



## Review

## Advancing sustainable consumption at the local government level: A literature review



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## ABSTRACT

The consumption of goods and services can be a driver of environmental and social impacts around the world. Understanding the role that the different levels of government can play in incentivising sustainable consumption is therefore critical. Using systematic review techniques, this paper reviews the latest evidence on the importance, effectiveness, successes and failures of local government in advancing sustainable consumption. We find that there is little focus on sustainable consumption in its entirety or whether it is being achieved at the local government level. Important consumption categories like food, procurement, water, waste prevention, clothing, other consumables or services are understudied. Evaluation of the outcome of sustainable consumption interventions was limited, and the assessment that was completed gave mixed results. The most popular policy instruments were of the less coercive administrative and informative type. Multiple barriers to the success of an intervention were identified, the top ones being funding; staff capacity, knowledge or data; lack of flexibility and lock-in to the status quo; lack of guidance or political will; administrative burdens; and lack of regulatory powers or tools. Sustainable consumption interventions by local government were most effective when they had strong leadership, good stakeholder engagement, participatory approaches and extensive consultations.

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## 1. Introduction

One of the greatest international sustainability challenges is overexploitation of resources and increased levels of pollution linked to ever-increasing consumption (European Environment Agency, 2015; OECD, 2011). Present consumption patterns in developed countries are unsustainable, with an overconsumption of raw materials and energy and creating unmanageable levels of hazardous waste (Lorek and Vergragt, 2015).

There is a need to radically reduce the resource and pollution intensity of everyday lives and sustainable consumption is seen as essential to meet this goal (Mont and Plepys, 2008; Vergragt et al., 2016). A sustainable consumption agenda has been gradually built up at the international level, through Agenda 21 (1992 Rio summit), the UNEP-led Marrakech process (2003), the 10 Year Framework of Programmes (10YFP) on Sustainable Consumption and Production (SCP),<sup>1</sup> as well as the global 2030 Agenda for Sustainable Development, particularly in Sustainable Development Goals 8 and 12 (United Nations, 2015). At the national level, some countries such as Sweden and the UK have adopted national-level sustainable consumption strategies (Defra, 2003; Government Offices of Sweden Ministry of Finance, 2016).

It is, however, the local government level that is the focus of this research. As the Global Taskforce of Local and Regional Governments<sup>2</sup> has recognised, cities and municipalities are essential for achieving sustainable consumption. However, there appears to be a lack of clarity on how this should or can be done at the local government level. Sweden, arguably a leader in this area, highlights the need for clarification of responsibilities and the direction of work by government agencies at different levels for the Sustainable Consumption Strategy (Swedish Environmental Protection Agency, 2015). It is increasingly recognised that sustainable consumption cannot be achieved by consumer action alone and that government interventions are essential for shaping discourse, norms, incentives and infrastructure (Prothero et al., 2011; Wolff and Schönherr, 2011). However, much of the existing literature on sustainable consumption, discussions on the role that “governments” must play rarely specify the level of government, or just assume it is national government (Geels et al., 2015; Lorek and Fuchs, 2013; OECD, 2008). Similarly, the majority of reviews of governmental policies or interventions for sustainable consumption focus on the national level (Bennett and Collins, 2009; Geyer-Allély and Zacarias-Farah, 2003; Lehner et al., 2016). The specific role of local government is little discussed in this context, aside from selected case studies that explicitly address the issue (e.g. Pape et al., 2011). This lack of evidence is reflected in recent calls for a better understanding of the action for sustainable consumption that can be taken across governmental levels (Vergragt et al., 2016).

In contrast, there are extensive bodies of literature on related topics, such as multilevel governance of climate change and the role of cities (e.g. see review by Betsill and Bulkeley, 2007). This research continues with a recent special issue on advancing the role of cities in climate governance (van der Heijden et al., 2018). Whilst much

can be drawn from this, sustainable consumption presents new and distinct challenges for local governments, requiring them to think not only of emissions within their region, but consider those environmental impacts that are produced elsewhere, along-supply chains that ultimately support their consumption (see C40 Cities, 2018 for an illustration of the additional scope of consumption-based accounting).

In practice, there are a variety of sustainable consumption initiatives underway at the local government level<sup>3</sup> with several local and regional governments taking action to promote both sustainable public procurement and sustainable lifestyles among their residents (Global Taskforce of Local and Regional Governments, 2018). However, evidence on what makes an intervention effective at the local level is sparse and there is limited insight into what roles local governments currently play in facilitating sustainable consumption or should in the future. As Wolff and Schönherr (2011) emphasise, a necessary precondition of government intervention for sustainable consumption is to systematically assess the effects of current instruments and to figure out drivers and barriers to their success. Further to this, without a level of reflection there is limited opportunity for sharing insights, delivering policy-relevant research and evidence, or providing necessary data and tools for monitoring and evaluation. This paper aims to begin to fill these gaps by completing an extensive literature review of the latest research findings on the role and influence of the local governments in addressing sustainable consumption. To examine this, we pose the following questions for this review:

1. How is sustainable consumption defined at the local government level?
2. What types of instruments have been used within an intervention to promote sustainable consumption at the local government level (administrative, economic, informative, research and development, public ownership/investment or networking instruments)?
3. Have these interventions been evaluated and, if so, how were they deemed successful?
4. What have been the barriers to and success factors for implementation of sustainable consumption interventions by local government?

This paper proceeds as follows: section 2 provides background to the definition and dimensions of sustainable consumption relevant to this review, along with local government authority and policy classification used in this study; section 3 explains the methods applied; section 4 presents the results; and section 5 discusses the results and reflects on their wider implications, with conclusions in section 6.

## 2. Sustainable consumption and government interventions

This section sets out the working definitions and dimensions of sustainable consumption that frame this study, along with the

<sup>1</sup> <http://esa.un.org/marrakechprocess/tenyearframework.shtml>.

<sup>2</sup> <https://www.global-taskforce.org/>.

<sup>3</sup> For examples, see the 10YFP One Planet Network's global database of SCP projects: <http://www.oneplanetnetwork.org/initiatives>.

framework used for understanding and classifying different types of government interventions.

### 2.1. Defining sustainable consumption

Despite the increasing attention at international policy levels, a consensus on what sustainable consumption is or should be has been difficult to achieve (Jackson, 2014; Mont and Plepys, 2008). One early working definition was first put forward in 1994 at the Oslo Roundtable on Sustainable Consumption and Production:

... the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations (Ofstad et al., 1994 p 10).

