Local policies for reducing the ecological impact of households: the case study of a suburban area in France

Vincent Sennes · Jacques Breillat · Francis Ribeyre · Sandrine Gombert

Abstract Since Rio, governments have increased measures to promote sustainable household consumption, but this has induced limited changes in consumers' daily practices. This article argues that one of the reasons behind the poor efficiency of these policies is the low level of consideration granted to local decision-making. The article discusses the results of a study which aims at better ascertaining the practices and representations of local government leaders in promoting sustainable development in households. We shall analyse the motivations, obstacles, interaction of players, communication and action plans associated with promoting sustainable development, in which individual will and effort are the keywords. The results obtained show how important it is to introduce better management systems for information and resource exchange between the different institutions involved. The study was carried out in a suburban area of south-west France counting 71 small towns and villages, characteristic of the spatial dynamics triggered by the global phenomenon of urbanisation.

Keywords Public policy · Sustainable consumption · Local environments · Human ecology · Suburban area · Pays Coeur Entre-deux-Mers · Aquitaine · France

1 Introduction

Over the last decade, changing household consumption patterns aimed at achieving sustainable development have gained much recognition and have led governments, production and distribution companies, associations and consumers themselves to follow this path (United Nations Environment Program 2002; Barber 2003; Michaelis and Lorek 2004). The importance of multi-stakeholders in elaborating an efficient system of incentives and opportunities for households has been underlined (Commission of the European

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Communities 2003; Zaccai 2000). Yet governments, as the main actors in regulating product life cycle, should be called upon to play a key-role in the promotion of more environmentally friendly ways of consuming.

Until now, encouraging such behaviour in consumers has relied both on direct methods, using public tools such as coercion, in the form of taxes and laws, informing people through communication and educational projects, encouraging them through subsidies and guidelines for eco-behaviour, and suggesting new technical resources, through infra-structures and eco-products, and on indirect methods such as reinforcing the exemplary nature of institutions, supporting "relay" structures, stimulating efficient production and distribution systems and preserving ecosystems (Oosterhuis et al. 1996; Larrue 2000; OECD 2002; Jackson and Michaelis 2003; European Council 2008).

Five years after Johannesburg's implementation plan (2002), assessment of progress towards sustainable consumption reveals that if purchases of greener products have sig-nificantly increased and "alter-consumerism" is becoming a significant trend (Dobre 2002; Cohen 2005), there is little evidence that this will be enough to reduce the ecological impact generated by populations (European Environment Agency 2007). In fact, a global increase in individual and collective consumer levels can be observed, induced by socio-demographic trends, the increase in our material aspirations and the satisfaction of needs, along with other mechanisms such as the rebound effect (Liu et al. 2003; Myers and Kent 2004; Hertwich 2005). As highlighted by Geyer-Allely and Zacarias-Farah (2003), most of public policies have resulted in limited changes in consumer behaviour. Still, many of the environmental impacts resulting from household decisions are expected to intensify over the two next decades. This statement has been widely discussed by researchers, who usually underline the role of economic, political, ideological, social or psychological obstacles hindering action to reduce the ecological impact of households (Princen 1999; Sanne 2002; Jackson 2005).

In this article we will be focussing on the measures implemented by local authorities to encourage households to reduce their impact on the environment. The strategies put in place by local authorities are essential for at least three main reasons (Sennes et al. 2007).

– In the first place, despite the homogenization of products and aspirations, ecological impact varies profoundly according to populations and ecosystems. Household variability is considerable, if socio-demographic, economic and psychological factors are taken into consideration, and this has a strong influence on consumer patterns which, in turn, bring environmental pressures in their wake. Moreover, ecosystems bring differing responses to these pressures, according to their specificities (vulner-ability, resilience…). The development of local and specific policies which are flexible and do account for this diversity, may lead to better acceptance and efficiency than global and non-specific policies (see for example the programme Create Acceptance, European Commission, 2006–2008).
– Secondly, the ecological impact of household consumption is evaluated both in terms of the local environment (air pollution, noise…) and in terms of regional or global environments (acidification, loss of biodiversity, global warming…), and this makes the effects less directly perceptible to consumers. From an egocentric perspective, people are more sensitive and react more keenly to concrete examples within the context of their own local environment. In most cases, consumers fail to associate the ecological reference systems referred to in global policies, on a regional or global dimension, with their own quality of life. Local policies make it easier to integrate the importance of local ecological issues.

– Thirdly, if the model of decision-making is appropriate in the light of financial and normative incentives, it does however present limited perspectives in terms of education, information, co-operation and dialogue between local authorities and families, and in terms of the relevance of the measures it puts forwards to improve the exemplary nature of public services. The main reason for this is that these instruments must operate on the local level to be visible and gain in efficiency.

Few studies have highlighted the specific question of local policies in promoting sustainable household consumption and the research hitherto carried out mainly focuses on national or international policies to encourage this. However, the implementation of local policies on sustainable development, among which a number of policies promoting sustainable consumption may be found, have received more attention. The research shows that the resources and competence necessary for implementing such policies are severely lacking on the local level (Braun 2007). Local Agenda 21 programmes have remained widely undeveloped in France and since 2007, only 145 communes out of a total 36,684 and 82 groups of communes out of 2,573 have initiated or implemented an Agenda 21 scheme.

This article presents the results of a study aiming at analysing the links between local public policies and the effect of these on reducing the impact of household consumption on the environment. Our research was carried out in individual communes. Local government in France is characterised by the great complexity of its make-up (Communes or towns and villages, Communautés de Communes or groups of towns and villages, Communautés Urbaines or urban and suburban areas, Pays or areas or regions, Syndicat Intercommunaux or unions of towns and villages…) and by the intricacy of the way in which responsibility is allotted for environmental affairs. As far as environmental management is concerned, the commune is a key player and its role is to ensure that the laws and norms of the land are respected. It is also responsible for managing water, waste and green areas. At its Head is the Mayor. He or she plays an emblematic political role and is an elected local government leader, representing the State on the local level, but is also a foremost local dignitary, sensitive to the individual needs and interests of his or her commune and the people who live there. The commune is a symbolic centre of social identity for the French population.

Our analysis of public policies in this field was based on five inter-related elements, forming the 'pentagon of public policies' (Lascoumes and Le Galès 2007). These are (1) the individual or collective players who have resources available to them and who make choices based on material or symbolic interests, (2) representations in the form of cognitive or normative frameworks, (3) institutions representing the norms and procedures which govern action decided upon, (4) the processes which account for the interactions and efforts of individual and collective players, and (5) the results which spring from the effect of public action plans. In the field of sustainable development, in which individual effort and will are still major factors, the analysis of public policies should not only examine these five elements but also aim at understanding how elected members of local government tailor their words and practices to ecological problems on the global scale (Muller 2005) and to the population they represent which, after all, elects them.

