors, and vertically travelling upward where it becomes formalized and institutionalized. The focus of knowledge is the internal organization of the state rather than the social system the public policies are supposed to change (Pons & van Zanten, 2007). As we mentioned above, notwithstanding the slowly increasing role of think tanks and specialized research institutes since the 1940s and 1950s (particularly in decisions regarding security), direct contact between science and policy is not common and policy typically does not strongly influence research priorities.

The shortcomings of this formation relate to inconsistent knowledge production, duplication, and over-systematization (Kosa et al. 2008). Learning and transfer of experience across functional boundaries are difficult (Lam, 2000) and problems occur with respect to effectiveness and implementation, professional monopoly (i.e., technocracy), and innovation (Mintzberg, 1979).

**The Managerial Formation**

The central metaphor of the managerial formation is the market; this can be observed, for example, in the structural arrangements establishing competition among knowledge providers (Dunleavy & Hood, 1994; cf. the “neo-liberal pattern” in Halfman & Hoppe, 2005). In the managerial formation, converting tacit knowledge into explicit knowledge and making it independent of the context of its creation is the objective of a range of practices of evaluation and “knowledge management.” Knowledge is thus loosened from its constraints: it is made mobile, equipped with a functionality of its own, commodified as units that can be “stored,” “transferred,” “applied,” and subordinated to market principles. Under managerial principles, knowledge is understood as value free and objective, with preference for “numbers” (economic calculations, indicators). The key actor in this formation is the “expert,” who in practical terms is a scientist, advisor, or consultant. (This is not to imply that tacit knowledge shared by administrators is irrelevant in the managerial formation.)

The separation of knowledge production and knowledge use has led to interface problems: science produces knowledge that is not necessarily compatible with policy. Under the managerial formation, therefore, the sciences are restructured away from disciplinary boundaries toward a series of transdisciplinary narratives for the identification and explanation of new forms of “regulatory practice” (Rose, 2000). Also, to bridge the structural barriers between the social system of science and the social system of policy, a new economic function of “knowledge brokers” (also known as knowledge translators or knowledge circulators) is created.

Circulation of knowledge in the managerial formation follows project-like structures cutting across departmental boundaries. Knowledge flows, although still mostly one-way and linear, have more points of input and output to the outside than is the case for the bureaucratic formation. Actors, both within and outside of policy-making organizations, create communities that share values and paradigmatic orientations (epistemic communities, communities of practice, advocacy coalitions), thus the metaphor of “hub and spokes.”

Several potential shortcomings of this formation have been documented in the literature. The necessity of policy makers to possess skills related to knowledge transfer and analysis and interpretation of scientific findings (Ward et al. 2009) but also, more importantly, the increasing dependency of politicians on experts, resulting in displacement of politics, have been dubbed the “scientification” of policy (Weingart 1999). Values and interests are hidden behind what the policy process treats as objective and instrumental knowledge (where only what can be measured and assessed is counted), and enacting policy alternatives different to the ones proposed by “experts” is difficult (Dror, 1979; Nassueh et al. 2007). Other risks include access to the centers of power provided to science and creation of knowledge elites around expert knowledge (termed “ politicization” of science; Dror, 1979). When in this formation participatory practices are pursued, then scientific discourse has a privileged position in framing the problems or solutions and citizens often perceive the experts to hold views that stand in opposition to theirs own (Fischer, 2000; Cook & Pieri, 2004).