However, as numerous authors acknowledge, sustainable consumption remains a very broad and often ill-defined term (Banbury et al., 2012; Verplanken and Roy, 2015), with a wide variety of meanings such as consuming differently, moving from consumption of material-based products to services, energy conservation, sharing products, and using higher-quality products with longer lifespans (Lorek and Vergragt, 2015). Jackson (2014) groups several definitions into categories, highlighting differences between those that focus on the role and behaviour of consumers; those that focus on production processes and consumer products; and some which appear to deliberately try to conflate the two. Differing definitions developed since 1994 take a variety of positions on the level of emphasis that should be placed on consumers, lifestyles and consumerism, and whether they imply consuming more efficiently, consuming more responsibly, or simply consuming less (Jackson, 2004).

In this study we focus on local governmental interventions that tackle sustainable consumption and therefore promote *strong sustainability* (Fuchs and Lorek, 2005), by which we mean those that address levels and patterns of consumption, not only efficiency savings. Numerous studies report on efficiency improvements to technologies or industries, but these changes in efficiency can be easily outweighed by increasing consumption and hence produce little or no net overall change in environmental pressures. The review was therefore limited to interventions that support strong sustainability.

### 2.2. Dimensions of sustainable consumption

A frequent source of debate, and occasionally confusion, is the question of consumption of *what* and *by whom* (Jackson, 2014). The *whom* here is the consumer of a product (a householder or government procurement office) and the *what* is any goods or service purchased. Some definitions may include the consumption of services and recreational activities, defining consumption in economic terms, or others may limit it to physical goods.

With these depictions, consumption can include a vast range of goods and services, encapsulating every item that a household or government purchases (clothing, food, energy, fuel, recreational activities, office materials, building materials, insurance, consultancy services etc.). For these 'end consumer' groups, the dominant categories of impact are usually transportation, energy use for heating, and electricity and food, with other items grouped into categories such as clothing, other household items or services (see Curry and Maguire, 2011 or; Druckman and Jackson, 2010).

In some cases, a business may be thought of as an (intermediate) consumer and they explore what they purchase as inputs to their

production process. When looking at businesses, typical dimensions of consumption with higher environmental impacts include typically high areas of expenditure like water or waste treatment (see e.g. Berners-Lee et al., 2011). For the analysis of sustainable consumption at the local level, any categorisation should capture a mix of those dimensions that are important for households and businesses, as well as any unique to local government's own operations, such as public procurement (purchasing of goods and services).

### 2.3. The authority of local government

This study focuses on the sustainable consumption interventions that can be employed by local government bodies, either internally (e.g. in their administrative procedures or through procurement) or externally through their influence on other organisations and residents in their region. It concentrates on interventions made by local government, either using single policy instruments, or a combination. In addition, for analysis purposes it is important that the local government authority and interaction with other governance levels are considered.

Many policy instruments require action and enforcement at the local level, either by individuals or businesses making choices in their local environment, or by local government. The role that local government can or does play in facilitating sustainable consumption will depend on its authority, and this varies between jurisdictions. For example, models of local government range from a clientilistic/patronage model, with strong political leaders that generate benefits for the local community (typically Southern Europe), to a focus on promoting economic growth (US, Canada or Australia for example). Alternatively, some local governments have a model that is based on direct provisions of welfare services, such as Germany, the Netherlands, the United Kingdom and Scandinavia (Lidström, 1998). The models may also change over time, as Lidström (1998) discusses, such as welfare-state models in the U.K. and Scandinavia moving towards market-enabling models, where the local government provisions services via private firms and non-profit organisations, or taking on aspects of the economic-development model. Under these different models, the local government role, responsibilities and agency may vary; they may be planners, procurers, an enforcing authority, funders or informers. In some cases, as major procurers, local governments may have the opportunity to act as good role models for sustainable consumption and influence the markets towards sustainability through their procurement (Lukkarinen et al., 2016; OECD, 2008). They will also interact with other levels of governance to varying degrees. For some, vertical interactions between higher governing bodies at international, national and regional scales will have most influence, and for others it may be horizontal collaborations with actors of the same level, such as other municipalities, networks or stakeholders (Hooghe and Marks, 2003; Stephenson, 2013).

### 2.4. Classifying policy instruments

In certain models of local government, the government might be expected to intervene little in consumer choices, leaving this to markets. However, evidence suggests that government intervention is in fact vital for designing and shaping the context within which consumers act (Jackson, 2004; Wolff and Schönherr, 2011); providing incentives through regulation or legislation, locking-in certain types of behaviours through infrastructure or planning (Sanne, 2002), or engaging or informing are just a few types of such activities. These different activities make use of public policy instruments. For the purposes of this paper we adopt Bemelmans-Videc et al. (2011) definition of policy instruments as follows: "a

set of techniques by which government authorities wield power in an attempt to secure support and effect social change". This definition covers instruments of external policies which are aimed at behaviours of citizens, as well as instruments of policies internal to the local government administration.

Several typologies have been proposed to group different types of policy instruments e.g. Hood (1983); Howlett (2011); and Schneider and Ingram (1990). To identify different types of local government policy instruments this study uses the typology adopted by the Swedish Environmental Protection Agency (SEPA) which identifies economic, administrative, informative, and research and development (R&D) instruments (SEPA, 2012; SEPA and Swedish Energy Agency, 2007); see also Persson (2007); Jordan and Lenschow (2009). 'Economic' instruments are mainly taxes, tax allowances and relief, grants and charges; 'administrative' instruments are rule- or regulatory-based instruments, spatial planning and long-term agreements, surveillance; 'informative' instruments include indicators, communications, awareness campaigns, education, and nudging; and lastly, R&D instruments include research and demonstration of systems. This classification covers a broad set of interventions and is aligned with recent national studies (Persson et al., 2015).

### 3. Method

To perform this literature review we adopted some principles from systematic review and mapping (Haddaway et al., 2015). Systematic reviews have been established in medicine since the 1990s (Higgins and Green, 2011) and have been translated to various other fields including international development and environmental management (Berrang-Ford et al., 2011; Pullin and Stewart, 2006). They are becoming the gold standard for synthesis of both qualitative and quantitative evidence (Walker, 2007). Systematic reviews not only draw out existing knowledge, they can also clarify controversies and identify evidence gaps or clusters (Haddaway and Pullin, 2014). This makes the systematic review approach a powerful and effective method for reviewing literature in a comprehensive and transparent manner, that minimises bias.

