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ORIGINAL PAPER

Assessing the role of consumers in sustainable product policies

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Abstract A global analysis shows that considerable forces contribute nowadays to the perpetuation of the so-called ''developed'' model of consumption, and its extension to growing parts of the world, despite reiterated calls for ''modification of production and consumption patterns''. Environmental product regulation can be situated in this general perspective. This paper returns to the framing of policies devoted to ecologically sustainable consumption, taking the example of the Integrated product policy at the European level. How are the objectives of such policies defined? What instruments are privileged? Comparing theoretical approaches with policy design, we focus on the role devoted to consumers in these contexts. Bringing in literature evidence, survey results and findings from an original study, we argue that appropriate knowledge of the diversity of consumers' attitudes and about the limitations of their possible actions is not properly taken into account in product policies, notably when information and voluntary tools are dominant. From this point of view, environmental product regulations are well justified, but they should, as all policy instruments implicating consumers, take careful notice of their situation.

Keywords Consumers · Products · LCA · Policy · Sustainable · European Union

Abbreviations

EMAS	Environmental management systems
IPP	Integrated product policy
LCA	Life-cycle analysis
Nox	Nitrogenous oxide
OECD	Organization for economic co-operation and development
POPs	Persistant organic pollutants
SNA	System of national account

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TMR Total material requirement
VOC Volatile organic compound

Sustainable objectives and assessing the impacts of consumers

This section introduces the objectives set for a reorientation towards more ''sustainable'' patterns of consumption and production.[1] It exposes the principle of Life-cycle analysis as a basic method assessing the environmental impacts of products. This framing is used to show the difficulty of defining precisely the role of consumers in this process.

Objectives

Wolfgang Sachs[2] has sketched two different kinds of objectives pursued in the search of reducing the pressures of these consumption and production patterns on the environment. On the one hand, he talks of ''nanograms'', pointing (figuratively) to classic objectives of restriction of harmful substances, even in relatively low quantities; one could think here of many polluting chemical substances such as some Persistant Organic Pollutants (POPs), or the REACH European reform on chemicals. On the other hand, Sachs points to what he calls ''megatons'', to describe the types of objectives concerning substances that are not really harmful in and of themselves (think of CO_2, or water consumption), but that may lead to serious perturbations in the relations between man and his environment, when millions, sometimes billions, of tons are displaced from their natural cycles.[3]

In his paper, Sachs pleaded for new objectives concerning ''megatons,'' due to the level of disturbance now introduced in the ecosphere at the macro level.[4] We can notice a strategy launched by the European Commission in this sense,[5] and also the use of a much aggregated indicator, the Total Material Requirement (TMR), which reflects the materials used by an economy, now included in the environmental reports of the European Environmental Agency.

We will consider this simple distinction to be quite pedagogic (even if, of course, one can list substances cross-cutting these two rough categories). However, product policies do

[1] Boulanger (2003), Zaccaï (2003). The follow-up of Johannesburg in the field of sustainable production and consumption includes, at international level, an International Expert-Meeting on the *10-Year Framework of Programmes for Sustainable Consumption and Production* in Marrakech (16–19/6/2003), which has inaugurated a *Marrakech process* in the same institutional context.

[2] *Turning vision into reality: rethinking how sustainable business must operate in the future*, workshop of the Federal Council for sustainable development, Brussels, 9/29/1999.

[3] The order of magnitude of annual greenhouse gas emissions caused by man accounts for 8 billion tons of Carbon.

[4] They are documented for instance in Vitousek et al. (1997). However, the limits of our global ecosystem are difficult to assess, and Vitousek's calculations have been strongly contested by Le Bras (1994).

[5] The EU Communication *Towards a Thematic Strategy on the Sustainable Use of Natural Resources* (2003) proposes, among other objectives, to set priorities for resource management (regionally defined).

not often distinguish between these two kinds of objectives, even if the first one (''nanograms'') is much more common.

An additional and important remark to be made here is that a complete ''sustainable consumption'' policy should not only include ecological but also social parameters (as one can take it for granted that in any case, economic constraints will also be taken into consideration). Regarding the ''socio-profile'' of a product, there are not, for the moment, many integration efforts within usual programmes for sustainable consumption. There exist some social norms and standards applied to working conditions, some of which are related to products (i.e., social labels), but these social dimensions are generally not considered in the actual environmental product policies. Though in business thinking, ecological and social conditions are more and more considered together within voluntary international initiatives such as the Global Compact (UN) or the Global Reporting Initiative. In the rest of our contribution, we will not consider these social aspects of products; rather we will focus on the social response to environmental consumption in economically rich parts of the world. But we have to remember that for balanced sustainable decisions, they will in any case have to be considered at one moment or the other.

Using life-cycle analysis

Having introduced the general orientations of product policies for sustainable development, we will consider a method commonly used to determine the environmental impacts of products (Fig. 1).

This picture shows the classic representation of the ''life'' of a product, ''from cradle to grave'' (or ''resurrection'' in case of recycling). One can easily notice that, at each stage, inputs and outputs occur, some of them causing various kinds of pollution.