**The Communicative Formation**

The central metaphor of the communicative formation is the network. Knowledge is structured into decentralized and distributed networks, discursive
communities (Meppem & Bourke, 1999), and spaces where participants aspire to “engage in Habermas-inspired deliberations and achieve communicative rationality” (Turnhout, 2010; see also the deliberative patterns of organizing public expertise in Halfmann & Hoppe, 2005). Thus, specific types of knowledge are deployed and recognized, such as citizen knowledge, indigenous knowledge, local knowledge, and community knowledge. The dominant form of knowledge in the communicative formation therefore embraces multiple perspectives that represent different histories, values, and norms. Such knowledge is, on one hand, hardly separable from the context of its co-creation and difficult to transfer to and apply in different contexts (these properties have been included in the term “stickiness of knowledge”), but, on the other hand, it is also situational, fluid, and ephemeral. It circulates in interactive and multi-directional flows. Its primary carrier is the citizen, partner, member of the public, or “stakeholder,” linked to policy through participatory and consultative practices. Media are also important, with significant effects on the discursive influence of individual actors and coalitions. For administrators, skills of “persuasion, incentivisation and other forms of mobilization” are relevant, and “senior officials become ‘network managers’ rather than the wielders of public authority” (Page & Wright, 2007).

In the communicative formation, science is understood as a “cultural, social activity permeated with values and preferences” and as such “not essentially different from other cultural practices—including policy—[having] no privileged, unmediated access to the truth” (Turnhout, 2010). To maintain public legitimacy and reflect the problem orientation of regulatory practice, science in the communicative formation adopts plurality, pursues democratization by involving the public in various steps of the production and use of scientific knowledge (i.e., achieving co-production of knowledge), and attends to the interface between science and society. To describe these developments, scholars increasingly use the terms “civic science” (Bäckstrand, 2003) and “democratic science.”

Complexity and steerability are among the key challenges in this formation, as is a range of participation-related issues such as integrating or reconciling competing knowledges. Of particular note are the participation barriers that potentially exclude large groups, so that “[a]ctors who do not fit the requirements or expectations, who lack the skills and competences to use information or participate in knowledge production, or who wish to refrain from involvement will become effectively marginalised” (Turnhout, 2010).

Findings and Discussion

This section is structured in the following manner: In the first subsection, we present our findings on organizational contexts of participating policy makers that focus on representation of the three ideal-type knowledge formations across EU SFC policy making. Then, in the second subsection, we present the attributes of the JRA development process that we sought to develop in our design choices. The third subsection discusses how the JRA development process related to the organizational contexts of its participants. It also describes two types of challenges that we encountered: 1) those related to the structural differences between science and policy, and 2) those related to our ability to achieve a tighter fit between the process and contexts. The fourth and final subsection briefly opens up discussion of other factors in the JRA reception.

Knowledge Formations in European SFC Policy Making: Organizational Contexts

An initial assessment of the European policy area of SFC suggests that the bureaucratic formation is the least represented, in particular because “widespread reliance by the state on extensive systems of scientific advisory structures [has] become an integral feature of environmental (and health) policy making in industrialized societies” (Rutherford, 1999). Several features indicate that the communicative formation is the most desirable formation in European SFC policy. Communicative formation entails “responsibilization” and commitment of nonstate actors, especially consumers (e.g., through building consumer awareness, teaching “food literacy,” development of competence to use product labels), a high level of cooperation and networking with all food-system actors where the government is expected to “stimulate and coordinate” (Reisch et al. 2011); and reliance on sustainability science, characterized by trans- and interdisciplinarity, public participation, and orientation on use and learning (Clark, 2007). Science is a significant driver of policy development in SFC, although the influence is often indirect. An example of such an indirect pathway is the “self-sufficiency” concept that first acquired recognition in the public before becoming the subject of policy debate (Reisch et al. 2011).
Table 2 Process stages and their attributes.

| Stage                                      | Key Features                                                                 | Formation Supported       |
|--------------------------------------------|------------------------------------------------------------------------------|---------------------------|
| 1. Scoping interviews with researchers,    | Stocktaking oriented on policy relevance                                     | Managerial                |
| initial topics                             | Equal footing of participants (although policy makers are in a slightly       | Managerial (more strongly)|
|                                            | prominent position as their needs are placed in the foreground);             | Communication (less strongly)|
|                                            | controversial opinions welcome; interaction without enforced structure       |                           |
| 2. First interactive session (“World Café”)| No distinct process criteria or framing; participants as individuals rather  | Communicative (weakly)    |
|                                            | than representing their organizations                                        |                           |
| 3. First draft, online feedback round,     | Framing from the perspective of a research donor;                           | Managerial (more strongly)|
| second draft                               | rest as Stage 2                                                              | Communication (less strongly)|
| 4. Second interactive session              | Same as Stage 3                                                              |                           |
| 5. Third draft, second online feedback      | Run by policy-affiliated research institutes; weak political mandate; no      | Managerial                |
| round, final document                      | direct link to national priorities (i.e., bottom-up); international          | Communication              |