Systematic reviews follow a series of strict guidelines<sup>4</sup> to minimize the influence of subjective judgement and to ensure that the process is repeatable and as comprehensive as possible (Collaboration for Environmental Evidence, 2013; Haddaway et al., 2016). As a result, they can be very time-consuming. However, by taking the lessons learned from systematic reviews given in Haddaway et al. (2015) we were able to develop a simplified process that still captures many advantages of systematic reviews, including: a low risk of bias; repeatability and increased procedural objectivity; consistency; comprehensiveness; and transparency. We hereinafter call this a 'systematic review approach'. This approach comprised the following steps, the full details of which are given in supplementary information, SI: A:

- (1) **A method plan:** outlining the review questions to be addressed, parameters and criteria for selection, searches, screening and synthesis process in a protocol;
- (2) **Search strategy:** using multiple databases with carefully designed search strings to increase comprehensiveness and avoid bias in document inclusion;
- (3) **Screening against criteria:** screening all search results using pre-defined inclusion criteria, documented in the method for transparency and repeatability;

- (4) **Screening cross-check:** undertaking literature screening by multiple reviewers (four reviewers were involved in this study) to check for consistency;
- (5) **Coding selected documents:** coding, describing and synthesizing the documents in a transparent and consistent manner, using a standard coding form;
- (6) **Describing the process:** providing a detailed description of the method and full supplementary information to ensure transparency and repeatability.

In brief, firstly, we established a review protocol across the research team. We then determined the two main search concepts for this study based on our research questions: (1) *sustainable consumption* and (2) *local government*. A search string of all possible synonyms to these two concepts was created (SI: A Fig. 1 and Table 2) and applied to the Web of Science (WoS) and Scopus databases. These databases were selected as they are among the most comprehensive, current and powerful tools for investigating the scientific literature.

The search was limited by the following basic conditions (referred to as the setting): the search period was limited to 2012–2016, in English, and focused on events after 1992. This cut-off reflects the origin of the policy field of sustainable consumption at the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil). The geographical focus was limited to countries in the OECD,<sup>5</sup> to concentrate the study on those countries with higher incomes and therefore typically higher consumption-based environmental pressures (Hertwich and Peters, 2009; Wiedmann et al., 2015). This delimitation also allowed the study to focus on certain types of government models typical of OECD countries (Lidström, 1998) with similar roles and agency of local government.

To select documents relevant for our research questions we then applied a set of selection (eligibility) criteria (SI: A Table 3 study eligibility criteria). Firstly, we specified which actors we are interested in, in this case local government. More specifically, the criteria were only those studies where the local government had an active role, participating somehow in the intervention, as opposed to just an observational or passive role. Several studies where the local government was just a recipient of data or mentioned when technology was analysed were excluded.

The second criterion was the type of intervention that the study considered. In this case, we selected only those studies where the intervention was associated with *strong* sustainable consumption, meaning that any studies focused solely on technological efficiency gains were excluded, leaving only those that had a specific focus on consumption levels or patterns. This focus on active interventions also meant that all the studies included had an empirical component to examine the results of an intervention. This ensured that data could be gathered on the actual outcomes of interventions. Any studies that only put forward suggestions for local government role in driving sustainable consumption or ideas for policy measures without an analysis of their actual implementation were not included. Papers that were theoretical were only included if this theory was applied and the results of an intervention therefore reported. Thirdly, we specified the study subject that the intervention targeted, which could be either local government themselves, households or businesses, and any dimension of sustainable consumption (food, transport, housing etc.). Overall, setting out and adhering to these criteria for selection, ensured that we could answer the research questions posed for this study. From very

<sup>4</sup> See: The Collaboration for Environmental Evidence, [www.environmentalevidence.org](http://www.environmentalevidence.org).

<sup>5</sup> <http://www.oecd.org/about/membersandpartners/list-oecd-member-countries.htm>.



broad search terms we could identify those specific studies that have analysed the role of local government in driving forward (*strong*) sustainable consumption.

Once selected, the studies were then coded for analysis. We first coded all articles according to their basic citation information, they were then coded based on content: which actors were involved and where (actors); short intervention description and the policy instruments applied (intervention); whether sustainable consumption was explicitly mentioned; what other framing of consumption was used; the dimension of consumption (study subject). We then looked at various outcome measures including: the type of evaluation, impact/outcome, success factors or barriers to successful implementation (see SI: A Table 4 coding structure).

Lastly, we analysed the data from the selected studies. A narrative synthesis was performed to describe the context and overview of the evidence, and tables were constructed from the data coding forms. A qualitative approach was applied to synthesize the evidence on the outcome measures, focusing on research questions (3) and (4): Have these interventions been evaluated and, if so, how were they deemed successful? What have been the barriers to and success factors for implementation of sustainable consumption interventions? Here an inductive approach (Fereday and Muir-Cochrane, 2006; Thomas, 2006) was used to identify emerging themes in the outcome measure categories. All the resulting data were then collated to examine the findings of recent scientific studies into how local government advance sustainable consumption.

## 4. Results

### 4.1. Selected studies

An illustration of the entire study selection process from initial searches those studies put forward for data extraction and coding is provided in Fig. 1. A total of 10,562 documents were retrieved from the initial search strings. Screening against the inclusion criteria resulted in a final set of 61 documents being put forward for full review, data extraction and coding. See SI B for a full description of the document selection process and the list of documents that were screened at full text and those included and excluded thereafter. Note – some documents are excluded on one or more criteria, hence subtotals do not add up to totals.

Initial descriptive analysis of the 61 studies showed that 20 of the 35 OECD countries were represented (SI C Table 5), either solely, or as part of a group of cases (some studies included more than one case). Northern Europe is most heavily represented. From these countries, over 130 individual municipalities or cities were investigated as cases, with one additional study that performed statistical analyses of 114 municipalities in Italy. In addition, two studies looked at 15 local communities within two municipalities in Canada and Norway.

### 4.2. Key findings

This section is a synthesis of the key findings of this study.