From its beginning,[6] this systemic approach was meant to drive environmental policies towards a more coherent action. For instance, it would not be efficient to minimize wastes at production level, while allowing the extraction of raw materials in the same cycle, generating an exaggerated pollution. Example: the aggregated impacts, assessed in total material flows, would be around 16–20 tons for a computer, half of the result obtained for a car.[7] So even if, say, the production process of computers respected ecological norms, the total amount of impacts attached to this computer would remain quite important, with a kind of ''hidden'' impact, or hidden ''ecological backpack,'' to use the vocabulary of the researchers from the Wuppertal Institute for climate, environment and energy, which did a lot to promote this systematic picture. We notice that this material flows approach has direct links with the ''megatons'' kind of objectives mentioned by Sachs (who is in fact also partly attached to the Institute). But the impacts may be quite varied, and chemical pollutions (''nanograms'') can also be taken into account, depending on the way the impacts are assessed in the framework of different kinds of life-cycle analyses.

The place of consumers in the picture: a matter of boundaries

In the policies promoting sustainable consumption, we find the systematic approach of life-cycle analysis (LCA) often referred to in order to emphasize the impacts at the consuming stage compared to the production stage (see for example Oosterhuis, Rubik, & Scholl,

[6] See for instance Blouet and Rivoire (1994).

[7] Results by the ''ecological backpack'' method, developed by the Wuppertal Institute, used by a study from Friends of the Earth Europe, and cited by Carley and Spapens (1998, p. 153).

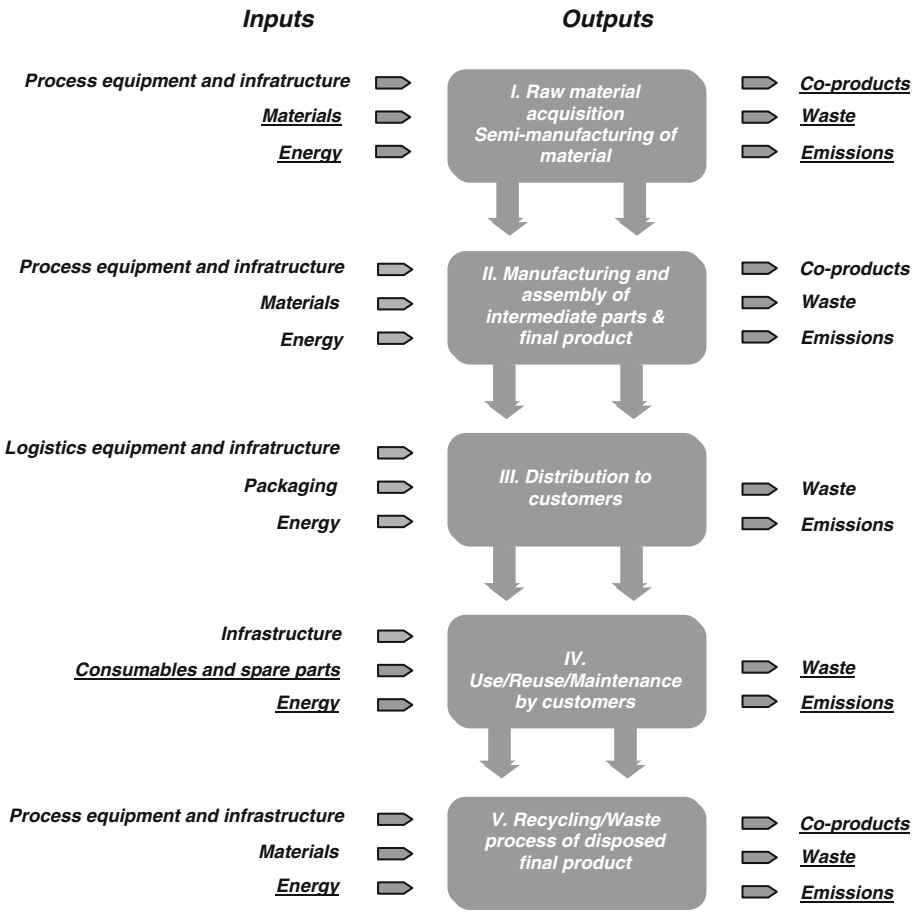

Fig. 1 The LCA Scheme. From Institut Wallon, VITO (2002), *Identifying key products for the federal product and environmental policy*, Report for the Directorate-General for the Environment of the Federal Public Service for Health, Food Chain Safety and Environment, Brussels. Only the underlined fluxes have been calculated in this study

1996). Fuel for vehicles and its emission, electricity and water in washing machines, are common examples of greater impacts present specifically at the consumption stages.

There is something in LCA, however, that was noted since the origins of these methods: their great dependency on calculation conventions, boundaries of systems, selection of certain kinds of impacts, and on factors used for the aggregation of impacts. In considering only the boundaries problem, we can have a look at contrasted results found for the impacts ''of consumers,'' with different calculations (in Germany);[8] (Table 1).

