

# Sustainability: a gender studies perspective\*

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## Introduction

One of the problems of modern consumption society is its adverse effect on sustainability. The concept of sustainable development was introduced in 1987 by the World Commission on Environment and Development, also known as the Brundtland Commission. In the Commission's definition, sustainable development should meet the needs of the present without compromising the ability of future generations to meet their own needs.<sup>1</sup> Despite numerous attempts made to achieve a more sustainable society, many people still feel disappointed by the progress made so far. Dutilh and Casimir have developed a theoretical framework to analyse the main forces counteracting sustainable development. They hypothesize that those forces are inherent to the dualistic nature of each individual, having both an outgoing (masculine) element which aims to manifest itself, as well as a caring (feminine) element which is concerned about continuity and future generations. Because of the over-appreciation of masculine behaviour, which occurs not just in Western societies, feminine values have come under pressure. It is our opinion that sustainability can only be achieved through a combined approach of product improvement and behavioural

change. This requires a rethinking of the theoretical concepts upon which existing programmes to achieve sustainability are based.

In this article we first discuss the difficulty in realizing sustainable development and describe the main dualities related to consumer behaviour. Subsequently, we propose alternative concepts, in particular those derived from gender studies. In a final section, we relate these reflections to consumer behaviour.

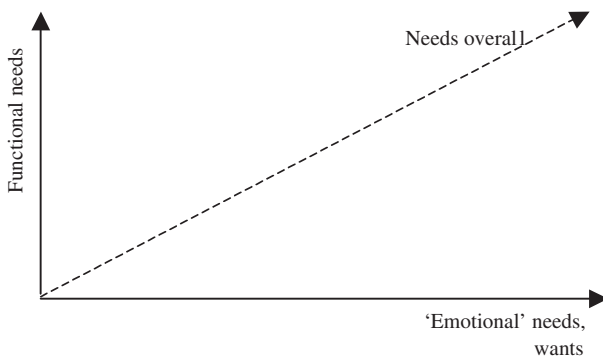
## Sustainable development in global perspective

The concept of sustainability gives expression to feelings of concern, and pictures an indistinct vision of a new and better world. To achieve this world, it is clear that drastic societal change is needed. Since 1987, numerous attempts have been made by many different interest groups to achieve a more sustainable society. Science and industry have introduced technological changes, authorities have formulated legislation, and consumers have been encouraged to change their purchasing behaviour. However, the results of these efforts are not perceived as being effective. This is partly owing to the fact that the concept of sustainable development itself is volatile and difficult to handle. Although Brundtland's definition sounds clear at first sight, it appears to be extremely complicated to operationalize the concept. Sustainable development aims to ensure the needs of the present, but people in different parts of the world and in different times have different needs and thus sustainability has a different meaning in different parts of the world and in different stages of history. Needs can be distinguished in 'technical' or functional needs and 'emotional' needs or desires and wants. The functional needs, on the one hand, are related to material, quantifiable goods and services like food, energy and water supply. In order to fulfil these needs, people around the world have to rely on scarce resources, which are fully interlinked by global trade. The degree

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**Figure 1** The overall need of each individual is composed of two elements: a functional and an emotional one.

to which people have access to those global resources is very much depending on their wealth and on the power of the country they live in. The desires and wants, on the other hand, refer to care, attention and self-realization. These are not limited resources as they are generated by people themselves. Hence, for the fulfilment of those wants, people are not dependent of the rest of the world. People's overall needs have both a functional and an emotional aspect as is shown in Fig. 1. In the section on consumption society, we will come back to this.