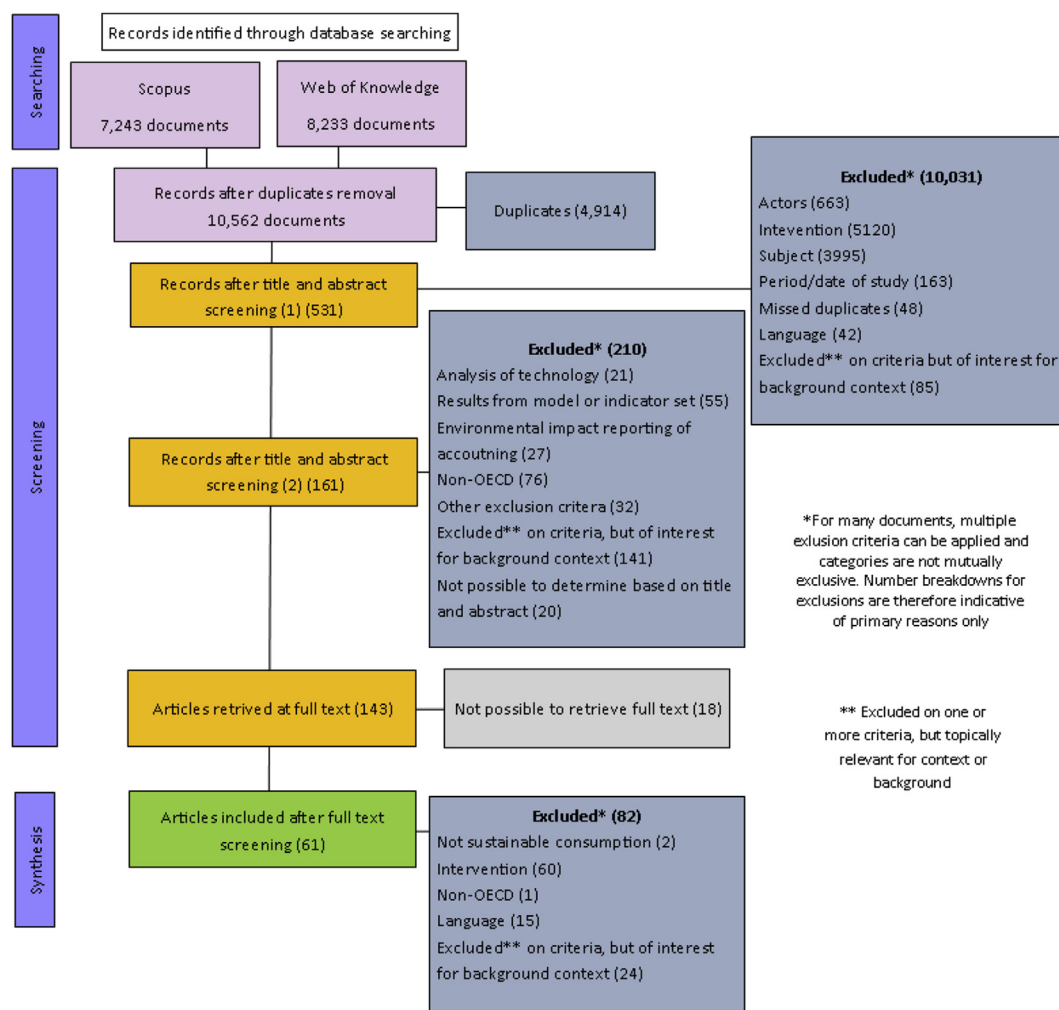


Fig. 1. Results of the document selection process, adapted from Haddaway et al. (2017)

Additional results tables with raw data are provided in SI C.

**Finding 1: few studies examine the specific role of local government in advancing sustainable consumption.** Only 61 studies out of 10,562 examined the specific role of local government in advancing sustainable consumption. This indicates that, given the parameters of this review, the active role of local government in supporting or driving sustainable consumption matters is little studied.

**Finding 2: sustainable consumption is not commonly used as an umbrella term.** Of the 61 studies reviewed, only 5 used the specific term ‘sustainable consumption’ (Aichholzer et al., 2013; Gustavsson and Elander, 2013; Hult and Larsson, 2016; Revell, 2013; Smith et al., 2016). For example “... for this reason, the promotion of “sustainable consumption” has entered the policy arena as an issue of high importance stimulating a variety of approaches to support shifts towards pro-environmental behaviour ...” in (Aichholzer et al., 2013). In all the other studies the term was not mentioned or was poorly defined. The remaining studies used the term ‘consumption’ in a variety of ways, most commonly as ‘energy consumption’, and other terms such as ‘consumption patterns’, ‘resource consumption’, ‘material consumption’ or ‘low-carbon consumption’. In some cases, literature on sustainable consumption was included in the references.

The lack of use of the specific term sustainable consumption indicates that it is rarely studied in its entirety. This is further explicated when we look at the dimensions of sustainable consumption that the studies focused on. Over half of the studies looked at only one dimension of consumption, typically energy or transport. Just over one third (36%) considered either two dimensions or took a low-carbon/general sustainability framing. In addition, very few studies (only 18%) investigated consumption-specific dimensions like food, procurement, water, clothing or waste prevention that aren’t typically captured by a production-based low-carbon framing (see SI C Table 6).

**Finding 3: less coercive administrative and informative policy instruments were the most commonly applied.** After the most commonly used administrative and informative instruments, the third category was public ownership or investment, predominantly building-related investments to reduce energy use, with some reporting on low-emission transport investment. Only eight studies looked at economic instruments, and only four considered research and development. By examining individual interventions, it was possible to see what combinations of instruments were applied for different interventions. Most studies reported the use of more than one instrument at a time. Fig. 2 shows the number of studies using each policy instrument.

The least coercive measures clearly dominated the interventions. Of the administrative instruments, a large proportion were strategic plans put in place by a local government – for example energy- or emissions-reduction plans or land-use plans – and in some cases policies or goal setting. Only two studies considered rules or regulatory instruments available to local government, one focusing on building energy and the other on comparing direct regulation by local government, alongside other softer measures for encouraging waste reduction, pollution prevention and resource efficiency in companies. Classed as informative instruments, some local governments demonstrated good practices, such as reduced energy use or reduced travel. Other informative instruments focused on the education of certain groups by providing carbon footprint calculators or greenhouse gas emissions inventories to residents and businesses. The studies that investigated the less frequently covered topics such as food tended to focus on either administrative or informative instruments, such as sustainable food strategies, and one study looked at food procurement options.

