Sustainable Consumption

A Knowledge Base

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June 2015

'the act of using energy, food or materials; the amount used'

Ocford Advanced Learner's Dictionary, 2015

This report was commissioned by Mistra ahead of a possible research initiative on sustainable consumption. It was written by Jessica Algehed, who is responsible for the content.

Introduction

'Consumption' means using, or using up, and may be seen as the opposite of investment. Around the world, billions of people consume various products and services daily. At the most basic level, consumption — of water, food and energy — is a condition of survival, but as human living standards have risen our consumption has come to satisfy higher needs as well. Present-day consumption thus contributes to human creation of meaning, general education and entertainment. Consuming and shopping have even become inherent pleasures and a foundation for forging personal identity: a way of telling others who we want to be.

Broad mass consumption of goods and services is a key pillar of modern society. Consumption, one of the main drivers of the economy, helps to create jobs and generate tax revenues. Statistics Sweden finds, for example, that, although private consumption makes up less than 50% of this country's total GDP, household consumption has accounted for more than two-thirds of all growth in Swedish GDP since the 2008 financial crisis.

Unfortunately, the current consumption and production system is unsustainable. It overuses Earth's ecosystems. Many people suffer from inhumane production methods, and many of the products and services we buy make us neither happier nor healthier. Much of what we buy, such as food of low nutrient value, tobacco and alcohol, is even directly harmful to health.

CONSUMPTION IN ECONOMIC THEORY

In economic theory, consumption is equal to the final use of goods and services in a country. The term includes only final consumption, i.e. the use may not include the purpose of producing new goods or services. Economists distinguish two types of consumption. Public consumption is what the central and local government spend on, for example, health care and other public services. Private consumption comprises the parts of household income that do not become savings. Accordingly, goods and services produced are either consumed or invested.

Source: Swedish National Encyclopedia

This report contains an overview account of how human beings consume, and describes the sustainability challenges of consumption in numerical terms. The report also shows who is doing what to foster sustainable consumption, how this concept is defined, who is in fact responsible for the issue, and what obstacles and knowledge needs exist. Current research is summarised, and an appendix provides a summary of major research initiatives under way in Sweden with a bearing on sustainable consumption.

Facts and trends about consumption in Sweden and worldwide

Consumption is part of national accounts, and most countries therefore keep relatively comprehensive statistics on how much and what their citizens buy. Consumption is of two kinds: private and public. This report focuses on private consumption.

What do we actually buy?

Swedish private consumption in 2013 amounted to just over SEK 1,700 billion. Swedes' consumption tallies well with the consumption pattern in the rest of Europe. There, as here, most of the money is spent on housing, transport and food.

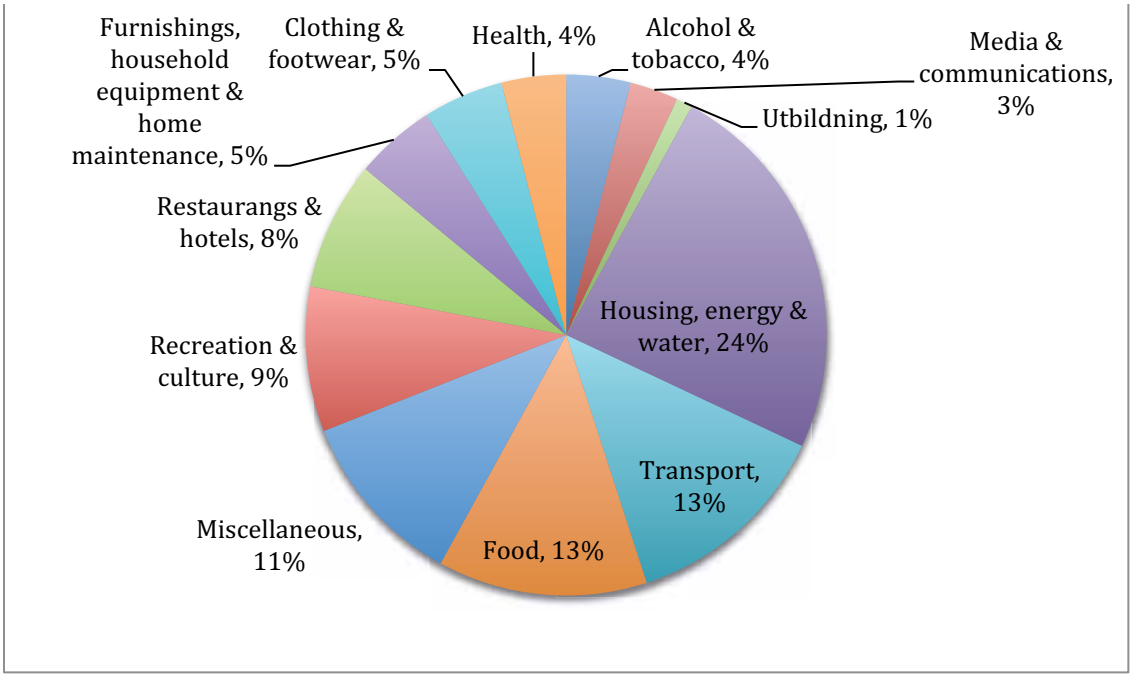

Figure 1. *Distribution of private consumption in Europe, 2012. Swedish household consumption conforms closely to the European average.*[1]

Swedish consumption is rising year by year, both per capita and in absolute terms. Between 2003 and 2013 the nominal increase was 24%, which should be compared with inflation averaging 17% in the same period.[2] There are several causes of this rapid rise: higher GDP and a growing population; better scope for people to borrow for consumption; political measures, such as tax reductions, that boost consumption; and planning, spatial and urban, that facilitates consumption. Another cause of the shift in consumption patterns is that certain products or services are becoming more expensive in relation to others. Here, both domestic competition and cheap imports from abroad play major roles.