In this study, changes in the way households consume appear as intricately linked not only with private consumption going on within people's homes, but also with public consumption, related to the use of public services within the commune. These two factors are closely interconnected, as most private activity depends entirely on the existence of public supplies of facilities to individuals, along with treatment and disposal services. The implementation of environmental policies on the public level should then influence the way individual households consume and, *a contrario*, the importance given to respecting the

environment on the individual, private level generates high expectations for good practice on the part of public services.

The article examines these dimensions by studying the perceptions local government leaders have of a number of different elements—the interaction of the different players involved in the field of sustainable consumption, the means available for encouraging good practice, the tools available for measuring results, their motivations and the obstacles met with. After analysing the diversity of the widely differing situations we encountered, according to the specific typology of each commune, we will go on to suggest ideas for new measures and strategies which would enable local public policies to have greater effect and thus reduce the impact of households on the environment.

This study is part of a wider research programme carried out by the Human Ecology Research Centre at Bordeaux University (UMR 5185 ADES). The centre's research concentrates on measuring the impact on the environment of household consumption and on analysing the social perception of ecological issues related to local environments. Its overriding aim is to support those responsible for this to take decisions which allow them to both respect the necessity for human development but also the protection of ecosystems (Ribeyre 2003).

2 Materials and method

We deliberately chose to work with a large number of communes so as to take full measure of the widely differing situations which exist when it comes to the implementation of public policies in the field of sustainable development. The Pays Cœur Entre-deux-Mers (PCE2M) is composed of 71 communes gathered into seven Communautés de Communes and situated near the Communauté Urbaine de Bordeaux in the Gironde Département, France. It has a population of 81,000 and presents a clear gradient between its north-westerly municipalities, close to the Bordeaux area and becoming ever more urban in nature, and south-easterly municipalities which are still essentially rural (Fig. 1). This is the result of the successive addition of peri-urban rings to the city since the 1970s, with people working in Bordeaux living gradually further and further away from their place of work.

Although the PCE2M has its own specific cultural and ecological character (biotic community, biotope, habitats, climate…), it is representative of many other peri-urban areas in which demographic pressure is high, natural habitats have been or are being destroyed, the level of economic activity is low, human habitat is spacious and demand on means of transport is great. The spatial dynamics at play here are closely interconnected with increasing urban growth, as may be observed in most countries in the world (United Nations Population Fund 2007).

The means chosen for collecting data on public policies was a survey based on a questionnaire, ideal for gathering information on the representations, practices, communication strategies and interaction of players involved, and this for a very high number of communes. Moreover, the survey allowed us to combine open and closed questions and thus obtain different types of qualitative data which could then be measured, collated and compared (Grawitz 2001).

We decided to go through each questionnaire individually with each Mayor to avoid any distortion in the data obtained. This decision brought with it a number of practical constraints, but the dialogue between 'investigator/interviewee' ensured that the number of 'no answers' was kept to a minimum. We were however aware that the personality of the investigator could influence the responses obtained and we were highly vigilant as to this.
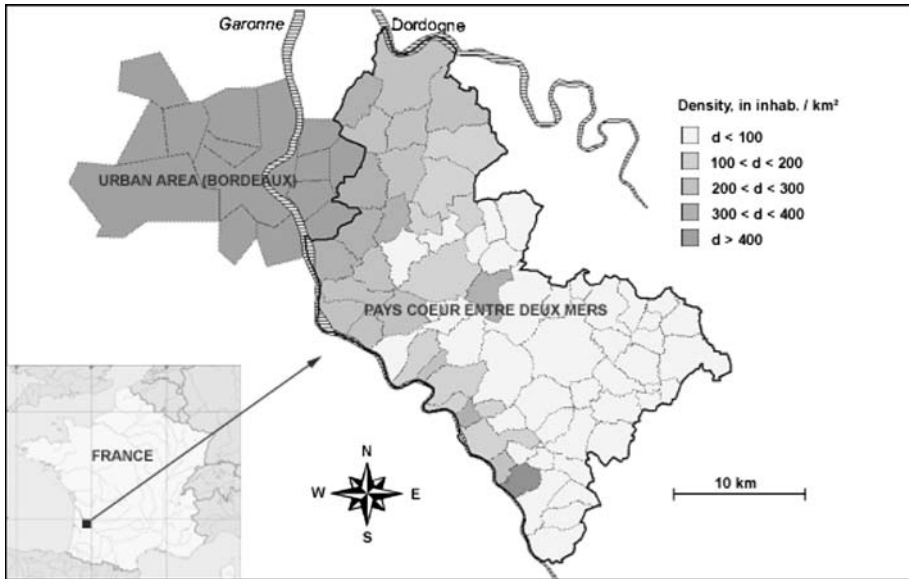
Fig. 1 Presentation of the pays Coeur Entre-deux-Mers, France

For this reason, the investigators underwent specific training in sociological research (research stance, object distancing, empathy…).

A questionnaire entitled "Scientific Contributions to Ecological Management of Territories" was designed and submitted to local elected government members (annex 1). In its final version it contains five phases which correspond to the development, implementation and evaluation of public policies. It stems from a pre-survey investigation carried out with seven Presidents of Communautés de Communes of the PCE2M area which allowed us to pinpoint questions which were not pertinent, ill-worded or too long, and to add others to establish the full final version of the questionnaire.

The first phase, linked to the identification of environmental problems, includes questions on who provides environmental data (Q1), on whether this data is satisfactory and meets with expectations (Q2) and on the ability to establish links between local activities and local environments (Q3).

The relevance of environmental problems and apportioning of responsibilities (phase 2) are examined by carrying out an overview of the environmental aspects of each commune (Q4), delegation of responsibility with regards to environmental aspects (Q5) and household responsibility in environmental management (Q6).

The ability of each partner (phase 3) is assessed by examining motivation, available resources and the tools and obstacles involved in encouraging households to take action to reduce their environmental impact, either directly (Q7) or indirectly (Q8).

Implementation of policies leading to greener consumerism (phase 4) is studied by means of the inventories of direct and indirect actions established (Q9 and Q10).

Finally, assessment of public policy (phase 5) is explored by means of an inventory of the instruments available for evaluating environmental issues in given contexts (Q11).

Socio-demographic variables were also gathered to enable us to go on to interpret the diversity of the action plans implemented. Among these figured, the age of the Mayor (Q12) and how long he or she had been in office in his commune (Q13), the gender of the

Mayor and the socio-economic characteristics of the commune (Institut National des Statistiques et des Etudes Economiques, France).