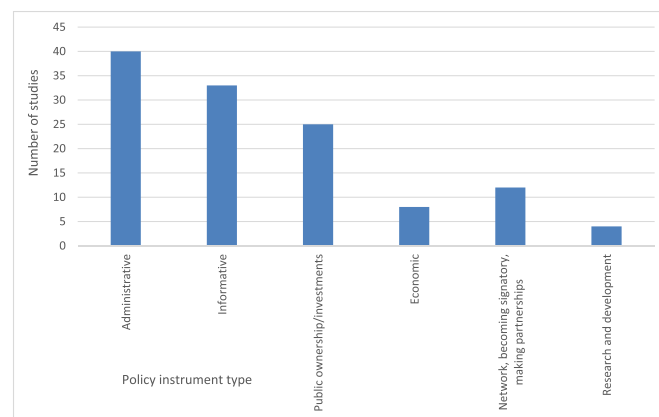


Fig. 2. Sustainable consumption policy instruments.

The lack of certain types of instruments such as economic or legislative may indicate either a lack of power or agency to take those measures, a lack of motivation (for political reasons for example), or perhaps a lack of awareness of the potential effectiveness of different types of measures.

**Finding 4: local government interventions target multiple groups in society.** For many of the interventions, multiple target groups were identified including citizens, the private sector and the municipality itself (12 studies included two or more of these) demonstrating their ability and capacity to engage different sectors. In some cases, no specific target group was identified but the studies instead referred broadly to citizens, residents or the general public, although a few mentioned cyclists, parents of school children, or households. About one-third also included the private sector, such as businesses and private companies, yet only two studies targeted business only – often a combination of citizens and the business community. Sixteen studies mentioned the municipality itself or local governments, and some also included local government officials such as energy planners, local politicians or procurement offices. Eight interventions targeted the building and housing sector (e.g. public, residential and non-residential buildings, designers and builders) and one targeted the transport sector (both private and public).

**Finding 5: few studies evaluate the outcome of an intervention post-completion.** Our review found only a few studies whose main purpose was to evaluate, quantitatively or qualitatively, the outcome of an intervention after it was completed, demonstrating a clear gap in knowledge of the success levels of interventions or otherwise. It is therefore difficult to ascertain from the literature what type of interventions were most successful in terms of environmental impact reductions and to what extent they delivered on their sustainable consumption goals and targets. Likewise, the role of local government was not formally assessed in most of the studies. This general lack of assessment was to be expected when the barriers to the success of an intervention are considered, as it appears that the feasibility of evaluation is a limiting factor for many of the interventions.

More than half of the studies (35) assessed the decision-making and planning processes of interventions, and their characteristics. For this, they used qualitative methods such as interviews, reviews, surveys and participant observation (see SI C Table 7) (e.g. Busch and McCormick, 2014; Fenton et al., 2015; Mah and Thang, 2013). Around one quarter of the 61 studies included some quantitative measure of change due to an intervention, such as reduction in carbon dioxide or greenhouse gas emissions or in electricity consumption, or a modal shift between transportation types (see SI C

Table 7). The quantitative assessment in some studies attempted to assess the outcome of the intervention; however, those studies rarely discussed the accompanying governance aspects, instead focusing solely on technical findings. A small selection of studies used both qualitative and quantitative approaches (SI C Table 7), whilst a very small number, they could offer promising insights in how to ensure that both the process and outcome of an intervention is evaluated (e.g. [Gustavsson and Elander, 2013](#)). A few studies did not include any formal assessment of the actual interventions but rather a description the development of projects, toolkits and frameworks. The lack of evaluation means that it is not possible to draw any general conclusions about the types of intervention and their outcome.

**Finding 6: when interventions were evaluated, the impact on sustainable consumption was inconclusive.** In many cases, the impact of the studies on sustainable consumption was not clear cut; projects were deemed a partial success, with multiple barriers preventing further progress or change (e.g. [Moragues-Faus and Morgan, 2015](#)) or increases in consumption outweighing efficiency savings that had been achieved (e.g. [Ramsden et al., 2014](#)). In addition, the outcomes of similar types of interventions varied between studies. For example, information campaigns were deemed successful in some cases and not in others. Studies such as [Hatzl et al. \(2014\)](#) argued that an energy-saving programme had little positive impact on citizens' attitudes and behaviour, but [Braun et al. \(2016\)](#) on the other hand found that education campaigns were important complements to cycle infrastructure provision.

**Finding 7: the barriers to success of an intervention were multiple and varied. Funding, staff capacities and lock-in to existing systems were the most prevalent.** The barriers to effective sustainable consumption interventions that were identified in the 61 studies are listed in Table 1. A full list of all the studies that cited each barrier is given in SI C: Table 8.

The following text expands on the barriers identified in Table 1, giving examples, grouping and synthesising the findings.

**Finance or funding constraints** was a frequently mentioned barrier to the success of an intervention. This took different forms, one being the lack of finance for specific projects in, for example, [Comodi et al. \(2012\)](#) who stated that financing energy initiatives for small and medium size municipalities was a particular problem. [Revell \(2013\)](#) highlighted the problem of restrictive budgets, “many departments had little or no budget to support their projects”, p206; and others raised the issue of lack of staff resources within the local governments themselves (e.g. as [Fenton et al., 2015](#) described, the municipality “... did not have sufficient human or financial resources to have a wide scope during its planning process” p219). High upfront costs, difficulties in securing loans and problems with implementing nationally financed projects were

examples of other ways in which finance was raised as a barrier to the success of individual projects.

Internal structures of local government: including **lack of staff training, capacities and coordination (often coupled with staff resources and frequency of staff changes)** were also often acknowledged as barriers to implementing both one-off projects and longer-term initiatives. Extracts included “local government officials do not have much experience in this [citizen participation] field” ([Aichholzer et al., 2013](#) p75); “and “employees experienced a lack of effectiveness and knowledge sharing, fragmentary and random prioritisation” ([Galamba and Nielsen, 2016](#) p186). Lack of coordination between local government departments was noted as particularly difficult when trying to implement broader agendas like carbon emissions reduction, sustainability or sustainable consumption.

**Lack of flexibility within local government, along with institutional, regulatory and infrastructural lock-ins** were also mentioned as barriers to success. A wide range of systems including: planning ([Engström and Lidelöw, 2015](#); [Quitau et al., 2012](#)), regulatory ([Berthou and Ebbesen, 2016](#)), organizational ([Schwanen, 2015](#)), procurement ([Knowles et al., 2013](#); [Smith et al., 2016](#)) were all noted as not having enough flexibility to implement new or alternative measures, along with a lack of appropriate structures ([Fudge et al., 2016](#)). Daily routines within the local government organizations themselves were said to be difficult to alter and even after successful pilot schemes, staff practices remained unchanged over the longer term ([Engström and Lidelöw, 2015](#)). Restrictive or immovable high-level policies, regulations or allocation of resources was mentioned as a further factor that maintained the status quo and minimized opportunities for innovation. The dominance of incumbent actors in particular sectors was also noted as a source of lock-in to existing practices and the exclusion of new alternative measures ([Schwanen, 2015](#)).