The preparatory survey (Gjoksi, 2010) and qualitative interviews suggest that two dominant context patterns are observable throughout the EU, but neither of them displays strong elements of the communicative formation. We describe the first pattern, seemingly prevalent in central, eastern, and southern European countries, as a continuing transition from a bureaucratic to a managerial formation. Knowledge seems primarily tacit and tied to professional public servants and organizational structures and procedures. Nevertheless, a number of managerial ideals and practices are already present. Interaction with the scientific community is rather occasional, unsystematic, ad hoc, and asymmetrical across organizational units. In other words, only some units have the appropriate mandate. When scientific input is sought, it is during policy or strategy development in particular.

The second pattern is characterized as the fully developed managerial formation with occasional communicative practices (cf. Hess & Adams, 2007) and is more typical for northern and western European countries. Systematic and close contractual interactions with special research entities within or outside of ministries (research institutes and agencies) are common. The intensity of coordination of research activities and priorities, frequency of interaction, and number of actors within ministries reached by distributed knowledge are also high. In the case where national ministries have their own research resources, contact with external academics is pursued less frequently. In addition, even though an increasing number of practices adopt features of the communicative formation (such as public consultation or platforms for representation of plural opinions), these tend to conflict with the functions and purposes of the managerial ideal, which maintain a hegemonic position.

Design of the JRA Development: Attributes of the Process

Although the project’s objectives, in response to the expectations of the EC, were oriented toward the managerial formation, we decided to pursue a hybrid form that includes a number of features that also support the communicative formation. Various scholars have suggested that knowledge brokerage can also facilitate the communicative formation through the creation of platforms and spaces where multiple categories of knowledge and stakeholders can come together (see, e.g., the social-change framework by Oldham & McLean, 1997; Cash et al. 2003; Fisher & Vogel, 2008; Sheate & Partidário, 2010). Along with these scholars we suggest that criteria of a successful knowledge-brokerage process can thus reflect also the features relevant to the communicative formation: the range of stakeholders involved, use of different types of knowledge, and exchange of knowledge in a non-normative environment.

We pursued a range of design choices combining aspects of both the managerial and the communicative formations (see Table 2), striving primarily to achieve orientation on policy needs and an open and balanced interaction between policy makers and researchers. We chose to increase the representation of communicative features on three grounds: its precepts are close to the normative principles of sustainability; its capacity to involve policy makers in a process with communicative attributes could provide resources and experience that empower them when they initiate new practices in their organizations; it can provide a counterfactual source of data even when not successful, since the communicative formation is not dominant.

A number of design choices and process features indicate the ability to bridge the structural differences
between the social systems of science and policy and achieve a sufficient fit for both the managerial and the communicative logics. Our process was conducted as part of an EC-funded knowledge brokerage project (run primarily by an international academic consortium) and policy makers perceived it to be part of a larger stream of European-level policy initiatives on sustainable consumption.

**Fit Between Context and Process and Achieving Outcomes**

The open and balanced interaction between policy makers and researchers seems to have been a unique experience for many participants, particularly policy makers. The evaluations immediately following the two workshops indicated a high level of satisfaction of the participants with the design of the sessions. A total of 85% of policy makers participating in the first workshop and 100% of those participating in the second event were “very satisfied” or “somewhat satisfied.” This compares with 75% and 100% of the researchers, respectively. The needs of other stakeholders were apparently least successfully addressed (50% in both workshops).