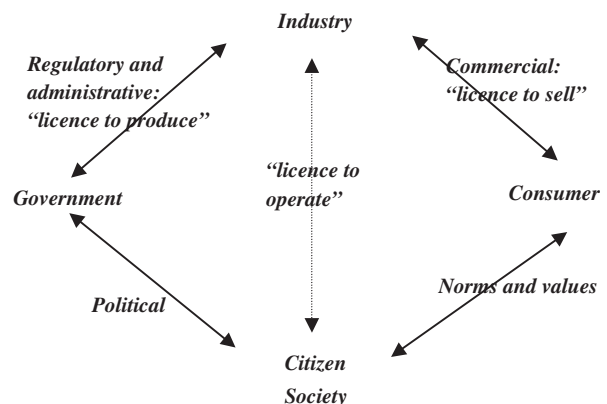
The complexity of the concept and the diversity of consumers' needs and wants make it almost impossible to define a sustainable future in such a manner that it can be achieved through a series of administrative or technical regulations.<sup>2</sup> Next to that, effective change is complicated for a number of other reasons. First, there is a multitude of diverse actors involved. The cooperation of industrial, administrative and institutional actors to develop strategies for the adoption of new consumption patterns is necessary.<sup>3</sup> Second, it does not suffice to consider the potential of isolated projects, because industrial sectors and consumption are linked. Implementing energy conservation in one specific sector may lead to increased energy consumption elsewhere within the production and consumption cycle. For example, the production of cars using lightweight materials – a high content of aluminium or magnesium – in order to reduce energy consumption when driving, results in higher energy requirements and greenhouse gas emission levels during production.<sup>4</sup> At the same time, new

gadgets like air-conditioning or automatic window openers have counterbalanced the weight reductions (rebound effect). Finally, it does not suffice to concentrate on changes at the technological or institutional level. The potential for regulating production is either not sufficient to remedy environmental problems or is already largely exhausted.<sup>5</sup> Academic and international policy arenas, as well as industries, are becoming aware of the fact that the purchasing behaviour of individuals, and the way consumers use, process and discard products determine to a large extent the degree of sustainability of a society. Therefore, the centre of attention is shifting from production to consumption, including both individual and social dimensions.<sup>5-7</sup>

### Consumers vs. citizens

In Fig. 2, we indicate the parties and interactions involved in consumption. In this scheme, a distinction has been made between consumers – the ones who actually buy products, and citizens – those who have attitudes and opinions concerning society. Both roles are present in each individual. They are influencing each other, but can be contradictory as well. It is our hypothesis that within one individual, these two roles never operate at the same time.

The consumer has a direct relationship with industry, which develops and produces products, which it tries to sell to its customers, ultimately the consumer. When



**Figure 2** Interactions between the various parties involved in sustainable development.

products meet the expected standard, they will be sold. In that case, the consumer provides a 'licence to sell'. Between industry and government, there is a regulatory and administrative interaction which sets the rules of the game, and provides the industry a 'licence to produce'. Governments are elected by citizens, and their performance is continuously evaluated in public debate. These debates are dominated by groups of citizens united in non-governmental organizations (NGOs). For instance, NGOs have had an impact on the use of non-phosphate detergents. However, this approach has a limited scope: citizens lose attention when the action lasts too long, and in particular when the regulatory system sets standards. As soon as products are changed or an agreement is signed – as was the case with phosphate in detergents – public attention ebbs away.<sup>8</sup>

The fourth and presumably most delicate interaction in the scheme is between consumers and citizens, an interaction that takes place between and within individuals in society. The consumer has a selfish and short-term orientation aimed at healthy and safe products with a low price, at products that lend status to the buyer, that give communicative significance, or provide direct enjoyment. He or she is 'first and foremost self- and welfare-centred and will not protect the environment at the cost of her or his personal welfare'.<sup>6</sup> Consumer behaviour appears to be extremely difficult to change. Consumers are not a homogeneous, well-organized group, but consist of many different individuals. Moreover, individuals do not always act consistently but are manifold in their behaviour, dependent on the context within which they operate. Although daily routines play an important role in purchasing behaviour, consumption patterns are at the same time unpredictable and often contradictory to opinions and motives expressed by citizens.

The citizen is more long-term oriented and more interested in societal values like animal welfare, biodiversity, landscape conservation or labour conditions. In most cases, citizens do not operate on their own. For specific issues, they organize in NGOs, which operate on their behalf. The two roles – consumer and citizen, existent in every individual – come into conflict when, for instance, environmentally friendly products are more expensive and less convenient than the less sustainable alternatives. In most cases, the consumer wins

this battle, claiming that he or she already made enough effort; that others have a much greater need to change; that it is not possible to cure structural injustice by an individual act of consumption; or that government or industry should enforce changes that take away the option to choose.