The questionnaire was submitted to Mayors of communes in the Pays Coeur Entre-deux-Mers (PCE2M). Sixty-seven communes out of 71 were investigated, constituting a representative sample of the area. Sixty-three respondents out of 67 were Mayors; the others were municipal assistants responsible for environmental questions. As regards age, 89% of interviewees were over 50 years old, as could be expected, considering the requirements for occupying a post in local government both in terms of free time and political experience. Time spent in office showed a more equal spread—37% were enjoying their first term, 21% their second, 18% their third and 24% had been in the same post of office for four or more terms. Only 15% of those interviewed were women.

Multi-factorial analysis, including hierarchical ascendant classification (HAC) and factorial discriminant analysis (FDA) was used to distinguish clusters of communes whose strength of action was greatest. Correlation tests allowed us to test the influence of variables relating to the Mayors and their communes for each strategy undertaken. All results were validated by the Mayors, in a series of presentation sessions organized with a limited number of participants.

3 Results

3.1 The Mayors' perception of local environments

The recognition of local ecological problems is tributary to the availability of up-to-date, objective information. Figure 2 presents an inventory of the actors who provide local authorities with environmental information. It shows that local actors such as delegation structures—groups of communes who share public services such as water supplies or waste management-, the population, municipal departments and associations are the main contributors, second only to "non-local actors" such as State-run public services, Departmental
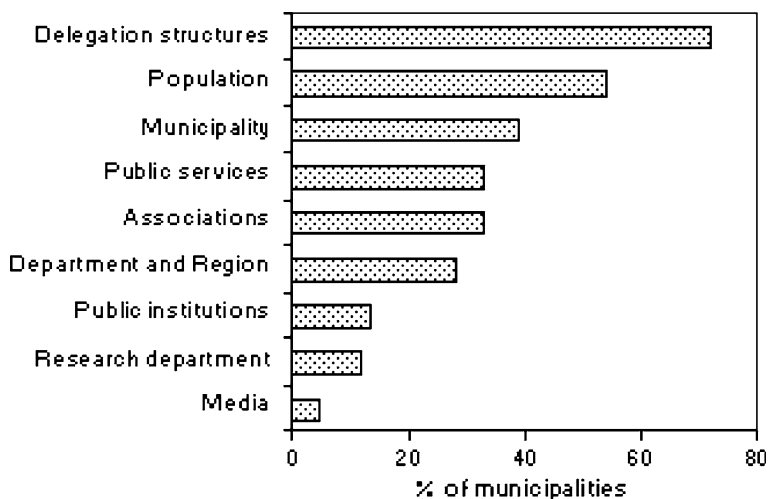

Fig. 2 Origin of environmental information available for Mayors. Responses to Q1 "Which organizations inform you about the state of local environments?"
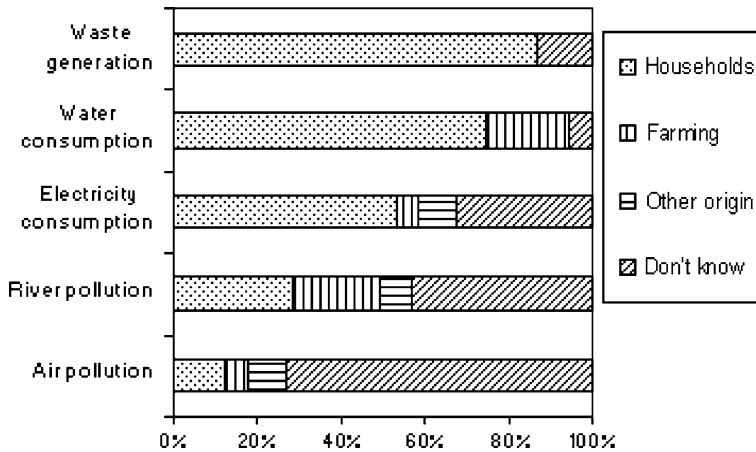
Fig. 3 Mayors' ability to connect environmental issues with human activities. Responses to Q3 "Which human activities are the most intimately linked with these five environmental issues?"

and Regional bodies. Research departments, State-run public establishments and the Media are rarely involved in the information supply process. The results highlight the importance of institutional structures in pinpointing ecological issues, but above all, they suggest that participation and exchange processes, in partnership with citizens or associations, play a central role in forming local environment expertise.

The ability of respondents to link environmental aspects with human activities was used as the indicator of their understanding of local socio-ecological systems (Fig. 3). It may be observed that this capacity varies widely according to the ecological aspect under consideration. Whereas respondents easily connect water consumption and waste generation with human activities, they have more difficulty with energy consumption and river pollution, and more still with air pollution. As might be expected, we may observe that the ability to establish such links peaks in areas which correspond to the technical fields of competence of the local authorities, namely water supplies and waste management. Beyond these fields, information seems rare and far from systematic. Yet Fig. 3 also shows that the capacity to establish causal links is higher in cases where impacting on the environment is only marginally perceptible by the population, such as water consumption, waste management or energy consumption, than in cases where the impact could have more tangible influences on quality of life, such as river and air pollution. Finally, the results show clearly that households are thought to be the primary causes of harm done to the environment, whatever the ecological issue under consideration.

In this context, the satisfaction with information supply and subsequent understanding of local environments is low (a mean of 2.9 on a 5 point scale with a standard deviation of 1.3). This could implicitly express the shared recognition of the insufficiency of current information channels.

3.2 Division of responsibilities in environmental management

The identification of environmental problems raises the question of responsibility for corresponding management tasks. The distribution of responsibilities within the commune reveals that 80% of Mayors supervise environmental questions personally. Internal

delegation to an assistant (7%), a town councillor (4%), or a municipal department (3%) is extremely rare, and only concerns 14% of localities (6% with no response). Even if this question concerns decision-making and not technical management, the results express a high degree of involvement on the part of Mayors in environmental management.

Yet this statement only holds true in fields where responsibility for the commune has been principally delegated to inter-communal structures, in a desire to set up a rational management system. Waste management is delegated in 100% of cases, water supplies in 88% of cases and waste water recycling in 81% of cases. Other environmental aspects related to energy, transport or air pollution do not come within the scope of municipal competence. With regard to these fields, it seems that a current trend towards engaging the responsibility of the polluter is emerging. In suburban areas, where pressure on the environment comes essentially from housing, respondents fully agree (87%) that responsibility lies with households to reduce their levels of pollution.