Based on some vectors of air pollution, this example illustrates very well the relatively low share of consumers' direct impacts (method 1), but also the much higher amplitude of aggregated impacts that can be related to products consumption (method 2a and 2b). The question is then to understand in what sense these impacts are to be attributed to consumers

[8] Graphic and comments adapted from Spangenberg and Lorek (2002 pp. 130–131) (also from the Wuppertal Institute).

Table 1 Household emissions as % of total emissions, for different calculations (Germany 1992/93)

Emission into the atmosphere	Method of calculation		
	Household based (1)	Direct SNA-based (2a)	Accumulated SNA-based (2b)
Carbon dioxide (CO_2)	14	24	59
Carbon monoxide (CO)	15	58	73
Nitrogen dioxide (NO_2)	5	26	64
Sulphur dioxide (SO_2)	7	6	57
Methane (CH_4)	6	2	60
Non-methane volatile organic compounds (NMVOC)	11	38	66

From Spangenberg and Lorek (2002). The household based calculation (1) is based on a rather narrow definition of household emissions, accounting e.g., for the direct emission of CO_2, mainly from burning fossil fuels. Neither the emissions for mobility (in a separate sector ''transport''), nor those for generating the electricity used in households (in a sector ''power plants'') are included in this approach. Direct SNA-based accounting (2a) includes the former but not the latter (emissions for mobility, but not emissions for generating the electricity used in households). Accumulated SNA-based accounting (2b) includes both, considered as emissions caused by households. In Germany, for example, the latter approach (2a and 2b) is used by the Statistical Office, while the Environment Agency usually refers to the former one (1), with significantly differing results

themselves. This is not only a matter of calculations—and this example shows how we should be cautious about that—but also a matter of responsibilities, efficiency of changes, possibility of changes. After all, it appears normal that, in a given society, a majority of impacts are dependent on consumption; but the life of a product, as we have seen, is far from being dependent on the ''actor'' consumers only: it has to be produced, sold, disposed of, ... and it could also be argued that the impacts at this stage are more dependent on these various other actors. Focusing on the consumers' responsibilities and range of action will also be a matter of understanding their attitudes and actions (see Section 3). Spangenberg and Lorek, who produced these results for Germany, consider that ''*Not only is the allocation of certain decisions to a single motive highly arbitrary, the allocation of responsibility for any such decision to the specific actors involved is problematic as well. However, successfully doing so for the household sector is an essential precondition for assessing its environmental impact* (Spangenberg & Lorek, 2002, pp. 130–131)''.[9]

Conclusions

In this first section, we have introduced the framings of environmental product policies, regarding their general objectives and their assessment of the impacts of products. These elements are a necessary basis for the initiatives included in any policy, for any desired change towards greater sustainability will have to be justified in relation to its ecological

[9] In Germany, according to the results presented in the study, energy consumption of housing accounts for 32% of the total demand, with heating representing 49% of the total household energy consumption, which includes passenger transport. Construction and housing cause 29% of total material flows. This includes all raw materials and resources needed for the construction, extension and maintenance of apartments and houses including energy carriers for heating and materials used at the end of the life-cycle in order to demolish the building. In Belgium, by choosing ''building structure and occupancy'' as one of the four sectors having priority, the study of Institut Wallon-VITO, from which Graph 1 is taken, is in accordance with the results obtained for Germany (the Belgian study was inspired from the methodology of the Wuppertal Institute).

added value. We have exposed certain sources of difficulty in clarifying priorities in objectives and insisted on the various approaches to delimitate the responsibilities of the consumers in the whole process. These elements will engender controversies and can weaken the understanding that consumers themselves (but also other actors) have of these issues. In Section 3, we will look more into detail at this understanding. But first, in the next section, we will go on exposing the features of environmental product policies, by looking at the instruments that are used.

Policy instruments used in environmental product policies

Range of possibilities for policy instruments

Already in 1996, Oosterhuis et al. (1996) documented the use of over 40 instruments in environmental product policies. Direct regulatory, economic and voluntary information instruments are the most known and widespread. But each category includes a variety of possibilities, and there are other categories as well (Table 2).

In theory, choosing the adapted set of measures should be done with their feasibility and efficiency in sight; that requires an analysis of both the legislative and political contexts without neglecting the role played by different social and/or institutional actors. Environmental policies calling for the involvement of different actors, or ''stakeholders'' are increasingly numerous (European Environmental Advisory Councils, 2003). Some policy instruments may even be particularly devoted to specific categories of actors. In any case, a majority of observers agree on the fact that a mixture of instruments is preferable than resorting to a single instrument.

Integrated product policy: looking at a strategy

As a major and actual case study at the European level, we can consider how this potential set of policy instruments is used in the European Integrated Product Policy (IPP).[10] This overarching initiative aims at strengthening coordination and coherence between environment-related product policy instruments such as (for instance) Environmental management systems (EMAS), Environmental labelling (European Eco-label), Waste Electrical and Electronic Equipment Directive, Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive, End of Life Vehicles Directive, or REACH. The IPP case can also figure as an illustration for the questions about the life-cycle stages at which objectives are promoted (see our Section 1).