Policy support, bureaucracy and political will including: **lack of guidance, necessary policies, political will or bureaucracy; administrative burdens, bureaucracy of EU/national, coordination of national or local issues; conflicting goals and priorities, lack of integration across departments/areas of work.** Policy support and bureaucracy were discussed mostly in relation to different governance levels and the coordination between them, particularly the difficulties local governments faced when acting as the implementers of funding from national or EU bodies (e.g. [Czakó, 2012](#); [Famoso et al., 2015](#)). Complaints ranged from high administrative burdens ([Hufen and de Bruijn, 2016](#)), to lack of instruction, support and oversight, along with too little time for the planning and preparations deemed necessary, such as engaging stakeholders (e.g. [Kudo and Granier, 2016](#); [Lee and Kim, 2016](#)). Political will was mentioned more in relation to local level politics (e.g. [Gustavsson](#)

**Table 1**  
Barriers to the success or limiting factors for the interventions.

Barrier to success	Total number of studies
No barriers specified	12
Finance or funding constraints (including local government (LG) staff resources)	11
Lack of staff training or capacity, knowledge and sharing of information, data	11
Lack of flexibility within LG (dominated by status quo), lock-in to existing contracts/systems	9
Lack of guidance, necessary policies, political will	7
Administrative burdens, bureaucracy of EU/national, coordination of national or local issues	6
Lack of regulatory powers or tools	6
Tensions with residents or resistance to changes, difficulty changing attitudes, lack of participation, limited possibility for participating	6
Lack of stakeholder cooperation, engagement, or exclusion of certain actors	4
Lack of private sector engagement (profit motive, contracts, knowledge)	4
Evaluation and data issues	3
Conflicting goals and priorities, lack of integration across departments/areas of work	3
Inadequate LG response to citizens efforts	3
Prioritisation of economic factors only	1

and Elander, 2013). Changing political priorities and obstruction due to factors such as climate change denial (Revell, 2013) were both raised as important barriers to success. Conflicting goals was another issue raised in a few studies, e.g. by Hrelja et al. (2015) who noted that officials were highly aware of “potentially conflicting goals in planning”.

**Restrictive regulatory powers and tools.** Regulations were noted as restrictive in two ways – as either too limited in the local government (Burch et al., 2013) or as limiting the local government's freedom to act in a certain way or innovate (Quitau et al., 2012). In some cases such as food, transport or building regulations, local governments felt that they didn't have the regulatory tools or power necessary to enforce a measure (e.g. Kannstätter and Meerschiff, 2015; Lenhart et al., 2015). One study by Bakker and Trip (2013) stated that regulatory barriers must be removed in order to make necessary infrastructural changes. Lastly, Dirckinck-Holmfeld (2015) found that, despite having the regulatory powers necessary to take action beyond minimum compliance, the direct regulation of companies was still dominated by a traditional authority role focused on conventional environmental parameters.

Engagement with the community, citizens and residents including: **tensions with residents or resistance to changes, difficulty changing attitudes, lack of participation, limited possibility for participating; inadequate local government response to citizens efforts.** The role of citizens and their interaction with the local government was mentioned in many studies and was described as a barrier in different ways. In some cases, residents' disapproval of or resistance to a measure was noted as a key prohibiting factor (e.g. Anderton and Beeton, 2015). Conversely, other studies noted that a lack of opportunities for the community to participate and lack of support for community initiatives from local government were considerable barriers to success (Moragues-Faus and Morgan, 2015; Reeves et al., 2014), along with a muted response from local government to those actively trying to engage (Gustavsson and Elander, 2013). The difficulty of generating long-term changes in habits and attitudes was also mentioned, along with the ability to monitor and measure these types of changes over the longer term (Hatzl et al., 2014).

**Lack of stakeholder engagement or cooperation, or exclusion of certain actors, including lack of private sector engagement.** Studies showed that engaging stakeholders was essential for many projects, noting that unsuccessful engagement, lack of cooperation (Hufen and de Bruijn, 2016), exclusion of some actors (Moragues-Faus and Morgan, 2015), opposing views (Späth and Rohrer, 2015) or poor communications were common barriers to success. How the private sector engaged with a project was also noted by a few studies, particularly the conflicting motives (profit versus energy use reduction in Tagliabue et al. (2012) for example). Lack of knowledge and expertise for implementation of novel technologies, and the restrictiveness or lock-in of certain contractual requirements for local government were mentioned (e.g. Webb et al., 2016).

**Data availability, assessment and evaluation difficulties.** The ability to assess the success of an intervention was raised as a barrier to its success; lack of data and tools (e.g. Fernández-Maldonado et al., 2016; Salvia et al., 2015) and over-reliance on resident reporting (Revell, 2013) were mentioned as part of this. How interventions were evaluated was also discussed, with studies noting that pressure to demonstrate economic benefits over other societal gains (Smith et al., 2016) or evaluations focusing on specific technical improvements or measurable savings (like energy or CO<sub>2</sub>) rather than qualitative assessments were problematic (Hatzl et al., 2014). Webb et al. (2016), Revell (2013) and Smith et al. (2016) all talked of difficulties in demonstrating value for projects when they can't be evaluated or have restrictive systems that force evaluation

in one particular way or another (e.g. only focusing on economic outcomes).

**Finding 8: few studies identified and reported enabling factors, but those that did noted that engagement, stakeholder participation, communication and leadership were the most important factors** Due to the limited number of studies that reported enabling factors of interventions it was not possible to make overview and synthesis like the barriers in Table 1. The enabling factors are therefore discussed below, highlighting the studies that mentioned that factor, in many cases, this was just one study.