The relationship between citizen and consumer is determined by norms and values. In literature on consumer behaviour, attitudes and norms are often seen as predictors of concrete behaviour.<sup>5,9</sup> Citizens' values steer, or at least heavily influence, consumer behaviour. For instance, in the Netherlands, the trade in fur clothing during the last 15 years has been minimal as a result of actions by groups like 'Bont voor dieren' (Fur for Animals) and the popular children's song *Second hand coat*.<sup>10</sup> Citizens' values, however, can only influence consumer behaviour, they do not control it. Inconsistencies, paradoxes and dilemmas are observed. For instance, more citizens are in favour of ecological agriculture than appears from sales to consumers.<sup>11,12</sup> The Thalys Explorer Survey – conducted among 3703 people in seven European countries – says it this way: 'There is sometimes a wide gap between the good intentions that show a genuine awareness and the actual deeds carried out, being rather inadequate particularly in terms of consumption.'<sup>13</sup> We will come back to this in the next section.

In the centre of Fig. 2, we placed the 'licence to operate'. Unlike the clearly defined 'licence to produce' and the obvious 'licence to sell', the 'licence to operate' is not a written permission, nor is it the result of measurable, tangible acts. No single individual awards this licence. Nevertheless, when problems arise, it becomes clear whether an industry does or does not have such a licence. For example, working conditions can hardly be used in a sales campaign, but when it becomes public that a firm uses child labour on a large scale, it may risk a boycott. A licence to operate provides the basis for any operation to build upon; it hardly provides a case to boast about.

### Consumption society

The difficulty in realizing a more sustainable society is that sustainability seems to be contradictory to the development of modern consumption society. In our

introduction, we distinguished two groups of goods and services: one fulfilling the functional needs, which include physiological needs, need for safety, etc., and the other catering to desires and wants, triggered by the wish to belong to a certain group, the longing for respect, or the aspiration for self-fulfilment. Physiological needs are universal and rather well determined. They are related to the essence of a human being. This is different from desires and wants, which develop within a specific cultural context. Desires and wants are social constructions created in people's minds.<sup>14,15</sup>

The idea that consumption not only serves the fulfilment of direct needs was already developed in 1899 by Veblen, who introduced the concept of conspicuous consumption or competitive display.<sup>15</sup> Douglas and Isherwood<sup>16</sup> elaborated these ideas and argue that the desire to distinguish oneself enters into all consumer choices, in particular in the industrialized countries. As a result, modern consumers spend more than necessary to obtain the basic services of the product characteristics: '... goods are (...) needed for making visible and stable the categories of culture.'<sup>17,18</sup> Douglas and Isherwood define post-modern society as a consumption society in which people are what they buy. Schor writes: 'In a very basic sense, we are what we wear, drive, and live in', and 'Our daily lives, and indeed our very identities, are structured and regulated by acts of spending.'<sup>17</sup>

This is also the opinion of Baudrillard<sup>18</sup> who states that 'it is in the consumption of a surplus, of a superfluity that the individual – and society – feel not merely that they exist, but that they are alive.' Consumption may go so far as consummation, destruction, taking on a specific social function, like the sacrifice of precious goods by the Kwakiutl or the 'wasteful expenditure' by which the aristocratic classes asserted their pre-eminence down the ages. Baudrillard is altogether dissatisfied with the use of the concept of needs: 'needs can, by definition, be satisfied and therefore cannot account for the insatiability of consumers. What people seek in consumption is not so much a particular object as difference and the search for the latter is unending.'