The presentation above shows that IPP relates to a wide range of environmental pollutions, including all stages of the life-cycle. For instance, the major REACH project mostly refers to the production stages, and in this case, typically, to the ''nanogram'' type of pollution mentioned earlier. But the IPP is also meant to divert the focus of environmental policy from the very early (i.e., manufacturing) and very late phases of the life-cycle (i.e., waste management), which have been addressed traditionally in environmental policies. In other words, the consuming phase may acquire more

[10] *Integrated Product Policy. Building on Environmental Life-Cycle Thinking* (Com 2003-302) Adopted at the Council Environment, in Luxembourg, 27/11/03.

Table 2 Categories of policy instruments for a product policy from Oosterhuis et al. (1996)

1. Direct regulatory instruments
Prohibitions
Admission procedures
Registration procedures
Information duties
Product standards
Guarantee rules
Obligations to take back
Quotas of returnable products
Minimum use quotas of waste materials
Recycling/reuse quotas
Advertising rules
Distribution restrictions
User obligations
User benefits
2. Economic instruments
National product taxes
National product charges
Regional product taxes and charges
Financial assistance
Deposit–refund schemes
Marketable permits
Public procurement
Leasing
Product liability
3. Compulsory information instruments
Compulsory labelling
Declarations of content
4. Voluntary information instruments
Test reports
Eco-labelling
Other voluntary labelling schemes
Norms
Quality marks
Trade marks
Life cycle assessment (LCA)
5. Voluntary agreements
Legally obliging agreements
Self-commitments
6. Consumer policy
Consumer advisory centres
7. New institutional arrangements
Eco-leasing
Sharing
Pooling
Least-cost-planning
Substance agencies
8. New forms of co-operation
Co-operation between producers and environmental organizations
Co-operation between traders and environmental organizations

importance. In this respect, one important piece of the framework that will be set aims at *''Giving Consumers the Information to Decide. Consumers, whether private, public or individual, decide whether or not they purchase greener products and once bought, how they are used. The Community's role here is to provide and encourage EU-wide tools*

and frameworks to provide consumers with product information'' (Communication on IPP, 5.3.)

Apart from establishing the framework conditions for the continuous environmental improvement of all products, IPP aims at developing a focus on products with the greatest potential for environmental improvement. It is interesting to note that this second objective rests on efficiency reasoning, and not necessarily on a ranking of priorities from the point of view of the seriousness of pollutions.[11]

As usual, within the general governance paradigm influencing European policies, orientation decisions require the involvement of the stakeholders. For the Commission, IPP should look at products in a holistic way, involve as many actors as possible and leave them the responsibility for the choices they make. A strong emphasis is put on the companies' involvement. For M. Wallström, ''*in a competitive business world, environmental performance can be a factor giving companies or their products a competitive edge. IPP can help such companies by giving them more visibility.*''[12] The implicit assumption is here that a demand towards these orientations exists among stakeholders. One important guideline is to promote more responsibility from producers and designers for their products in order to ensure that these fulfil agreed-upon criteria on health, safety and the environment. Another guideline is that in principle, IPP will complement current legislation by triggering, on a voluntary basis, further improvements in those products whose characteristics do not necessarily require legislation.

Which policy instruments are recommended to the Member States? We first find a call to promote and encourage, where appropriate, the use of fiscal measures, such as environmentally-related taxes and incentives, in order to promote greener products, and another towards the elimination of environmentally negative subsidies. However, we could notice that though justified, the efforts towards more ''green'' fiscal measures remain, year after year, the weakest element within the general fiscal framework. From 6.2% of the total environmental taxes in the total of the tax revenues in the EU in 1990, the share has risen only to 6.5% in 2002, compared to 49.7% in 1990 and 51% in 2002 for labour taxes (Eurostat, cited in EEA, 2005, chap VI, Figures), though the number and level of environmental taxes can vary considerably from country to country, being higher in Northern Europe. One should also consider that the European energy sector receives some 30 billion euros in subsidies annually, more than half of which go to the polluting and climate-endangering coal and oil industries (EEA, 2005, chap VI, §84).

Information instruments are far more numerous in the IPP design. For example: education, training and awareness-raising measures on life-cycle thinking; promoting the development and use of the European Eco-label; ensuring implementation of the Misleading Advertising Directive; encouraging uptake of information measures directed at public authorities for public procurement. The dominance of these instruments in the IPP suggests that consumers represent key actors in this context. In the IPP, they are directly called upon for three very fundamental actions: purchasing greener products; using and maintaining products so as to minimize environmental impacts; disposing of products correctly.

[11] However, the identification of a first set of products with the greatest potential for environmental improvement, and the beginning of action to tackle them are only foreseen by the Commission for 2007, a sign of the difficulties for an effective focus on certain impacts in this framework.

[12] Press release from 18/6/03, *Integrated Product Policy; Commission outlines its strategy to stimulate greener products*, EC, Brussels. M. Wallström was the European Commissioner responsible for this proposition.