Nevertheless, the achieved outcomes of the JRA were relatively modest across both of the observed context patterns (i.e., transition from a bureaucratic to a managerial formation, and highly developed managerial formation with elements of the communicative formation). The process was useful for sharing national policy practices and collecting ideas, but its influence on patterns of interaction between policy makers and researchers was very limited. Even though we reached the community-building goals (for example, in the second workshop 81% of participants developed new contacts to representatives of different communities), we did not observe tangible outcomes such as new policy-related initiatives and partnerships or changes in knowledge practices one year later. Policy makers did report using the JRA document as one of many sources of background information, in particular during the “windows of opportunity” when ideas for new policies are sought.

We theorize that the reasons for the modest outcomes reside in two main areas: the difficulty of overcoming the structural differences between the social systems of science and policy and insufficient fit between how the process was designed and the organizational contexts of participants (primarily policy makers).

The structural differences between science and policy are used as the main argument for knowledge brokerage. These differences have been examined from a number of perspectives in the literature, including incentive structures, working cultures, time horizons and languages, and discourses (see e.g., Caplan 1979; Choi et al. 2005; Clark & Kelly 2005; Mitton et al. 2007; EC, 2008), as well as perspectives on salience, credibility, and legitimacy of knowledge (Cash et al. 2003). For our research, the differences in working cultures is the starting point, as our interpretive analysis provides some additional insights on the organizational contexts of policy makers dealing with SFC. Our results suggest that the robust structural conditions—in the form of procedures and practices, discourses, and hierarchies—that shape and constrain the work of policy makers stem from the needs of national governments to address challenges and forces originating within the policy machinery as well as in the societal and natural contexts. Individuals are situated in positions where relaxation of these constraints is difficult to achieve. The social settings in which policy makers are situated are characterized by intolerance to failure and a resultant reluctance to experiment. As their work requires higher responsibility, is woven into the robust flows of political and policy processes, and is based on a political mandate from the public, they see it as more consequential than that of academics, who seem to face less restrictive conditions in their daily work.

A constantly reappearing motive, especially pronounced in managerial contexts, is “issue prioritization.” This is a practice of estimating the relevance of encountered problems, thus giving them “strategic” meaning—precondition for processing and formulation of an appropriate response by the policy system. The national political agenda has much greater weight than international processes not directly related to domestic priorities. Our project was linked to international processes and it dealt with the large geographic scope of the entire EU in a rather abstract way, which further increased the distance between the JRA and the hierarchies of national priorities relevant for participating national policy makers. As a result of these structural differences, the policy makers came to regard our process as an “academic exercise” and, thus, lacking gravitas. The main outcome was a successful “sharing of national experience” through interaction with other policy makers and the researchers, rather than more tangible and use-oriented outcomes.

The second reason for the modest outcome is that achieving a fit between the process and the context also proved difficult. On one hand, for policy makers from contexts characterized by transition from a bureaucratic to a managerial formation, interaction with researchers tended to be novel and stimulating. In their organizations, contact with research tends to be the responsibility of specific constituent units and the research findings they encounter often have not been formulated with policy use in mind.
They tend to see sharing policy experience as beneficial (since the professional plays a large role as a carrier of knowledge). On the other hand, to achieve significant learning outcomes our process did not sufficiently match the complexity required by the bureaucratic fragmentation of knowledge. Such a match can be achieved outside of the organization by, for example, ensuring participation of “the right” people in the process, but adjustment can take place within the organization as well through development of procedures for the involvement of several departments, coordination, and assignment.

More frequent interaction with researchers has a certain influence on how policy makers from contexts that are primarily managerial, but with communicative elements, relate to scientists. The asymmetry created through separation of knowledge production and knowledge use results in policy makers feeling incompetent to judge the quality of scientists’ work while also expressing the need to defend the quality of their own work. Nevertheless, in this respect, there is a difference in how policy makers treat “their” researchers (typically working in subordinated units, institutions with framework contracts, or other public agencies) and “external academics.” The burden for achieving alignment of research priorities resides within the organization as well through development of procedures for the involvement of several departments, coordination, and assignment.