The enabling factors of different interventions are in many cases a mirror of the barriers. Success factors in one intervention became barriers when absent in another. **Good stakeholder engagement; extensive consultation; collaborations leadership; and political commitment** were cited as reasons for success. Quitau et al. (2012) reported that extensive stakeholder engagement paid off when trying to enforce higher energy standards in planning. Strong leadership was a key theme of the study into renewable energy by Busch and McCormick (2014) and high-level political commitment and continuity were noted by Decker et al. (2012) and Revell (2013). Collaboration appeared key in several instances, with Kannstätter and Meerschiff (2015) finding that cities had more success with e-car sharing where councils cooperated with local energy suppliers for example, and Mah and Thang (2013) noting that collaboration between government departments and different governmental bodies, communication and deliberation were all important factors for success in food governance. Interestingly, Späth and Rohrer (2012) wrote that, while the involvement of multiple governance levels in a sustainable energy project was considered more costly and burdensome at the time, on reflection the managers were pleased with this approach as it helped to make setting ambitious energy targets the norm across the larger region.

**Local government leadership** combined with **participatory approaches** to planning were found to be a successful combination by Salvia et al. (2015) for delivery resource efficiency improvements. Likewise, Hufen and de Bruijn (2016) explained that extensive consultation in developing energy performance contracts had contributed to the project success. In one case, the local authority engagement during the intervention was considered a success, but the actual outcomes of the community-led sustainability initiatives were not so successful (Reeves et al., 2014).

Desideri et al. (2012) was one of a number of studies that emphasised the importance of **multiple factors** being crucial for success, they listed planning, demonstration, strengthening possibility for municipalities to implement national and EU legislation, technical training, engagement of stakeholders, communications and awareness raising as the combination needed for improving energy performance in the building sector. The study by Ramsden et al. (2014) focused on municipal collaboration for carbon footprint reduction and found evidence of successful capacity building, knowledge sharing, advocacy and defining and coordinating standards. Lanzendorf and Busch-Geertsema (2014) looked at cycling rates and determined that cycling infrastructure improvements in combination with communication campaigns, initiated, supported and executed by the local government were key factors for increasing bicycle use in cities. This was similar to the findings of Braun et al. (2016) and also to those of Harms et al. (2016) who reported that multiple factors were essential for delivering successful cycling policies, listing goal setting, experimental measures, strong leadership, adequate infrastructure and decreasing the attractiveness of the car as key drivers for policy outcomes. Lastly, Pablo-Romero et al. (2016) looked at the benefits of **signing up to a network** and reported that being a signatory had a positive impact on electricity consumption.



## 5. Discussion

Internationally, countries are now committed to proactively working towards sustainable consumption through agreements such as the Agenda 2030 (e.g. SDGs 8 and 12) and the 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns.<sup>6</sup> With most of the strategy formulation and discussions taking place at the international and national arenas, what do we know about the opportunities and barriers faced by local governments in implementing these mandates?

### 5.1. Sustainable consumption definitions and interpretations

This review clearly highlighted a lack of studies that take a full view of sustainable consumption at the local government level. Despite a broad and comprehensive search, we found very few studies that fulfilled the criteria for analysing local government role in driving forward sustainable consumption. Those studies that met the criteria, had a narrow definition of sustainable consumption, with little evidence on important aspects of sustainable consumption, such as local government procurement, or consumer items beyond energy and fuels for transportation, such as food or clothing.

For monitoring progress towards, and ultimately achieving, sustainable consumption goals this finding is concerning for multiple reasons. Firstly, any rebound effects or interactions between consumption areas may not be captured. Secondly, without a sustainable consumption framing important sectors such as food, procurement, clothing or water may be overlooked (Schröder et al., 2019), missing considerable environmental impacts associated along supply-chains. Thirdly, the focus on single dimensions of sustainable consumption reduces the possibility to analyse the effects of local government policies, such as spatial planning, that may have an impact on multiple dimensions at the same time.

One possible reason for the lack of analysis of sustainable consumption may be that policies and instruments are already operational under 'low-carbon' or 'sustainability' terms and that, even if they have a sustainable consumption focus, they wouldn't be branded as such. The space for terms that cover sustainability may be already occupied or mature, making it harder for new terms to enter. Alternatively, interventions could be organised more specifically, focusing on the individual consumption areas such as energy or food, and not with a broader sustainable consumption framing. However, this review showed that the scientific literature also has little to say on these specific sustainable consumption topics in connection to local governments.

Overall, this review clearly demonstrates the gap between the evidence available on sustainable consumption at the local scale and that available at the national and international levels. Achieving sustainable consumption goals will require a perspective that captures elements of consumption beyond energy and transport fuels (Jackson, 2014), and evidence to support this at the local government level should be prioritised. This would inform policy decisions and ensure measures to address unsustainable consumption are comprehensive and effective as possible. This is particularly important for those areas of potentially high impact and local government influence such as public procurement.

### 5.2. Implementation and evaluation

The type of policy instruments selected by local government to

steer sustainable consumption varies by context, their mandate and limitations. In general, however, the less coercive administrative and informative instruments were found to be most common. This is in-line with findings at the national level, where consumption has been addressed mostly by strategy papers and communicative instruments such as labels or campaigns aiming to inform, educate, appeal to, or 'nudge' consumers towards more sustainable behaviours (Wolff et al., 2017). This lack of application of economic and regulatory instruments also means that there is consequently limited research on these instruments. However, the data that are available appear to show that the voluntary-procedural instruments are less effective than regulatory and economic instruments (Wolff et al., 2017). Our findings offer some limited evidence that might support this, with six studies identifying lack of regulatory power or tools as barriers to success, but this is clearly an area that must be further investigated at both national and local government levels. In addition, evaluating the policy instruments and the outcomes in countries with alternative local government models and mandates could add further insights, e.g. completing a similar analysis of countries outside of the OECD, which this review did not address.

One activity that featured in many studies was the importance of being in a network or becoming a signatory to an agreement. This may indicate that the local government place greater importance on symbolic measures (Schneider and Ingram, 1990) as opposed to economic or regulatory measures, as discussed above. Alternatively, it could also indicate the importance of a networked society (Castells, 2011), the opportunities for shared learning and support, or in the case of being a signatory, the incentive from having a high-level target or goal. This type of activity may also be preferred as a low-risk instrument for local government in comparison to regulation or investment in infrastructure. Interestingly, multiple actors are targeted by the interventions. This may be indicative of the value of taking a consumption perspective that captures the full value chain and hence all the actors along that value chain. It may open opportunities for local government to engage new stakeholders that may not be so prominent in interventions that focus on supply and production only.