Other policy instruments relate to the promotion of adequate technological research, and different concerns about integration of IPP in other policy areas. In coherence with the stakeholders' approach, there are specific instruments enumerated for different categories of stakeholders, though their logic is often common: to promote and apply different voluntary measures, education and information efforts, and integration preoccupations.[13] For example, consumer and environmental organizations have four policy instruments in common: promoting the integration of environmental considerations into national standardization bodies; education and awareness-raising measures on life-cycle thinking and environmental information sources; promoting the development and use of the European Eco-label; reporting on the implementation of IPP.[14]

IPP in the framework of environmental policy

We have seen the main features of the IPP, as exposed in its fundamental document (2003).[15] Since this integrated policy has the purpose of coordinating environmental measures on products, from the cradle to the grave, we are faced with a relatively large field, to which few means are attributed within the European Commission. To have an idea of the actions organized in order to diminish the products' impact in a broad sense, we must consider environmental policies at a much larger scale; we have seen such examples regarding environmentally-oriented taxation policies and subsidies. We must also consider regulations that have shown, in certain cases, great efficiency.

As such, reducing stack emissions that cause acid rains through investment in fuel-gas desulphurization equipment have cut these emissions in the order of 90% over 35 years. Another example concerns the norms adopted in the automobile industry: European individual vehicles today produce only around a tenth as much pollution for every kilometre driven as they did 35 years ago (EEA, 2005, chap. VII, §56–57).

However, an orientation towards the consumers' choices and the growth of information means can better express actual tendencies than can legislative reinforcement and the project of increasing economic tools, which are anyways more difficult to implement. In this respect, it is probable that the integrative purpose of the IPP might be a partial reason for the emphasis of voluntary instruments, given the difficulty of regulatory coordination measures.

Conclusions

Be it via the options defended by the IPP or through other means of environmental policy, it is clear that the interaction with the consumers of these products is a crucial point to be considered.

In particular, the omnipresent information instruments are based on the hypothesis of a consumer demand for the ''greening'' of markets. This hypothesis is also beneficial to the acceptance by consumers of any instruments favouring this kind of products. This is why it is important to build up an adequate view of the attitudes and demand of consumers. In the third part of this article, we will study in greater detail the consumers' perceptions towards the different policy instruments we introduced in this second section.

[13] For eco-procurements (also recommended in the IPP), see the assessments made by Erdmenger (2003).

[14] A survey of NGO's actions in promoting ecological products can be found in Kong, Salzmann, Steger, and Ionescu-Somers (2002).

[15] See note 10.

Perceptions of sustainable consumption issues by consumers

Questioning the model of information to action

Social studies can shed precious light on the consumers' role in environmental policies and particularly on the concept of the informed and aware consumer, who would therefore diminish his environmental impacts. Cohen and Murphy have edited a collection of ''explorations'' on different aspects of policies related to sustainable consumption (Cohen & Murphy, 2001, pp. 4–5). They underline that consumption includes some fundamental cultural aspects, which are often underestimated in materialistic approaches through the economy or through environmental impacts analysis. In our fragmented societies, consumption seems to have replaced production as a key reality, or a key link.

Various authors stress the importance of cultural influences in the ways environmental impacts are perceived in consumption issues, for ''*it seems to be people's cultural context that is the key to explaining different perceptions of environmental issues* (Eder, 1995, quoted by Brand, 1997, p. 205).'' So, this would be a first point to address: as marketing has known for a long time, ''consumers'' are fragmented; there are differentiations among their perceptions and behaviours, and of course this general observation also pertains to ecology-related goods. Different reasons for reducing the impacts of one's consumption are also mentioned by Dobré (2002), who distinguishes for instance ''savings'' motivations and ''self-repair'' concerns (notably in rural areas). In Zavestoski's opinion (expressed in Cohen and Murphy's book), an anti-consumerist attitude would be different from an environmentally friendly attitude, the first being rather based on frustration, the second on altruism. More widely, Jackson and Michaelis undertake interesting explorations of conceptual foundations showing difficulties to find consistency between some drivers of human behaviour and the goals of sustainable consumption (Jackson & Michaelis, 2003, see also Wilk (2001) for a story of the theorization of consumption related to human needs).

Some authors use the term ''lifestyle'' in the meaning of ''*a combination of social location, basic cultural orientations and social practices of life.*'' So does Brand, even if he admits the imprecision of this notion. He points at some findings that seem to contradict Inglehart's ideas, more relevant in the beginning of the green movement, and that restrict ecologically friendly attitudes to post-materialist categories of population (Brand, 1997). A survey of studies performed in Europe and the US, by Diamantopoulos, Schlegelmilch, Sinkovics, and Bohlen (2003) confirms this view, finding that ''*Although the multivariate results indicate that socio-demographics are associated with environmental consciousness, their explanatory power is weak. Thus, from a managerial perspective, there is limited utility in the use of socio-demographic characteristics for profiling environmentally conscious consumers (...) Given the increasing media coverage and political attention to green issues*, 'it appears environmental concern is becoming the socially accepted norm''' (id., p. 477).[16]

In addition, in whatever complex and evolving manner consumers' motivations towards ecology could be, it should be stressed that in any case, the total amount of consuming goods and, in general, their structure, appear pretty much linked, at the end of the day, to economic income. As Dobré puts it: ''*The budgets allocation (...) varies with social position but, leaving aside diet expenses, it is also true that the more income is at one's disposal, the more he will consume. The influence of diploma or profession on households*

[16] The last sentence is a citation from Schwepker and Cornwell (1991).

consumption appears relatively weak, if compared to the size of the household, to the difference between rural and urban, and above all to the income: ''the influence of the social category on consumption comes down to the influence of income: if an executive and a worker differ in their consumption structures, it is more because of their income gap than of their difference in professions''(Dobré, 2002, p. 262).[17] This observation, of course, seriously weakens the objectives of diminishing ''megatons'' impacts in a society with growing affluence.