3.3 Inventory of tools and obstacles

Action to reduce the ecological impact of households requires the use of various tools, each with their own specific means of implementation, requirements in terms of human and economic resources, and the involvement of targeted actors.

The results of Fig. 4 presents the obstacles the respondents said they met with in their aim to promote direct action for encouraging households to reduce their impact on the environment. The main obstacle the majority of them pinpoint is the lack of interest in this issue shown by households. Additionally, this obstacle is linked to the fact that many Mayors think they do not possess the appropriate ways and means of inciting citizens to behave in a more environmentally friendly manner. This comes in addition to the fact that the diversity of behaviour demonstrated by households, their socio-demographic structures and aspirations, reduces their acceptation of measures a Mayor may wish to enforce.

Figure 5 shows the obstacles met with by respondents when they tried to promote indirect action to reduce the ecological impact of households. The results underline the central problem of, first, finding financial resources for setting up solutions for
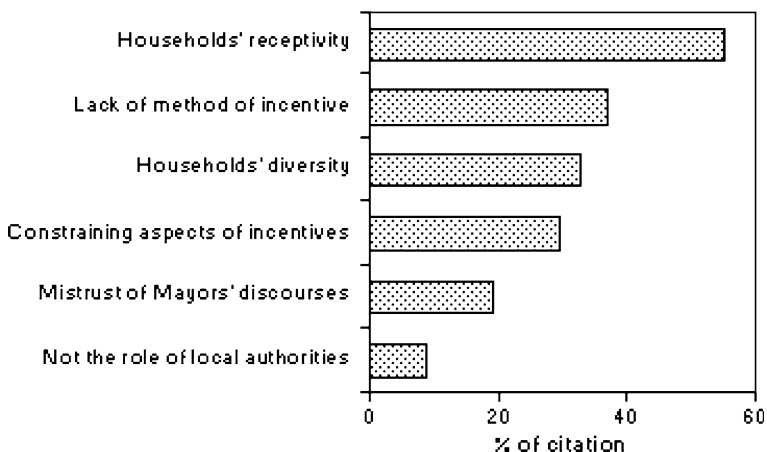

Fig. 4 Obstacles to implementing measures to encourage households to directly reduce their ecological impact. Responses to Q7 "Which of these factors hinder you in your efforts to encourage households to reduce their ecological impact?"
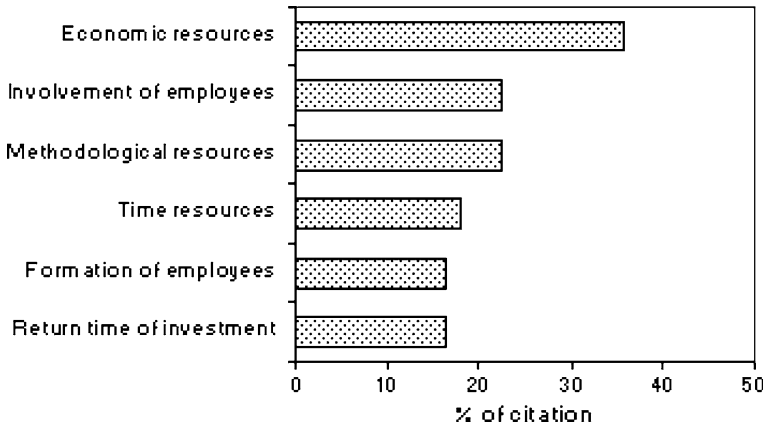
Fig. 5 Obstacles to implementing measures within public structures aimed at encouraging households to reduce their ecological impact. Responses to Q8 "Which of these factors hinder the implementation of environmental measures within public structures?"

environmental management, but also of finding human resources, all the more so that those involved on the municipal level do not necessarily feel concerned by environmental issues. Finally, the obstacles encountered in creating tools for implementing effective action in this field were discussed.

3.4 Implementation of public measures to reduce the ecological impact of households

First and foremost, direct action taken to encourage households was observed (Fig. 6). This reveals that informing people is the main means of encouraging citizens to become more environmentally friendly, through local papers, but equally through the use of posters or websites, depending on what means are available locally. Public participation and events based on environmental themes and sustainable development are much more rare and take place in only about one third of communes. Finally, educating primary school pupils, in partnership with other communes, was only mentioned by two respondents.
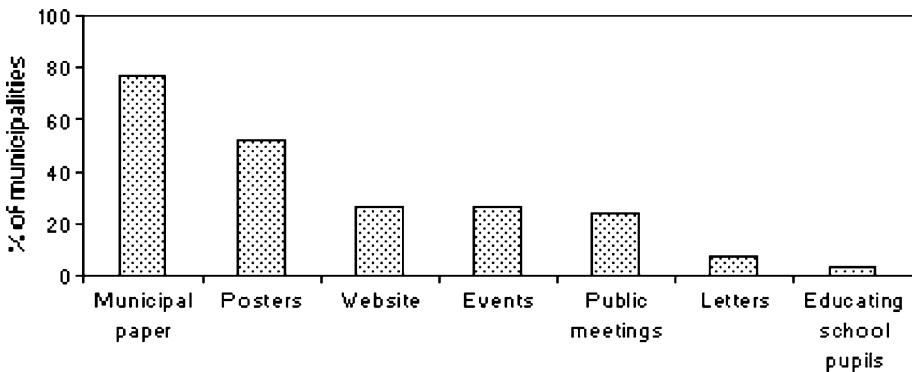

Fig. 6 Measures implemented to encourage households to become directly involved in environmental management. Responses to Q9 "Could you list the measures you have implemented to encourage households to reduce their ecological impact?"
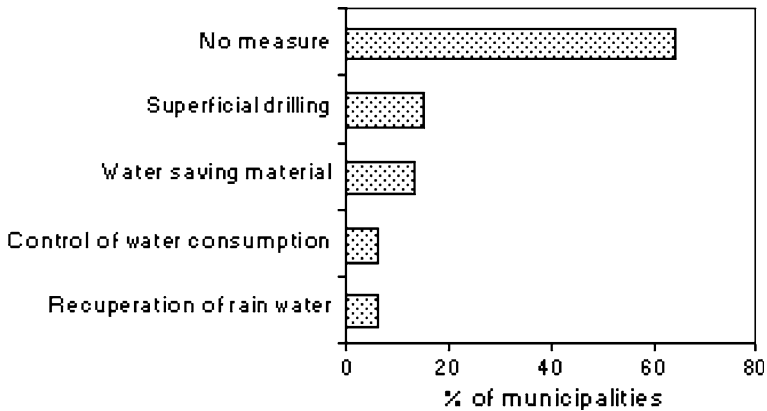
Fig. 7 Measures implemented to reduce water consumption within public structures. Responses to Q10 "Could you list the measures you have implemented to reduce water consumption?"
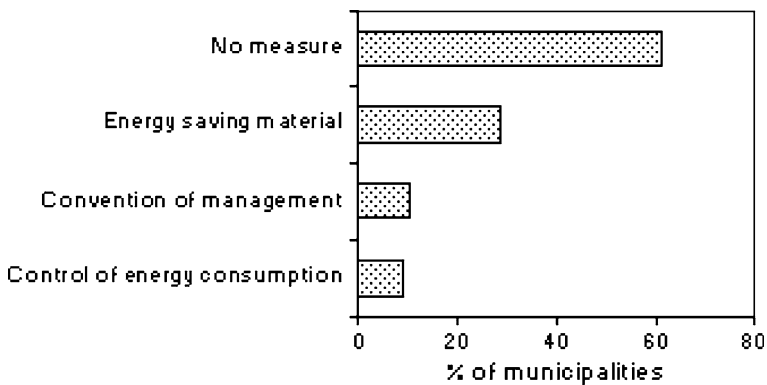