The consequence of insatiable desires is that waste becomes obligatory. Serious 'environmental nuisances' are a consequence of industrial development and technological progress on the one hand, and of the very structure of consumption on the other. Ironically, the

costs of treatment of environmental problems – infrastructural expansion, extra expenditures on fuel, treatment for accident victims, etc. – contribute to the gross national product and are, as such, an indication of growth and wealth. Waste, far from being an irrational residue, takes on a positive function. 'It is the ritual uselessness of "expenditure for nothing" that becomes the site of production of values, differences and meanings on both the individual and the social level.'<sup>18</sup>

This search for differentiation is closely related to individualization, generally regarded as one of the core characteristics of modern society.<sup>19</sup> According to Schor, differentiation is not only an individual act, but has also social significance: 'Consumption patterns and tastes are stratified by socio-economic categories such as class, education, and occupation. They are a source, as well as an indicator, of social differentiation.'<sup>17</sup> At the same time, the far-reaching standardization, mass consumption and mass communication in industrial society leaves only limited room for individual choices.<sup>20,21</sup> De Wit, one of the authors of *Techniek in Nederland in de twintigste eeuw*, about technology in the Netherlands,<sup>22</sup> calls this the struggle of the 20th century, between collective and individual.<sup>23</sup> A 'struggle' that is in particular obvious for youngsters, many of whom are afraid to appear in public without the 'right' brand of clothing, while at the same time they feel that they express their individuality in their purchasing behaviour. Consumption always takes place within limits that are acceptable in the cultural group people belong to. As Baudrillard phrases it: "'What mother has not dreamt of a washing machine specially designed for her alone?'" asks an advert. And, indeed, what mother has not? Millions, then, have dreamt of the same washing machine, specially designed for each of them alone.'<sup>18</sup>

The development of the consumption society takes place within the context of structural changes. Next to the above-described processes of individualization and increased consumption, the use of information and communication technology and the ongoing globalization have to be taken into account. These processes are irreversible: we passed boundaries, both literally and metaphorically. It is impossible to return to consumption patterns of a century ago, with local products and seasonal vegetables, or to refrain from holidays abroad. However, this observation does not relieve us of the

obligation to do something about the consequences of current consumption patterns in respect of sustainability.

### Gender studies as a source of knowledge

The preceding sections make clear that we need additional approaches in which there is room for groups of consumers within the context of daily behaviour, focusing not only on the limiting or constraining dimensions of social structure, but also on its enabling aspects.<sup>5,6</sup> The approach should find a way out of the described dualities by not seeing them as excluding opposites but as two sides of the same coin, belonging together and both being important although sometimes contradictory. There are many possible sources of theory that could offer worthwhile insights, models and experience, for instance, the structuration theory of Giddens.<sup>24,25</sup> Van Vliet<sup>5</sup> notes that this approach provides the conceptual key to a solution of the classic actor–structure dilemma by putting forwards social practices as the proper unit of analysis. A similar standpoint has long been taken by home economists, who have household activities and daily routines as their starting point.<sup>9,26–29</sup> One of the sources that provides useful insights in the above-described matters is the field of gender studies, which we elaborate on in this section.

Although originating from protest and action, feminist thinking has given rise to extensive political, social and philosophical critique which attempts to link the social subordination of women to the conceptual framework through which that subordination is held in place. Gender studies range far beyond issues traditionally seen as women's issues and consider gendering processes, which encompass both men and women in everyday life. 'One of the significant insights of gender studies is to link Western civilisation – currently being "globalised" as the dominant way of living and thinking – with a particular expression of *masculinity*, and in turn to connect this to modernity itself.'<sup>7</sup> In the development of gender studies, we can distinguish four stages.<sup>7,30–32</sup>

Stage one, the beginning of the second wave of feminism in the early 1970s, can be characterized by 'liberal individualism'. Differences between men and women were considered the result of sex-role socialization, which left women ill-equipped to compete in the labour market.

The focus was on enabling women, through education and individual support, to move into more senior organizational positions and to minimize the differences with men. Warren and Bourque, speaking of women's position in the face of technological change, call this phase the integrationist strategy: 'comprehensive female participation would challenge existing sexual divisions of labour.'<sup>30</sup> This approach is criticized for the fact that it individualizes the problem and requires women to do all the work to overcome their perceived 'disadvantage'. Applying this approach to sustainable consumer behaviour would result in loading environmental problems onto the shoulders of individual consumers.