There were only a few studies that evaluated the outcomes of interventions, most studies focussed on assessing decision-making and planning processes related to sustainable consumption. Moreover, in these few cases that did evaluate, there were no clear results when it comes to the impacts on sustainable consumption. Also, the assessments and evaluations showed mixed results in terms of whether particular interventions and policy instruments resulted in successful outcomes or otherwise, with similar interventions giving different results in different areas. The fact that there were so few studies evaluating the outcomes is an indication of the complexities involved in measuring and following-up impacts from sustainable consumption (Dawkins et al., 2019; Wolff et al., 2017). This is evident from this review, where lack of knowledge tools and data was identified as one of the barriers to successful interventions by local government. Thus, to forward understanding about the effectiveness of different policy instruments, how they should be combined, and which actions should be taken to prioritise sustainable consumption, it is important that further work is done to monitor and evaluate sustainable consumption measures. As suggested by Wolff and Schönherr (2011) it is essential that both the process and outcomes of an intervention are assessed, which as this review found, is lacking in many studies to date, with most focusing on either the process or just the outcome. Due to the complex nature sustainable consumption, it is recognised that this type of evaluation can be challenging (Wolff et al., 2017), but some of the studies identified in this review that applied both qualitative and quantitative

<sup>6</sup> <https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/one-planet-network/10yfp-10-year-framework-programmes>.

approaches offer some possibilities and learning for future assessment.

### 5.3. Barriers and enabling factors for local government

In the broader context, the barriers faced by local government in implementing interventions associated with sustainable consumption identified in this review appear to be similar to many other complex sustainability issues and challenges that local governments face (e.g. Runhaar et al., 2018 in climate adaptation). Finance and funding constraints, along with lack of staff training, knowledge, capacities and coordination were the issues most frequently raised. There were also multiple barriers related to goal conflicts, lack of integration and guidance, and stakeholder engagement. Most of these barriers are related to difficulties in putting interventions in to practice and evaluating their effectiveness, rather than a lack of understanding of sustainable consumption. However, in contrast to Runhaar et al. (2018), this review indicates that lack of staff knowledge is a prominent barrier to action for sustainable consumption interventions. The fact that several studies raise this as a barrier to evaluation suggests that it is a difficulty in practical application of knowledge, rather than knowledge of the importance or relevance of sustainable consumption *per se*. This may reflect the more complex nature of estimating environmental impacts of consumption compared to direct energy or fossil fuel use, and the consequent lack of data available for local government. For example, whilst guidelines for local government to calculate consumption-based emissions inventories exist,<sup>7</sup> they are not yet in as widespread use as production-based emissions inventories. The complex nature of the calculations also poses a challenge for evaluation as noted above.

In addition, the analysis of barriers to success of the interventions revealed the factors that may inhibit the use of the policy instruments, such as lack of flexibility within local government, or locked-in practices of incumbent actors. This is an indication that it can be difficult for local governments to implement available instruments, let alone those that may not be available such as regulation or economic instruments. Working with multiple levels of governance may ease this tension, with analysis in closely related fields finding that local government are crucial actors, but that local action must go hand in hand with higher level initiatives (e.g. Fuhr et al., 2018 in climate policy in cities).

Enabling factors of interventions were far less discussed than barriers. However, from those studies that did report them, strong leadership, good stakeholder engagement, participatory approaches and extensive consultations were found to be the most important. This is in line with case studies such as Pape et al. (2011) which highlight the importance of a multi-stakeholder approach and participatory processes for sustainable consumption policy-making. Similarly, Schröder et al. (2019) offer co-creation and participatory visioning processes as key elements of an engagement framework to enhance sustainable consumption and production in cities.

### 5.4. Limitations and future research

The systematic approach to this review has minimized bias in the selection procedure and ensured a transparent and comprehensive view of the recent literature on the local government role in sustainable consumption, given the criteria of the study. However, there are certain limitations, such as the focus on countries of the OECD, which could be overcome by completing further research

on middle and low-income countries with different political structures for example. Due to the focus on sustainable consumption interventions and evidence of the local government role, most of studies reviewed were empirical cases. Therefore, while this study has not collected primary data on local government activities, it does give insight into implemented interventions. It does not however claim to be a comprehensive description of all ongoing work at the local government level. It appears in fact, that the academic literature does not capture the breadth of sustainable consumption activities ongoing at the local government level. This type of review could therefore be complemented by an in-depth study of sustainable consumption policy instruments and measures in practice, to understand where and how academic research might contribute to support this work. One such area would be the evaluation of the outcomes and impacts of such policy measures, which is a clearly missing and essential element for furthering sustainable consumption efforts.

## 6. Conclusions

In conclusion, this review has demonstrated that, while sustainable consumption is called for internationally, and debated academically, factors related to implementation at the local government level have gone largely unstudied. Without this understanding of the process, outcomes, barriers and enabling factors for sustainable consumption at the local government level it is difficult to determine what makes an intervention effective and what roles local governments can and should play in facilitating sustainable consumption. However, from the studies available, this review revealed some important findings: (1) few studies investigate the full breadth of sustainable consumption, focusing mainly on energy and transport, with very little work on highly relevant areas of sustainable consumption for local government, such as public procurement. (2) Less coercive and arguably less effective administrative and informative policy instruments for addressing sustainable consumption are found to be the most commonly applied. (3) Local governments face substantial barriers to implementing effective sustainable consumption measures, primarily funding; staff capacity, knowledge or data; lack of flexibility and lock-in to the status quo; lack of guidance or political will; administrative burdens; and lack of regulatory powers or tools. (4) There is a lack of evaluation of the process and outcomes of local government measures for sustainable consumption. (5) Sustainable consumption interventions are most effective when they had strong leadership, good stakeholder engagement, participatory approaches and extensive consultations.

Overall, in practice addressing the barriers identified would support local governments in their efforts to drive forward sustainable consumption. Improved data and approaches to monitor and evaluate the process and outcomes of sustainable consumption interventions would allow for shared learning, help identify priority areas for focus, and reveal the enabling factors for successful results. Moving beyond production-based framings to capture important aspects of consumption that are seemingly overlooked will be an essential part of the move towards sustainable consumption. The complex nature of sustainable consumption, and the evidence from this review itself, demands that successful interventions will require a combination of different policy instruments alongside collaboration, cooperation, engagement and consultation of stakeholders including residents, businesses and other organisations.

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<sup>7</sup> <https://sustainableconsumption.usdn.org/climate/cbei-guidebook/overview>.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jclepro.2019.05.176>.

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### Further reading

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