Figure 3 Conceptual model revisited.

Broadening the Picture

Our understanding of organizational contexts and the science-policy interface is somewhat related to “decision regimes” (Lindquist, 1988), the differentiation between “science push” and “demand pull” (Landry et al. 2001), and the classifications of the interaction of science and policy by Weingart (1999) and Halffman & Hoppe (2005). Our research focused on variables representing the organizational contexts of the participants and the JRA development process (see the section Theoretical and Methodological Framework) and tried to explain the observed outcomes on the basis of the fit between the context and the process. It is nevertheless clear that these are not the only factors affecting outcomes. At this stage, we can only speculate on the relative weight of other factors in the reception of the JRA, but nonetheless we can revisit our conceptual model (Figure 2) and open up space for other factors. Figure 3 shows that factors not included in our understanding of organizational contexts and the process of research-agenda development could be included in the model.

Were we to describe our endeavor with respect to the mentioned literature on the reception of scientific knowledge, the JRA process would be closest to the “interactive model” (Weiss, 1979b), since a more complex interaction and mutual influence between science and policy typically includes pooling of skills and understandings without scientists dominating the process. Therefore, the categories of “science push” (a linear model in which science generates evidence leading to policy change) and “demand pull” (another linear model in which knowledge demand by policy leads to new scientific knowledge) do not generally apply (Landry et al. 2001). Rhythms and stages of national policy processes, as well as policy priorities

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10 Literature on the reception of scientific knowledge and the role of evidence in policy making takes on a number of other perspectives, including “streams of activity” (Kingdon, 1995), the type of politics associated with a particular policy-making stage or policy issue (Wilson, 1980), different uses of knowledge (Weiss, 1979b), leadership, and discursive legitimacy of knowledge claims based on values and metaphors embedded in arguments or storylines.
or discourse coalitions, would be among the “other context variables” in Figure 3.

Conclusion

In the context of a knowledge-brokerage project on SFC, we facilitated the development of a joint-research agenda with the aim of better aligning research priorities with policy needs and of supporting evidence-based policy making. We expected that designing the process to more effectively accord with the organizational contexts of participating policy makers would lead to stronger outcomes in the uses of the JRA document and with respect to change in practices and engagement on new initiatives. We identified two sets of challenges. The first set, most prominently evident in the managerial formation, was related to the structural differences between the social systems of science and policy. The scientific character of the project consortium and the international context were particularly difficult to address and increased the distance of the process from national priorities. Another challenge was related to the limited independence of individual policy makers within their contexts and their resultant reluctance to experiment. A single exercise does not appear to have the potential to induce significant change under these conditions. To enhance the success of knowledge-brokerage processes in general and alignment of research priorities in particular we recommend linking up with the rhythms of national policy processes and reflecting on the framings of national issues and their prioritization. Nevertheless, SFC as a policy area is not yet fully institutionalized in most EU member states, and also lacks an integrated strategic approach. Knowledge brokerage thus has an additional challenge of establishing a link to framings and issues that are yet to be built on an established SFC policy base, and of promoting an integrated approach and facilitating policy coordination.

A second set of challenges relates to the characteristics of the formations of knowledge and their fit with the knowledge-brokerage process. We recommend that, when dealing with a bureaucratic context, the process should strive to match the complexity imposed by the functional fragmentation of knowledge. When dealing with a managerial context, there are three primary challenges: an orientation on direct functionality of the process for policy, a need for the immediate usability of scientifically credible knowledge for regulatory practice, and a recognition of the efficiency of the process. Breadth of participation, process transparency, and stakeholder accountability are the main areas of concern for a knowledge-brokerage process linking to a communicative context.