The second stage – starting in the late 1970s but, like the first approach, still playing an important role – is 'liberal structuralism'. This approach addresses the structural or environmental factors that prevent equal opportunities. Ways to overcome these factors lie in legislation to outlaw sex discrimination and in developing workplace policies such as flexi-working, parental leave, and the appointment of confidants to deal with complaints of sexual harassment. Many discussions on sustainability and corporate social responsibility are located within this type of approach: trying to create legislative and policy responses that address environmental problems. Often, this approach falls short in implementation because existing legislation is inadequately enforced. 'But the deeper question, of course, concerns the expectation that deeply rooted systems of inequality can be legislated away.'<sup>7</sup>

'Value difference' or 'women's standpoint' is the characteristic of the third stage in the development of gender studies, which had its peak in the 1980s. As a response to the above-mentioned criticism, the goal of the liberal approach was questioned. The purpose of feminism should not be to reproduce the inequities and hierarchies created by a male-dominated civilization. Feminine values were no longer seen as socially denigrated values but as a source of pride and strength. 'Standpoint feminism spoke of alternative knowledge and alternative ways of living, working, valuing things and emphasising the value of diversity rather than sameness.'<sup>7</sup> This is also the standpoint of eco-feminist groups and of a renewed, earth-rooted spirituality. Merchant<sup>33</sup> speaks of a revived interest in female symbols of myth and observes concerts, street theatre, sol-

stice and equinoctial rites, poetry, bookstores, and lecture series celebrating human resonance with the earth. 'Yet these celebrations of the connection between women and nature contain an inherent contradiction', Merchant argues, 'If women overtly identify with nature and both are devalued in modern Western culture, don't such efforts work against women's prospects for their own liberation?'.<sup>33</sup> Too much emphasis on the reproductive biology of women might pin them down to their social role of caretaker.

In the 1990s, stage four of feminist thinking – 'post-equity' or 'resisting dominant discourse' – found the balance between the preceding stages. Attention has turned towards post-structuralist thinking, emphasizing the ongoing social construction of gender relations and other forms of power. Concepts of nature and women are seen as historical and social constructions. Characteristics of sex, gender or nature are not unchanging or 'essential'. This approach draws attention to the process of knowledge production and the role language plays in mediating the relationship between power and knowledge. From this perspective, bringing about change involves engaging in processes of critique, experimentation and story-telling.

An important critique put forwards by gender studies, and others,<sup>21</sup> is that modern Western culture too often assumes the existence of mutually exclusive opposites: body and mind, man and woman, individual and society, human and nature, science and mysticism, production and consumption. These opposites are often two sides of the same coin which do not exclude each other and definitely do not have a hierarchic relationship. It has been the gain of gender studies to challenge those dominant and ingrained realities. Warren and Bourque point at the irony of feminism: 'to show how "gender" is constructed, in our multinational world, feminist research has demonstrated that we also need to deconstruct the concept; that is, to show how identities and experiences are simultaneously structured by class, culture, race, nationality, religion, age, sexuality, individual experience, as well as by gender.'<sup>30</sup>

### Masculinity vs. femininity

Following the methods of gender studies, citizens and consumers should not be regarded as excluding oppo-

sites, but as two sides of the same coin, two poles of a magnet, belonging together and both being important, although sometimes contradictory. The role of the consumer and the role of the citizen show remarkable correspondence with masculinity and femininity. Without denying physiological differences between men and women, masculinity and femininity are, to a great extent, social and cultural constructions, not only connected with people, with women and men, but also with social institutions and technological artefacts.<sup>34</sup> Which behaviour is considered to be masculine or feminine differs from society to society. Hofstede<sup>35,36</sup> is one of the authors who tried to quantify the degree of masculinity of a society. He notes that in most cultures – both traditional and modern ones – men are more engaged in activities outside the home (hunting, exploring or making money) while women take care of their house, husband and children. Men are expected to be assertive, competitive and hard while women should perform a soft and modest role, oriented towards the quality of life. Hofstede considers a society to be more masculine the more pronounced these roles are separated between the sexes. A feminine society is not a society in which women have the power and are hard and aggressive, nor the opposite: but is a society dominated by feminine values. According to Hofstede, a society is feminine when both men and women share a longer-term perspective and are oriented towards the quality of life. In such a society, both men and women can take on all kinds of roles. Following this description, he ranked societies according to their degree of masculinity.<sup>36</sup>