Fig. 8 Measures implemented to reduce energy consumption within public structures. Responses to Q10 "Could you list the measures you have implemented to reduce energy consumption?"

Secondly, indirect action taken to encourage households was observed (Figs. 7, 8) and the results showed that just over one third of communes pay particular attention to water consumption (36%) and energy use (39%). This rate is higher for waste management (46%), to which sensitivity has been raised over a number of years now and which enjoys well-established infrastructure. The use of water and energy saving equipment is still low, despite increasing market availability. Finally, if awareness among town council employees to environmental issues has risen, training in such fields by competent professionals is a very rare thing indeed (5%).

The communes form groups according to the action they undertake to reduce the ecological impact of households. If such action is to be developed, it is indeed less costly and more effective for a number of communes to act together rather than individually.

HAC was used to distinguish between 3 groups (group 1: 13 respondents; group 2: 24 respondents; group 3: 30 respondents). Then we proceeded to a FDA in order to identify the most discriminant types of action implemented.

The results (Fig. 9) shows that the most clear discrimination between respondents is obtained when action carried out directly with individuals is concerned, while indirect
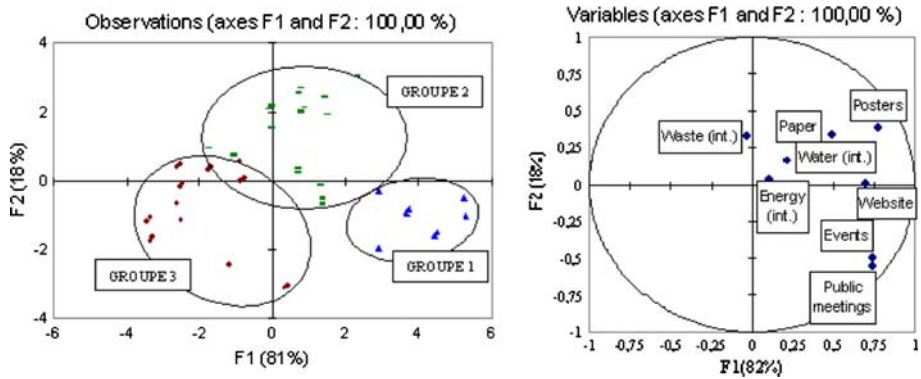
Fig. 9 Grouping of communes according to action undertaken to encourage sustainable consumption. The three groups represented by the balloons of respondents are interpreted thanks to the circle of correlations between the variables and two factorial axes. The most discriminant axis is F1 (82%), and is strongly correlated to direct action like posters, websites, events and public meetings. Axis F2, is only weakly discriminant (18%) and is positively correlated to the internal management of waste and negatively correlated to direct action like events and public meetings

Table 1 Coefficients of linear correlation between public action to promoted sustainable consumption and socio-demographic variables of Mayors of communes

	Number of terms	Age of Mayor	Population of commune	Demographic growth
Posters	0.16	0.19	0.10	0.17
Municipal paper	−0.15	0.00	**0.31**	0.22
Website	0.12	0.10	**0.35**	**0.31**
Public meetings	−0.09	−0.01	**0.27**	0.19
Events	−0.15	−0.09	0.13	0.17
Water consumption[a]	0.04	−0.04	−0.01	−0.03
Energy consumption[a]	0.11	−0.15	−0.09	−0.08
Waste management[a]	0.13	**0.29**	0.16	0.06

[a] Relative to buildings and public services

In bold, P-values significant to risk threshold $\alpha = 0.05$

action is only weakly discriminant. This allowed us to distinguish between communes which were 'leaders', corresponding to group 1 and which use a wide range of tools, and communes which were 'followers-on', group 2, and which only use a limited range of the tools available to them. Finally, group 3 consisted in communes which were 'little concerned' and which had only implemented a very low number of strategies in this field.

The value of the linear correlation coefficients between the forms of action promoted by the communes and the socio-demographic values (Table 1) shed light on a significant relation between the size of the commune and the implementation of direct strategies for informing the population (via newsletters or Internet) and getting people involved (public meetings). The age of the Mayor is positively correlated to the implementation of internal strategies for managing waste, which may point to an increased awareness on the part of older Mayors of the importance of this issue.
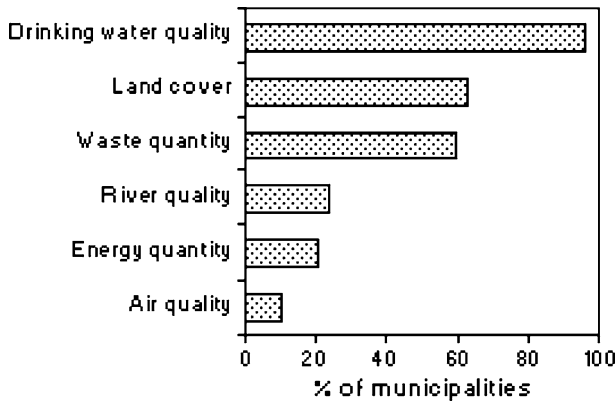
Fig. 10 Availability of indicators for assessing the quality of local environments. Responses to Q11 "For each of the following indicators, please say if you have an assessment tool?"

3.5 Assessment of environmental policies

The ability of authorities to measure progress in environmental management (Fig. 10) through ecological indicators reveals that tools for measuring the quality of drinking water are available to practically all communes (which may seem obvious, as the Departmental Direction of Health and Social Affairs, a State public service, is responsible for measuring water quality and transmitting at least one report per year to all municipalities). Quantitative information on land cover and waste volume are frequent, and this can be linked to environmental fields of intervention on the part of communes relative to urban planning and waste management.