When it comes to issues of informing consumers and the consequences thereof, many scholars consider that the increase in awareness and information does not really seem to make, altogether, a significant difference. Kuckartz formulates a rather pithy assertion in this sense: ''*The influence of environmental knowledge on environmental consciousness is small, effects of environmental knowledge and consciousness on behaviour are insignificant* (Kuckartz, 1995, quoted by Brand, 1997, p. 206). Some scholars may be less severe, for instance using appropriate manners of turning attitude into actions (Haynes, 2004; Kaiser et al., 2003). Nevertheless this general statement certainly encourages us to be cautious about the limits of policy strategies that would mostly be based on information and awareness-raising instruments (see Section 2). Let us conclude for the moment, with Brand, that: ''*There seems to be a broad consensus (i.e., among scholars) that personal values, situational contexts, infrastructural deficits and financial incentives play a more important role than knowledge, affectedness and environmental attitudes*'' (Brand, 1997, p. 207). Approaches that study an array of these kinds of influences on the modification of consumers' behaviours can be found in Norman and Uiterkamp (1998), Haynes (2004), or Southerton, Chappells, and Van Vliet (2004), the latter focalizing on the influence of infrastructures.

Teachings from opinion polls

Opinion surveys are another useful source to give for the general perception of social issues. To complement the elements seen above, let us have a look at what comes up from this kind of source about the influence of consumption on the environment, and about the perception of environmental policies.

In a 2004 European opinion survey for the Commission (Eurobarometer, 2005), the following question was asked to a sample of approximately 1000 persons in each of the 25 member states: *From the following list, please list the five main environmental issues that you are worried about?*

The proposition ''Our consumption habits'' comes at the 14th rank among 15, with 13%. Four topics ranged between 47 and 45% of ''worried'' (water pollutions, man-made disasters, climate change and air pollution). On this basis, environmental problems caused by consumption habits do not seem to be perceived as very important compared to other topics which have been, generally speaking, media covered for a longer period, many of them of greater direct amplitude. Respondents do not stress the link between their consumption habits and products' ''friendliness'' for the environment, even if some consumption effects (on water or air pollution), on the whole, are worrying them. However, the rising awareness (based on respondents' declarations) of environmental issues by individuals reflects an evolution in attitudes.

When questioned with regards to the impact of their actions, more than half of the 85% of respondents who stated that they are making efforts to protect the environment do not

[17] Plain characters are a citation from a study from the INSEE, the French national statistics institute, from 1997.

believe that their efforts have an impact as long as others, including citizens (30%) or corporations and industry (27%), do not do the same. Only 19% of those stating that they are making efforts to protect the environment do actually believe that their efforts have an impact (id., p. 44). These figures contrast with the high proportion of the population asking public authorities to take the environment into account in the main spheres of decisions. Citizens believing that policymakers should take into account environmental concerns when deciding policy in other areas such as the economy and employment are 88%, on average, and up to 94% in the new member states (id., p. 43).

Generally, in order to reduce environmental pollution, Europeans claim a greater intervention of public authorities (see table below) and, above all, the enforcement of direct regulation. These opinions, in favour of environmental regulation, contradict a widespread discourse of the industry and of some authorities preferring less intervention for more efficiency (See Section 2). Only a small percentage of respondents rely on initiative from the industry in this field (Table 3).

We can also see that 35% of the respondents agree with a taxation of those who cause environmental problems, showing that quite an important part of the sampled population would be in favour of a specific ''polluter pays'' principle. However, when projects of raising fuel prices are proposed for instance (which is an example of such a ''polluter pays'' principle), they often encounter strong resistance from consumers. This confirms a discrepancy between support by declarations, and effective actions by consumers, a trend that appeared previously in the results of social studies analyses. All in all, opinion polls, such as the previously mentioned study, show the complexity and multiplicity of factors intervening in the reactions of consumers to policy instruments towards sustainable consumption. Before summarizing, in the last part of this section, what can be learned from these sources, let us introduce some more insights on the subject, originating from a specific study carried with consumers.