In Fig. 3, we have listed and plotted Hofstede's masculinity scores against the values of the Environmental Sustainability Index (ESI) of selected countries. In spite of the undoubtedly serious weaknesses in the methods used, as well as the discrepancy in time for both analyses, the relationship between these two indicators is quite remarkable. The short-term, self- and welfare-centred attitude of the consumer, the individualistic expressionist, aimed at quantifiable well-defined products, fits very well in cultures with a high degree of masculinity. These cultures score low on the ESI which Esty *et al.*<sup>37</sup> calculated. The long-term oriented, more collective attitude correlates with more feminine cultures, which give priority to care and collectivity,

COUNTRY	MAS <sup>1</sup>	ESI <sup>2</sup>	COUNTRY	MAS <sup>1</sup>	ESI <sup>2</sup>
Japan	95	49	Brazil	49	60
Venezuela	73	53	Israel	47	50
Italy	70	47	Turkey	45	51
Mexico	69	46	Panama	44	60
Ireland	68	55	France	43	56
Germany	66	53	Iran	43	45
United Kingdom	66	46	Peru	42	57
Philippines	64	42	Spain	42	54
Ecuador	63	54	Guatemala	37	50
South Africa	63	49	Portugal	31	57
United States	62	53	Chile	28	55
New Zealand	58	60	Costa Rica	21	63
Greece	57	51	Denmark	16	56
India	56	42	Netherlands	14	55
Malaysia	50	50	Norway	8	73
Pakistan	50	42	Sweden	5	73

1) Masculinity Index<sup>36</sup>

2) Environmental Sustainability Index<sup>37</sup>

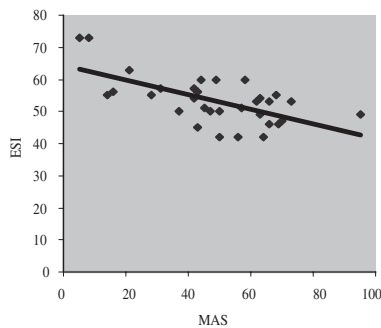


Figure 3 Relationship between masculinity and sustainability.

and to environmental protection over economic growth.

### An alternative approach

In this article, we pointed out that people have two roles in relation to sustainability: the role of the consumer and the role of the citizen. The first has a short-term orientation, directed towards the direct fulfilment of his or her own needs and wants, in which sustainability is no motive. The second is more long-term oriented and shows responsibility for others, including future generations. Here sustainability might be considered. The consumer represents masculine values, the citizen

more feminine values. Ever more parties are aware that the citizen is the one to address in order to achieve major changes with respect to sustainability. However, many solutions proposed to promote sustainable development are directed towards new technology and product improvement, all meant to compensate for consumer behaviour. Moreover, they are subject to common masculine tools to manage processes by measuring progress and rewarding success. As Warren and Bourque notice: ‘The contemporary West has been obsessed with the idea of control, with technology’s potential to control nature and harness nature’s powers for human ends.’<sup>30</sup>

To reach the citizen and, in particular, to obtain a ‘licence to operate’, we should find other methods. While on a product level, industries are each others’ competitors, the ‘licence to operate’ has to be dealt with on a corporate level. Here industries are each others’ colleagues. Where they compete with each other to gain the interest of the consumer for their various products, they may cooperate to reduce adverse environmental impacts and develop strategies to achieve more sustainable ways of production.

In a new approach, consumer behaviour should not be restricted to purchasing behaviour as such, but must encompass post-purchase behaviour as well. Products are processed, used and discarded. Sustainable products do not exist, as products can be used in a sustainable or unsustainable way. A low-energy washing machine is of no use if, at the same time, consumers double their washing frequency. A focus on individual consumers or citizens is too limited as well. Most people live within households, that function as gatekeeper to the outside world. A household is the site where norms and values are formed, and it is also the institution that – at least for part of our life – provides daily care.