On the contrary, few localities are able to measure air quality, river water quality and energy quantity. Analysis of the geographical distribution of such capacities reveals how closely such factors are linked with the socio-ecological context. For example, assessment of air quality occurs in north-westerly communes of PCE2M, which are more industrialized and closer to the city of Bordeaux, whereas assessment of water quality occurs more frequently in those which have protected rivers running through them (e.g. Natura2000 sites).

4 Discussion

The study analysed in this article suggests that several factors limit the development of local public policies which otherwise would have a positive effect of the behaviour of households relative to the environment. Among these are the difficulties experienced for gaining access to the necessary environmental expertise in a multitude of environmental fields, lack of competence and resources, lack of clarity in the diversity of expectations voiced by the population etc. A variety of means to improve this state of affairs are envisaged, notably by improving information exchange, resources, making expertise available and sharing experience between different institutions. For the time being, developing eco-friendly strategies is an extremely perilous exercise for local government leaders in that it is associated with a wealth of socio-political risk factors. In the face of increasing demand from society at large, and voters in particular, for better environmental practice, a range of action and communication plans have been set in place which we observed. These are implemented with differing force from one commune to another. The following four points develop the hypotheses and perspectives raised here.

4.1 Strengthening local ecological expertise

This study has highlighted a problem in ecological expertise, likely to limit the capacity of local authorities to monitor the environment, anticipate changes, express them in terms of socio-economic impact or measure progress towards sustainability. The Mayors' perceptions of the environment showed that information comes essentially from institutions, citizens and associations.

For the institutions, this can be linked to the existence of specialized structures, which have appropriate resources and fields of expertise, and that on a sufficient scale, for monitoring the environment. Yet producing and communicating relevant information is not systematic, as many respondents pointed out, underlining the difficulties they experienced in benefiting from the expertise of structures such as public services or public institutions. In fact, most public institutions have neither the sufficient time to spend on gathering local environmental information in answer to the needs and expectations of municipalities, nor the sufficient financial resources to do so.

Ecological expertise deriving from institutions could be improved by simplifying institutional frameworks, along with streamlining resources and competences in such a way as to answer requests made by Mayors efficiently and supply them systematically with information. The results of our survey show that the means for exchanging information between different institutions are already in place, for example in the field of the quality of water in rivers and streams and air quality. Yet, it also shows that when communes do benefit from such expertise, it is generally because they are situated near to a particularly sensitive zone or risk area. If such information exchange were to be extended to all Mayors and councils to enable prevention practices to be set in place, this would lead to improved processes on the local level for elaborating public policies in the field of sustainable development.

Citizens and associations are a great source of information for the local authorities and, as they identify the local authority as being responsible for local eco-management and their main interlocutor, it is to the local authority that they take their information. This information, however abundant, is rarely objective, as the public often vehicles individual interests and expectations towards local authorities. Despite this, and given that they themselves are provided with the expertise necessary to interpret this information, communes should systematize informal expertise, provided by citizens and associations, who often have wide and in-depth knowledge of local environments.

4.2 The need for resources and expertise

Most Mayors are highly aware of the importance of their role in encouraging households to adopt better environmental practice in the way they consume. However, their desire to implement action stumbles against a number of hurdles which may be linked to the methods envisaged, normative problems or intellectual concerns.

First and foremost, the elected local leaders find it difficult to obtain the tools potentially available to them to promote sustainable consumption. At the origin of this lies the problem of financial, human and time resources, especially in small communes which are run on low budgets, with limited human resources and whose Mayors often also have a daytime profession, thus limiting the hours they can devote to environmental protection in their localities. In this context, many public tools are effectively inapplicable for them, because they are too unwieldy to set in place.

Moreover, during the feedback sessions on the results of the survey with the Mayors, it emerged that many of them had a strongly held belief that only financial and coercive policies are efficient in making households more eco-friendly and that changing consumer patterns requires intrusive and constraining methods which are often little appreciated by people who have left suburban areas to enjoy a freer lifestyle. On the other hand, educational and cognitive instruments, which, in the long term, can induce long-lasting changes, seem to carry little value in the eyes of the Mayors. This may be correlated with the issue of political action, which seeks short-term benefits motivated by electoral prospects, but in response here to issues which also call for the use of tools which may be utilized on a long-term basis.

The problem of normative constraints is also an important factor in determining the ways in which communes can implement strategies, as they are tributary to the regulations governing public market attributions and clauses pertaining to the allocations of grants. Much internal action for improving the environment is only carried out because this allows communes to lay their hands on subsidies for other projects. For example, subsidies from the Département are allocated with the sole proviso that at least three criteria for sustainable development (laid out on the "Green List") be respected for a given project. In the field of public procurement, for administrative reasons, communes have little leeway and this does not make it possible for them always to purchase green products. The most eloquent example of this is probably the difficulties town councils meet buying recycled paper via public purchasing systems.

Finally, the problem of intellectual resources is raised when local decision makers have to deal with a large quantity of information, which is variable both in its objectivity and its frequency. Not only do they find themselves having to decode this material, but they also then have to reformulate it so as to be able to incorporate it into the local political agenda. As training in environmental issues for local elected members is not systematic, their ability to put forward a competent view on environmental matters in their localities can be seriously questioned.

A common platform which would make resources available for Mayors in the field of intellectual expertise, means for implementing strategies, human and financial resources and which would also include specialised training for town council staff, would go a long way in answering Mayors' requests. Research carried out by Braun (2007) explored different methods (eco-taxes, national finance schemes) which would provide the financial means necessary to run such a platform on a long-term basis. Yet the administrative boundaries of such a platform would have to be defined with great care, and ensure that the coherence with local ecological situations be respected (catchment basins, bio-climatic zones…).

It also seems essential that sharing experience between communes plays a key role and has a positive effect on both the diversity and the applicability of the methods used when they intervene in this field. In this way, horizontal structures, using Intranet for instance, could be developed requiring little in the way of resources and opening up interesting new perspectives for helping authorities promote sustainable consumption. This is one of the objectives of the French network of Eco-Mayors which counts nearly 700 communes and groups of communes and provides a platform for them to share their experience in the field of environmental management.

4.3 Risks and uncertainties

A further vital aspect in the implementation of measures encouraging households to reduce their impact on the environment concerns the management of risks and uncertainties.