We have shown above that the communicative formation seems to be desirable for the policy area of sustainable consumption. The outstanding questions are how change among formations happens, how knowledge-brokerage processes can foster such a change, and what other factors need to be considered when designing such processes. This article looks at organizational contexts (knowledge practices, hierarchies, and discourses) as results of longer-term historical developments, but does not explore the role of knowledge brokers in these transitions. We suggest that organizational contexts influence the potential success of knowledge-brokerage practices, but perhaps their relationship can be reversed as well. Through learning and empowerment of policy makers, knowledge brokers might have the capacity to influence the character of knowledge practices in the policy machinery.

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Appendix: CORPUS Joint-Research Agenda on Sustainable Food Consumption (abridged)

Strategic Objectives of the Research Agenda
While there is no broadly accepted definition to date, several attempts to clarify and sharpen the concept of sustainable food consumption (SFC) have been made. Depending on the thematic focus—environment and climate, public health and life expectancy, malnutrition and critical access to food—definitions differ. As a result, current strategies focus on single issues independently (e.g., childhood obesity)—but there is a need for an overarching policy review that tackles the full range of unsustainable food production and consumption drivers. Developing such integrative strategies and identifying the most sustainable way to ensure the nutrition of the world’s current and future populations, however, requires further research.

The research agenda aims to develop and suggest a path of present and future research needs to help achieve SFC in Europe. Our objective is therefore to show the most pressing and urgent issues in the SFC domain, and to draw the attention of EU-based research for supporting, consequently, evidence-based policy making.

The scope of the research agenda regards the domain of SFC. Our project is on SFC, and although many topics from the production side have been covered, the focus of the research agenda remains on consumption. The geographical scope of our effort is Europe and, more precisely, the EU27 and beyond.

Themes of Research in Sustainable Food Consumption
Four areas of research have been identified to define the major fields where SFC research should converge to meet the major challenges of SFC.

1. Sustainable food-supply chains
2. Sustainable diets
3. Drivers of food consumption
4. Policy issues and knowledge brokerage

Each of these themes has received special attention and extensive reflections during the different rounds that constituted our work. For each of these themes a number of “hot topics” have been identified for research. Therefore, a deeper level has been defined selecting “knowledge needs” as urgent issues for future research in the coming years.

Sustainable Food-Supply Chains

| Hot Topics                  | Knowledge Needs                                                                 |
|-----------------------------|--------------------------------------------------------------------------------|
| Local food and sustainability| • Social and economic benefits of local food initiatives to the local economy   |
|                             | • Environmental impacts of local food in a life-cycle perspective: trade-offs and synergies |
|                             | • Potential of local food initiatives in ensuring food security and influencing consumer attitudes toward sustainable food |
|                             | • Comparative analysis of conventional agricultural systems at European/global level and best practices |
|                             | • Importance of cultural and identity aspects in setting up local and national food initiatives |
|                             | • Convergences and divergences between "local food systems" and "geographical indications" |
|                             | • Spillover effects of local food systems (e.g., urban gardening) |
|                             | • Ways to develop the local economy on the basis of ecosystem services |
|                             | • Collection of definitions on national, regional, and local food |
| Transparency of the food-supply chain | • Integrated food sustainability label: is it possible and what are the limitations? |
|                             | • Different tools in use to provide information about the environmental impact of food consumption and their effectiveness in promoting healthy, sustainable behaviors |
|                             | • Development of methods and tools for sharing information about the environmental impacts of food throughout the supply chain |
|                             | • Environmental and social impacts of food imports into the EU |
|                             | • How to overcome fear of transparency of the supply chain |

Food waste

| Hot Topics | Knowledge Needs                                                                 |
|------------|--------------------------------------------------------------------------------|
| Food waste | • Mental, structural, age-related, and cultural reasons for food waste |
|           | • Innovative technology to support development of novel, healthy sustainable foods and processes, including quality of raw materials |
|           | • Quantities and types of food waste generated at all stages of the life cycle |
|           | • Potential of food-waste prevention in terms of avoided pollution, use of natural resources, and |
### Avoided Costs
- Evaluation of initiatives on food-waste prevention (e.g., awareness campaigns)
- Innovative technologies and innovative social organizations to reduce waste and increase recycling
- Food waste vs. health and safety regulations
- Using ethology for preventing food waste
- Food waste and byproducts as raw material for other manufacturing chains or as high-value molecules
- Identification of successful practical measures that people of the EU have undertaken and reasons for changing behaviors