Actions directed to consumer behaviour are often, explicitly or implicitly, based on a rational choice approach, in which the attitude-behaviour model is the central theme. The model sees rational consumption as an individual activity, without taking into account the practical problems of everyday life and the role of social structure. Social structure appears only as an external variable, referred to in terms of the limiting determinant for environmental behaviour.<sup>5,8</sup> A consequence of the rational choice approach

is the emphasis on information. In contemporary society, it is assumed by governments, consumer unions and NGOs that consumers will make the right choices provided they have the right information at their disposal. The interpretation of 'right' depends upon the stakeholder involved. Supporters of modern biotechnology, for instance, frequently attribute public hostility towards newly developed products to a lack of information.<sup>38</sup> On the other hand, NGOs argue that a lack of information might lead to blind acceptance of innovations that could be harmful or unfavourable for society. Bucci and Neresini<sup>38</sup> found that – in particular with respect to biotechnology – exposure to information often results in greater criticism towards some applications, a desire for stricter state regulation, and more trust in consumer organizations and scientific institutions.

In this context, the distinction between consumers and citizens is useful. Shopping, in particular daily shopping, is to a large extent a routine based on practices, beliefs and values that are habitual or taken for granted.<sup>9,39</sup> Only in certain cases, particularly regarding issues related to personal interest, consumers do want to have specific information in order to judge certain products. For instance, they want to be able to detect if a particular product is harmful to their allergy or against their religious persuasion. These are the kind of questions with which individual consumers turn to suppliers' information centres. Citizens, on the other hand, are interested in social issues, and they judge products and industries on their environmental or political performance. Critical questions are posed by individual citizens either alone or represented by NGOs. Only a very limited number of consumers is prepared to follow the consequences of their social or moral convictions, and adjust their purchasing behaviour. All others expect the government or industry to take responsible action, so that individual consumers can continue to buy what is legally allowed.

To reach the citizen, emphasis should be placed on cooperation, group-consciousness, collective action, social control and education. Without ignoring the many interesting projects aiming at social cohesion and social control, we would like to discuss here the possibilities of education. Extension and school programmes to educate consumers or citizens are proposed by an

increasing number of researchers.<sup>4,40</sup> For instance, as a follow-up of the Brundtland report, the US National Forum on Partnerships Supporting Education about the Environment developed a framework for the implementation of sustainability education. In this framework, education for sustainability was defined as 'a lifelong learning process that leads to an informed and involved citizenry having the creative problem-solving skills, scientific and social literacy, and commitment to engage in responsible individual and cooperative actions. These actions will help ensure an environmentally sound and economically prosperous future.'<sup>41</sup> In the Netherlands, education seems to be neglected by policy makers. Nine Dutch ministries have signed the Environmental Policy Plan (NMP4<sup>42</sup>), but the Ministry of Education is noticeably absent. Another example is the discussion, currently taking place, whether 'caring' (*Verzorging*) – introduced in 1993 into Dutch secondary education – should remain a mandatory subject for all pupils.<sup>40</sup>

Implementing the ambitious objectives of sustainability education asks for new methods as well. Very inspiring is the approach of the Dutch–Australian 'Rock and Water Program', which combines physical exercises with social and mental skills. The project aimed at boys, in particular those aged 10–14 years, who have higher testosterone levels, more muscles, and a less developed left side of the brain than girls. These physical conditions, combined with social differences, lead to more energetic and aggressive behaviour and poorer communication skills in boys than in girls of the same age. Boys have always lagged behind girls in literacy, but the gap has been widened in the past decade by curricula and assessment changes which place greater emphasis on verbal reasoning and written communication skills, both of which favour girls. Through psycho-physical exercises, boys learn to gain more self-confidence and self-control in order to resist group pressure.<sup>43–45</sup> "It's a problem of nature and society", says Mr Ykema. "(...) Most boys have only two options: fight or flight. We teach them a third way: communication."<sup>44</sup>

The indicated approach of change means a radical turn away from the individual-oriented society we currently live in, used to well-defined targets and hard results. It is a new exciting and challenging route, ori-

ented towards more cooperation, communication and social control.

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