Logically, the socio-political implications of intervention in environmental issues should strengthen a Mayor's position, especially with populations voicing increasing expectations in this field and with an increasing number of families leaving cities to settle in suburban areas where they hope for a calm and greener natural environment. Yet it seems that any action taken by the Mayor in favour of environmental protection and encouraging people to adopt environmentally responsible modes of behaviour always makes him or her more unpopular, thus potentially destabilising his or her political position, and this for at least three main reasons:

– The first emanates from the fact that social demand is de-structured and reflects individual interest rather than collective, structured demand, while Mayors have to take the collective interest into account in their decision-making. In many cases, collective interest runs against the grain of individual interests, which are, by definition, extremely diverse in nature and even contradictory. Thus, introducing policies which satisfy the whole spectrum of socio-economic interests of a local population is nigh on impossible. A great disparity between households may be observed, both from the socio-demographic point of view and that relating to social and environmental value systems. Research carried out by Zaccai (2008) shows just how difficult it is to apprehend such diversity and this makes it extremely difficult to implement policies pertaining to sustainable consumption. Research using surveys which create sociotypes of households, depending on their environmental impact, their perceptions and expectations in this field, is vital in opening up new perspectives in this area.
– The second reason comes into play when an ecological problem at hand affects a whole district. In such situations interests frequently diverge, and it is the local government leader's job to bring these together within a collective perspective, a task which is often highly intricate. An increase in consultation and participation processes as a way of seeking out consensual means of management might open up new possibilities, and would give an increased sense of collective interest (i.e. the common good), based on shared living spaces, such as local environments, quality of life and shared identity.

Finally, the third reason arises from the uncertainty inherent to all ecological systems and all interactions between human activities and ecosystems, and reduces the reliability of expected results (Sennes et al. 2008). Environmental decision-making is accompanied by risk factors which make management of such problems often extremely costly, or, at worse, disastrous and impossible to remedy (Bouglet 2002).

4.4 Words and deeds

The difficulties encountered to gain access to ecological expertise, the lack of resources, the socio-political risks and management of uncertainties all combine to put local government leaders in a very delicate position when it comes to environmental management. Moreover, although the involvement of a given commune might not be obligatory for certain projects, this is rarely now ever the case, as the environment plays a central role in the daily concerns of citizens in modern society and the environment plays an increasingly important role in the electoral success of local politicians. In the context defined by the right to do nothing and the need to do something, our study sheds light on the different strategies which emerge from the words and deeds of local government leaders.

As far as words are concerned, the vast majority of Mayors accept that it is their responsibility to encourage local populations to reduce their negative impact on the

environment. Yet, disparities between the action plans set in place from one commune to another show that this acceptance does not necessarily lead to concrete measures being put in place. Our survey pinpoints the arguments used by Mayors when they wish to justify their lack of action.

Generally, such arguments transfer the responsibility to other decision makers—other institutions which have greater resources for implementing concrete action but who fail to do so, or they put the blame on citizens who they deem deaf to environmental issues. These arguments may be perfectly valid. In fact, most small communes have access to limited resources and expertise and do not have a full range of public tools available to them to implement strategies in this field. Many surveys have shown that the environment is less a matter for daily concern for citizens than employment, income, the family or security (Eurobaromètre 2008). However, the extent to which Mayors bring such arguments into play may well be an indication that they are indeed hiding behind them.

As for strategies for implementing concrete action, our study shows different levels of intensity from one commune to another, and this may well be due to the level of involvement shown by the Mayor and his team of councillors. The level of involvement seems to increase proportionally to the density of the commune's population. The notion of involvement should be handled with care, as only formal action led by the communes was analysed in our study. Small communes have a profile for Mayor-citizen relations which is different to that of densely populated ones, and this may lead, in small communes, to the use of more informal methods for encouraging good environmental practice on the part of Mayors, but in which those Mayors are intimately involved. In fact, the means used for informing the population and democratic participation in small communes is no new affair, since these have always been the basic building blocks in the close relationship that exists in such communes between Mayor and citizens. The level of activity measured in the questionnaire does in fact only partially account for the actual level of intensity being employed. This may explain the relatively high correlation between the size of communes and the different action plans set in place to encourage eco-citizenship. *A contrario*, certain plans of action may be undertaken which require very little involvement on the part of local government leaders. This may mean choosing information which is not specific to the local context. While some recommendations may be applied to the majority of citizens, environmental guidelines (i.e. what should be done for a given ecological problem) pay little heed to local ecosystems such as air or water pollution. Making ecological guidelines specific to local contexts would doubtless stir up divergences in opinion between actors, but would be much more effective in terms of sensitizing and mobilizing households than the use of barely perceptible and more consensual ecological concepts. This may also be achieved by tailoring management strategies to end of pipe management, such as waste recycling, and on efficiency improvements, such as buying eco-label products, or better insulated houses, a strategy which fails to take the whole lifecycle of a given product into consideration. More constraining measures such as auto-sufficiency, including in-depth changes in consumer behaviour, are rarely mentioned. Another means might include focussing policies on the consumption of goods and public services, to the detriment of private consumption within the domestic sphere, thus affecting the interests of private individuals more keenly.

Annex 1. Questionnaire

Q1. Which organizations inform you about the state of local environments?
- ☐ Municipality
- ☐ Department and Region
- ☐ Public services
- ☐ Public institutions
- ☐ Delegation structures
- ☐ Research department
- ☐ Media
- ☐ Associations
- ☐ Population

Q2. Are you satisfied with available information related to local environments ?

Not at all   Fully

1	2	3	4	5

Q3. Which human activities are the most intimately linked with these five environmental issues ?
- ▪ Water consumption : …………………………………………
- ▪ River pollution : ………………………………………………
- ▪ Electricity consumption : …………………………………….
- ▪ Waste generation : ……………………………………………
- ▪ Air pollution : …………………………………………………

Q4. Who supervises environmental questions within the commune ?
- ☐ Mayor
- ☐ Assistant
- ☐ Town councillor
- ☐ Municipal department

Q5. Which structures are the most involved in the management of these six environmental issues?
- • Water consumption : ………………………………………………..
- • Waste water recycling : ………..……………………………………
- • Waste management : ………………………………………………..
- • Energy consumption: …………………………………………………
- • Air pollution : ………………………………………………………
- • Transport : …………………………………………………………..

Q6. Households should play a role in the management of local environments:

Not important   Much important

1	2	3	4	5	6	7	8	9	10

Q7. Which of these factors hinder you in your efforts to encourage households to reduce their ecological impact?
- ☐ Not the role of local authorities
- ☐ Households' diversity
- ☐ Households' receptivity
- ☐ Constraining aspects of incentives
- ☐ Lack of method of incentive
- ☐ Mistrust of Mayors'd iscourses

Q8. Which of these factors hinder the implementation of environmental measures within public structures?
- ☐ Methodological resources
- ☐ Economic resources
- ☐ Return time of investment
- ☐ Involvement of employees
- ☐ Formation of employees
- ☐ Time resources

Q9. Could you list the measures you have implemented to encourage households to reduce their ecological impact?