Working with focus groups

A research performed in Belgium in 2002–2004 (Bruyer et al., 2004) organized four focus groups with consumers in order to determine:

– Consumers' perceptions concerning the concept of sustainable development (including the social dimensions) as well as their behavioural and attitudinal logics regarding this issue;

Table 3 Support (in percentage) to several policy options addressing environmental problems from Eurobarometer (2005)

In your opinion, which of the following would make it possible to most effectively solve environmental problems? (max. 3 answers)	%
Making national/European Union regulations stricter, with heavy fines for offenders	46
Better enforcement of existing environmental legislation	45
Raising general environmental awareness	44
Only taxing those who cause environmental problems	35
Higher financial incentives (tax breaks, subsidies, etc.) to industry, commerce and to citizens	25
Giving environmental NGOs/associations seeking to protect the environment more say in decisions about protecting the environment	23
Relying on initiatives from industry, farmers, etc.	9
Making everyone pay more in taxes, prices, etc. to cover environmental costs	7

– Potentialities to adopt consumption attitudes and/or behaviours respectful of sustainable development, and more specifically by pointing out differences between categories of products.

The results of these focus groups have been analysed by Bontinckx and Rousseau (2003) according to a model based on the profiles of psychological needs.

A first result is that consumers feel powerless to integrate all the parameters relating to sustainable development in their behaviours and their choices of consumption products. But what has been highlighted by the specific method of analysis is the fact that each and every single choice respectful of sustainable development is embedded in a personal dynamism of consumption aiming at the satisfaction of psychological needs. These needs are organized, for all of us, according to variable profiles of attitudes and behaviours.

The topics inherent in eco-consumption that have been expressed during focus groups can all be declined from the consumer's personal motivation (principle of interpretation at the basis of this method of analysis). A same choice of consumption made by different consumers can then be understood as the result of different personal motivations. For instance, the purchase of a given ''green'' washing powder may result, according to people and even according to circumstances, from priority given to health, or the sensation of being a good citizen, to the care for water quality (for economic reasons or public health reasons), or even from attraction to a pleasant smell...

Therefore, if the wish is a sustainable consumption policy that efficiently influences choices made by consumers, a range of proposals that may respond to diverse needs coming from different profiles has to be set up, all of this in respect with sectors and products. A unique approach, a single scheme, would be far from sufficient. One may notice the contribution of this focus groups method of investigation compared to opinion surveys, which do not understand motivations and do not stress differences in personalities. We also recall here some findings in literature about the spreading of ecological motivations in the population, but with different declinations (''lifestyles'') (Brand, 1997, see 3.1.).

Some results of this study suggest two separate profiles when considering the motivations of choices related to ethics and green consumption. The first would be mostly worried about ''ethical'' products and it is composed of persons who are mainly looking for a personal sensation and hoping for long-range results, but without a real preoccupation about the efficiency of their choice. The second profile would be composed of persons looking for tangible and verifiable results at a local level, in a more classic green consumption perspective. Here again, a unique campaign in favour of sustainable consumption will not give the same results for both of these profiles.

General information about eco-products is perceived with confusion, and the access to products is rated as difficult. It is worth noting that the European green label was not known at all in the groups.[18] Sources of information gain a maximum of credibility by their personal competences as well as by their proximity to consumers. The preferred source of information remains a close and personal acquaintance that is considered as competent (the

[18] A partial explanation is that only 19 of these products with a European Eco-label were available on the Belgian market (in 2002). Eleven out of these 19 belong to the textile product group; 4 belong to the indoor paints and varnishes product group. Only 3 products manufactured in Belgium are allowed to adopt this label. Belgium is not an exception. In the Netherlands, for instance, 13 European eco-labelled products were available on the market (2002). A study carried in four European countries stated that only between 1.7% (Norway) and 0.4% (Italy) of a sample of interviewees mentioned the EU Eco-label. For national eco-labels, however the situation is different, with 70% in Norway, 57% in Germany, 39% in Spain, but still less than 1% in Italy (Rubik & Frankl, 2005, pp.109–110).

physician, the dentist ...). At the political level, the local public authority (the municipality) is perceived as credible. Scientists, national governments or European public authorities have less credibility because they are too far from the consumers in their ordinary lives.

When considering other issues such as important environmental topics as well as public and personal actions that are desired, the results are more or less in accordance with European opinion polls (Eurobarometer, 2005, see 3.2.). For instance, personal actions are perceived by participants in the focus groups as having little efficiency and they believe that initiatives have to be managed at national and international levels.

Despite the fact that three groups out of four were carried out between 1 and 3 weeks after the Johannesburg Summit (September 2002), it was noted that the concept of sustainable development is not spontaneously known by participants, even when they declare to be aware of environmental issues. These data confirm the results we pointed out in a previous research based on a general study of the Belgian opinion (in 2002, only 35% of Belgian respondents declared to know what sustainable development was, and a much smaller amount of the sample was able to give an explanation of the concept according to ''experts definitions'' (Bachus et al., 2002)[19]).

After being briefed about the concept of sustainable development, participants who took part in these focus groups perceived it as utopian, even contradictory. Generally, they were not able to simultaneously associate three dynamics: environment, ethics and socio-economic issues. Preferably they would raise more specific issues. This result is worth noting insofar as public awareness instruments could be more successful if these were differentiated and targeted on some topics, and if they did not pretend to be consistent with the whole sustainable development concept.