### Retailers and Sustainable Food
- Environmental and social consequences of the spatial location of large retail stores
- Effects of organization of the food-supply chain on its environmental impacts—a comparison between member states
- Supply-chain synergies and overall coordination issues
- Transition processes: development of niches
- Retail concentration and its influence on food-consumption patterns across the EU
- The power of retailers to influence the environmental qualities of production and related success stories

### Holistic Approach to the Food Chain
- Research on cooperation in the supply chain to improve sustainability: good examples; preconditions; and ways of improvement
- Encompassing reflection of the supply chain (e.g., including transport, packaging, manufacturing, waste management)
- Food-system governance (social networks, role of civil-society actors, bottom-up approaches, relationships among actors along the chain)
- Analysis of the impact of EU multinational food companies in the South (e.g. imports, decentralization of production)
- Analysis of the configuration of actors and power in the food chain (e.g. concentration of companies, uptake of emerging models by major players, role of contestation and protest by civil-society organizations)
- Resilience of the food chain

### Sustainable Diets

| Hot Topics                           | Knowledge Needs                                                                 |
|--------------------------------------|-------------------------------------------------------------------------------|
| **Reduction of animal-based products’ consumption** | Role and potential of vegetarian and vegan diets to reduce environmental, health, and social problems |
|                                      | Impacts of meat consumption on climate, land use, biodiversity, water usage, and global hunger |
|                                      | Ways to shift the incentives/subsidies from meat/animal-based products to vegetarian/plant-based products |
|                                      | Investigation of drivers of animal-based product consumption (both in developed and developing countries) |
|                                      | Ways to promote less animal-based diets |
|                                      | Research into sustainable fish production (farm and wild) and instruments to support sustainable fish |
| **Sustainable and healthy diets**    | Key components of environmentally responsible, climate-friendly, socially fair, and healthy diets in different national/geographical locations (and global) across Europe and for different age groups |
|                                      | Linkages between nutrition science and sustainability |
|                                      | Mechanisms and incentives for adopting new behaviors toward a more plant-based diet |
|                                      | Provision of comprehensive and useful information on sustainable and healthy diets |
|                                      | Attitudes of different consumer segments concerning diet change |
|                                      | Understanding the trade-offs and synergies among all sustainability attributes |
|                                      | Needs of different consumer groups (e.g., age, social status) |
|                                      | Alternative diets: use of existing nutritional data for knowledge brokerage and ways to embed them in society (e.g., cafeterias, restaurants, schools) |
|                                      | Organic food |
| **Tackling obesity and overweight**  | Drivers of obesity and overweight and related national differences across the EU |
|                                      | Economic, health, social, and environmental costs of obesity |
• Best practices/programs to tackle obesity, overweight, and malnutrition in EU member states
• Identification of the individual costs of obesity (e.g., medical, psychological)

Food inequality
• Effects of increasing food prices on the most vulnerable social groups at risk of food poverty
• Role of education: in particular food storage, preparation skills, and understanding of healthy diets by different socioeconomic groups
• Access to and affordability of sustainable food for different socioeconomic groups
• Role of social innovation (e.g. “grow your own” and “community-garden” initiatives) in tackling food poverty and reconnecting people with food and where it comes from
• Identification of successful policy instruments and potential of their transferability
• Ways to enable businesses to supply food for sustainable diets
• Influence of (EU) politics and multinational firms on world hunger