☐ Posters
☐ Municipal paper
☐ Website
☐ Public meetings
☐ Events
☐ Other : …………………………

Q10. Could you list the measures you have implemented to improve environmental performances (within public structures)?

- Water consumption : …………………………..……………………….. …
- Electricity consumption :…………………………..………………………..
- Waste management :…………………………..……………………….. …………
- Transport :…………………………..……………………….. …………….

Training of employees in management of environmental issues:
☐ Yes
☐ No

Q11. For each of the following indicators, please say if you have an assessment tool?

☐ Drinking water quality
☐ Air quality.
☐ Waste quantity.
☐ Energy quantity
☐ Land cover

Q12. How old are you?
☐ < 30 years old   ☐ 30-40 years old   ☐ 40-50 years old   ☐ 50-60 years old   ☐ > 60 years old

Q13. How long have you been Mayor of this commune? …………………

References

Barber, J. (2003). Production, consumption, and the world summit on sustainable development. *Environment, Development and Sustainability, 5*, 63–93. doi:10.1023/A:1025319915498.

Bouglet, T. (2002). Incertitude et environnement: essai de représentation et analyse de choix publics. Thèse de sciences économiques, université Paris 1 Panthéon Sorbonne, 206 p.

Braun, R. (2007). Sustainability at the local level: Management tools and municipal tax incentive model. *Environment Development and Sustainability, 9*, 387–411. doi:10.1007/s10668-006-9028-5.

Cohen, M. (2005). Sustainable consumption in national context: An introduction to the special issue. *Sustainability: Science, Practice, & Policy, 1*(1), 22–28.

Commission of the European Communities. (2003). Integrated product policy. Building on environmental life-cycle thinking. Communication from the Commission to the Council and the European Parliament. COM (2003) 302 final, Brussels, 32 pp.

Dobre, M. (2002). L'écologie au quotidien. Eléments pour une théorie sociologique de la résistance ordinaire. Sociologies et environnement. L'Harmattan, Paris, 352 pp.

Eurobaromètre. (2008). Attitudes des citoyens européens vis-à-vis de l'environnement. Eurobaromètre spécial 295, vague 68.2. Commission Européenne, 131 pp.

European Council. (2008). Local and regional authorities committed to sustainable consumption. Resolution 247 (2008). The Congress of Local and Regional Authorities.

European Environment Agency. (2007). Europe's Environment: The Fourth Assessment. Executive summary. EEA, Copenhagen, 28 pp.

Geyer-Allely, E., & Zacarias-Farah, A. (2003). Policies and instruments for promoting sustainable household consumption. *Journal of Cleaner Production, 11*, 923–926. doi:10.1016/S0959-6526(02)00156-7.

Grawitz, M. (2001). *Méthodes des sciences sociales*. Paris: Dalloz.

Hertwich, E. G. (2005). Consumption and the rebound effect an industrial ecology perspective. *Journal of Industrial Ecology, 9*(1–2), 85–98. doi:10.1162/1088198054084635.

Jackson, T. (2005). Motivating sustainable consumption: A review of evidence on consumer behaviour and behavioural change. Sustainable Development Research Network, 154 pp.

Jackson, T., & Michaelis, L. (2003). Policies for sustainable consumption. Report to the Sustainable Development Commission, 77 pp.

Larrue, C. (2000). *Analyser les politiques publiques d'environnement* (p. 207). Paris: Logiques Politiques. L'Harmattan.

Lascoumes, P., & Le Galès, P. (2007). Sociologie de l'action publique, Armand Colin, p. 13.

Liu, J., Daily, G. C., Ehrlich, P. R., & Luck, G. W. (2003). Effects of household dynamics on resource consumption and biodiversity. *Nature, 421*, 530–533. doi:10.1038/nature01359.

Michaelis, L., & Lorek, S. (2004). Consumption and the environment in Europe. Trends and futures. Danish Environmental Protection Agency, 130 pp.

Muller, P. (2005). Les politiques publiques. Presses Universitaires de France.

Myers, N., & Kent, J. (2004). The new consumers. Washington DC: Island Press/Shearwater Books Washington DC, 199 pp.

OECD. (2002). Policies to promote sustainable consumption: An overview. OECD Programme on sustainable consumption, Paris, 36 pp.

Oosterhuis, F., Rubik, F., & Scholl, G. (1996). *Product policy in Europe: New environmental perspectives.* Dordrecht: Kluwer Academic Publishers.

Princen, T. (1999). Consumption and environment: Some conceptual issues. *Ecological Economics, 31*, 347–363. doi:10.1016/S0921-8009(99)00039-7.

Ribeyre, F. (2003). Pour une écologie familiale. *Fondements et finalités. Nature Sciences Sociétés, 11*, 169–173. doi:10.1016/S1240-1307(03)00046-3.

Sanne, C. (2002). Willing consumers—or locked in? Policies for a sustainable consumption. *Ecological Economics, 42*, 273–287. doi:10.1016/S0921-8009(02)00086-1.

Sennes, V., Breillat, J., Gombert, S., & Ribeyre, F. (2007). Driving forces and obstacles to local policies for sustainable household consumption. The case study of a suburban area near Bordeaux, Gironde, France. In *11th European roundtable on sustainable consumption and production*. Basel, Switzerland, 21–23 June 2007.

Sennes, V., Fontan, B., Gombert, S., & Ribeyre, F. (2008). Réduction des incertitudes et environnement: apports et limites du champ de recherche «consommation des ménages—environnement». In P. Allard, D. Fox & B. Picon (Eds.), *Incertitude & environnement*. La fin des certitudes scientifiques. Coll. Ecologie Humaine. Edisud: Aix-en-Provence.

United Nations Environment Program. (2002). Sustainable consumption: A global status report. United Nations Environment Programme, Production and Consumption Branch, 84 pp.

United Nations Population Fund. (2007). State of World Population 2007. Unleashing the Potential of Urban Growth. 108 pp.

Zaccai, E. (2000). Ecological oriented consumption: A plurifactoral approach. *International Journal of Sustainable Development, 1*(3), 26–39. doi:10.1504/IJSD.2000.001524.

Zaccai, E. (2008). Assessing the role of consumers in sustainable product policies. *Environment, Development and Sustainability, 10*, 51–67. doi:10.1007/s10668-006-9038-3.