Most of the participants associated sustainable development with environmental issues and, to a lesser extent, to North–South economic relations. With these references, numerous respondents are, as individuals, divided between on the one hand, the wish of promoting greater equity when considering wealth distribution and labour retribution at the global scale and, on the other hand, the fear of losing their current personal assets. A pessimistic view of connected vessels appears: ''*if they get more, we will get less.*'' These opinions contrast with the ''*win–win*'' rhetoric commonly found in sustainable development discourses. Most of the participants express their fears when considering their personal situation: some of them have lost their job, some navigate between work and unemployment, and others have acquaintances with financial difficulties.

As do the other findings related in the present section, these results urge for serious taking into account of the diverse realities of consumers' motivations and behaviours, when setting up consumption-oriented environmental policies. It is worth noting that the knowledge elaborated within the field of marketing remains often poorly used in public campaigns in favour of sustainable consumption. Furthermore, when these incentives are in opposite directions, one has to expect that professional and expensive campaigns from classic advertisers for ''not-so-green products'' will profit from a comparative advantage.

Conclusions

Through three types of approaches—literature, opinion surveys and a specific study based on consumers focus groups—we have documented the citizens' relations with the objectives of ecological consumption. Against an important general concern about

[19] Here again these Belgian results are not isolated in Europe.

environmental degradation, an image of diversity through individual attitudes and acts emerges. It can be underlined that much of the knowledge of the consumers' perception and purchasing habits, which is commonly used for market techniques (marketing), has been so far poorly used in public policy (that is not saying, therefore, that it should not be adapted in this case). Although virtuous, and even logical up to a certain point, the idea that informed consumers will act to modify the market in favour of more sustainability appears then as very partially operational.[20]

Consumers are not convinced of the importance their contribution could have and continue, mainly, to expect a legislative setting from public authorities as well as, to a lesser degree, financial incentives. Yet, we have seen (Section 2) that due to a series of difficulties, among other things in coordination, it is not these types of instruments that are privileged by such a major initiative as the IPP. The Integrated product policy wishes to promote voluntary initiatives from enterprises and stakeholders, arguing that there exists a demand favouring products more respectful of ecological norms and saying also that reinforced information will be a major orientation tool for the markets and, as a consequence, for the diminution of product-related pollution. With regards to that, the following conclusions will look once more at the perspectives that can be established.

Conclusions and perspectives

As a general conclusion, we will try to put into perspective the main elements appearing in this paper. A central question is how an environmental product policy could include more relevant knowledge about consumers so as to increase their efficiency. This is why detailed assessments of past results have to be pursued as, for example, concerning the poor success of the European eco-labelling, or, on the contrary, the good results of environmental norms, possibly combined to sector agreements, for several acid air pollutants or automobile emissions. Of course, the results depend also very much on the specificity of the environmental problem.

We have reported that consumers find it logical and relevant that compelling instruments be set up by authorities to protect the environment, for example through legislation or differential taxation. If the choice in favour of ecological products relied on them, they reckon indeed that it would be quite difficult in many cases to understand the eco-profiles of products, supposing they'd want to, and that ecological changes in their habits would meet some of their personal objectives. Anyway, whatever the instruments, public authorities have to take into account social realities and a fair distribution of burdens and advantages.

It is clear also that a major key is located on the production side. How can an innovation process be boosted, in which the reduction of impacts by product unit, or by value added unit, would significantly be accelerated? Usually the changes towards more sustainability are not so much motivated by the search of eco-products niches (generating strong reduction of impacts) as by the general aversion to risks of non-compliance to environmental standards (generating a weaker reduction of impacts).

As soon as policy instruments succeed in making the private sector adopt more eco-friendly products, or use of products, marketing approaches are displayed in a quite professional way. This has been the case for the great progresses achieved in the reclaiming systems set up by producers for certain categories of wastes (packaging, batteries...).

[20] We had already asked this question in Zaccaï (2000). In this paper, some criteria were suggested that may act in favour of active consumers' influence.

Values and preferences expressed through opinion surveys show an important potential of change, confirmed by affirmations of the willingness to act in favour of environmental protection, even if it is for different reasons, and in variable proportions. But these changes do not occur globally; in practice it is a collection of single acts that can, in the long run, make a difference. Each of these choices implies interferences with the interests of producers and purchasers of products. To simplify matters, one can say that in each case, the ecological choice will generate winners and losers, benefits here, losses there.

There is legitimacy in the fact that for a better understanding of this wide and diversified web, public authorities use visions of stakeholders, be it through their representative bodies, innovating companies, or scientific studies. Nevertheless, at the end of the day, public authorities are intended to act for the general interest, with a balance between short- and long-term, and this implies that they do not confine themselves to information instruments, and that they use regulatory instruments as well when these improve efficiency. These ''stronger'' instruments have also to take into account the attitudes and reactions of consumers, trying to benefit from their general support and finding ways to cope with inconveniences (before the environmental burdens would impose its own inconvenience), which is not an easy job. Altogether, we have tried here to explore the social necessities and challenges for the definition and appliance of these various instruments, with consumers as centres of necessary changes.

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