Drivers of Food Consumption

| Hot Topics                        | Knowledge Needs                                                                                                                                 |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Consumer behavior                 | • Environmental, economic, and social impacts of different lifestyles and food consumption patterns  
• Main factors influencing the food choice of different socioeconomic groups  
• Role of education in shaping consumer behavior  
• Role of the media  
• Drivers and barriers to the uptake of pro-environmental behavior  
• Frameworks/tools for changing social norms and supporting bottom-up change  
• Basket research: different patterns of socioeconomic groups, needed shifts, and how a sustainable basket looks under budget constraints  
• Influence of food cultures on SFC  
• Research on media coverage of sustainable food  
• Description of sustainable food with best practices examples |
| Availability and affordability of sustainable food | • Affordability of sustainable food for different socioeconomic groups  
• Role of business in “making sustainable food the easy choice” and related success stories  
• Availability of sustainable food and related information to consumers in different consumption situations  
• Information to define what sustainable food looks like  
• New business models and alternative food networks  
• Labeling research |
| Sustainable public procurement (SPP) of food | • Scope for increasing the effectiveness of SPP to reduce negative impacts of the food chain  
• Different incentive schemes in use across the EU—and their effectiveness—to encourage SPP of food  
• The potential of SPP of food to meet EU greenhouse gas reduction targets  
• The effects of SPP of food on the availability and affordability of sustainable food for private consumers  
• Impact of EU procurement law on SPP |
| Contextual megatrends             | • Impacts of new food technologies and process and product innovation on food consumption  
• Price volatility: future governance and response of governments and the EU  
• Nutrition transition and related health problems (e.g., obesity, malnutrition)  
• Role of an aging population in changing food-consumption patterns, food systems, and global food trends  
• Challenges of urbanization and ethnic mixes to food-consumption patterns  
• Use of information technology to increase transparency and availability of information and for personal choice |

Policy Issues and Knowledge Brokerage

| Hot Topics                                    | Knowledge Needs                                                                                                                                 |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Policy coordination and governance           | • Effective models and mechanisms for the engagement of the business sector and civil society in the governance of sustainable food policies  
• Policy coherence on the topic of sustainable food at the EU, national, and regional levels (relationships and conflicts among different policy sectors/line ministries)  
• Stakeholder management (practices, routines): what are success factors and challenges and
| **Sedlacko et al.: Bridging the Science-Policy Gap** |
|--------------------------------------------------|

| **how to include contextual/framework conditions** |
|--------------------------------------------------|
| • Effective mechanisms and institutional models (e.g., examples, good practices, and inspiring examples) of horizontal and vertical policy integration pertaining to sustainable food: what kind of models are used, particularly taking into account reliability issues and cooperation with stakeholders |
| • Reevaluation of currently applied systems and policies: success factors, best practices, learning in the policy cycle |

| **Methods of policy research** |
|--------------------------------------------------|
| • Implementation of methods for policy-impact assessment and policy-effectiveness studies pertaining to sustainable food and how to make them attractive for policy makers |
| • Success factors of interdisciplinary research toward sustainable food policies, including practices and experiences with actual cooperation among disciplines |
| • Standardized methods for the comparative analysis of national sustainable food policies within the EU |
| • Coordination of research programs to maximize impact |

| **Knowledge brokerage** |
|--------------------------------------------------|
| • Information-transition management of available scientific knowledge for policy makers |
| • Differences of rationalities, needs, and objectives between research and policy making and how to deal with them; how best to translate research results for policy makers’ needs (e.g., information management inside the public administration) |
| • Best ways to communicate research results about conflicts and trade-offs among the environmental, social, and economic aspects of SFC |
| • Differences in cultural and organizational factors in policy-research interactions and how to overcome them |
| • Evaluation of the reliability of scientific knowledge (in the exchange between policy makers and researchers): meta-analysis of scientific findings in the form of a systematic overview |
| • Role and influence of intermediary institutions (e.g., think tanks, consultants) in the policy-making process, particularly on the EU level |
| • Knowledge management of policy makers: finding and applying the “right knowledge”; definition of quality criteria for knowledge brokerage |
| • Innovative ways to link research to policy making and related success factors |
| • Easy accessibility and usability of database(s) research findings for policy makers |
| • Knowledge management about future developments—using scenarios and visioning processes |