Trends that are distinguishable over time include the ever decreasing proportions spent by Swedish households on food and housing. For housing, the role of interest rates, now substantially below their pre-1990s level, is key. One cause of households' declining share of spending on food is falling prices owing, above all, to increased food imports. Simultaneously, the proportion spent on restaurant visits, for example, has increased. Similarly, in their consumption of goods and services households now spend relatively more in the area of communications, such as telephony. The category of 'miscellaneous services', including personal and community services, is also growing; this increase is due largely to the overall rise in spending on services by Swedes with rising incomes. The categories showing most growth (figures in brackets) in the period 2003–13 are:[3]

[1] http://www.eea.europa.eu/data-and-maps/daviz/trends-in-share-of-expenditure-1#tab-chart_2.

[2] *Consumption Report 2014*, Centre for Consumer Science, University of Gothenburg.

[3] *Consumption Report 2014*, Centre for Consumer Science, University of Gothenburg.

[4] *Köttkonsumtionen i siffror* ('Meat Consumption in Figures'), Swedish Board of Agriculture, Report 2013:2.
[2] *Consumption Report 2014*, Centre for Consumer Science, University of Gothenburg.
[5] www.kth.se/forskning/pa-djupet/slut-pa-textil-sloseriet-1.342018 (in Swedish).
[3] *Consumption Report 2014*, Centre for Consumer Science, University of Gothenburg.

- Household consumption abroad (66%)
- Non-Swedes' consumption in Sweden, i.e. export value of tourism (60%)
- Furnishings, household equipment and home maintenance (60%)
- Communications (58%)
- Leisure, entertainment and culture (53%).

Meat and textiles conspicuous

A few product categories stand out in Swedish consumption statistics from a sustainability point of view. The most salient is presumably the Swedes' change in meat consumption, which rose by more than 40% between 1990 and 2012.[4] Textiles are another noteworthy category of goods: since 2000, we in Sweden have increased our textile consumption by more than 40%. All in all, we now consume 130,000 tonnes of textiles a year, and only 27,000 tonnes of this volume goes to charity or recycling, while the rest is discarded.[5]

Global consumption growing fast

The great majority of people have a considerably smaller consumption potential than us in Sweden. Of the world's seven billion inhabitants, roughly four billion live on USD 3,000 or less a year. These consumers spend the greater part of their income on food, followed by energy, housing and transport. Low-income consumers possess almost 70% of total purchasing power in Africa, while this category accounts for only 30–40%[6] of consumption in Latin America, Asia and Eastern Europe.

At the same time, consumption is rising very fast throughout the world. This trend is driven mainly by rapid population growth, an expanding global middle class and a culture among high-income groups that is characterised by superfluous consumption far beyond basic needs.[7] Estimates show that roughly 70 million world citizens enter the global middle class annually.[8] If this trend continues, it will mean that by 2030 nearly 2 billion people will earn between 6,000 and 30,000 US dollars a year (thereby falling within the middle-class income segment according to Wison et al.). This will redraw the consumption map in striking ways. Estimates from the Asian Development Bank show, for example, that by 2030 almost half of the global consumption power will be made up by consumers in Asia.[9]

Current consumption unsustainable

Much of what we consume helps us to improve our lives, and permits a life that would have been inconceivable a century ago. Cars have made it easy to move over long distances; food keeps well, staying salubrious, thanks to intelligent packaging; and the Internet has brought a revolution in how we communicate. But there are downsides, too: environmental impact, ill-health and social injustice.

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[4] *Köttkonsumtionen i siffror* ('Meat Consumption in Figures'), Swedish Board of Agriculture, Report 2013:2.

[5] www.kth.se/forskning/pa-djupet/slut-pa-textil-sloseriet-1.342018 (in Swedish).

[6] International Finance Corporation and World Resources Institute (IFC/WRI), *The Next 4 Billion: Market Size and Business Strategy at the Base of the Pyramid*, 2007.

[7] http://www3.weforum.org/docs/WEF_ENV_SustainableConsumption_Book_2013.pdf.

[8] Dominic Wilson and Raluca Dragusanu, "The Expanding Middle: The Exploding World Middle Class and Falling Global Inequality," Goldman Sachs Global Economics Paper No. 170 (2008)

[9] http://www.switch-asia.eu/fileadmin/user_upload/RPSC/News/16June15SC/SC-Guide-For-Policymakers.pdf.

Impact of both what and how much we buy

Essentially, all the big environmental problems facing the world are connected with our consumption and production patterns. These problems include climate change, unsustainable resource use, degradation of the world's ecosystems, biodiversity depletion and polluting emissions. The goods we buy affect the environment throughout the life cycle — in manufacture and use, when they are recycled and as waste. Environmental impact depends both on how much we consume altogether and on how our consumption affects the world around us. There is therefore much evidence that we must reduce this impact both by enhancing efficiency and exchange of materials, for example, and by reducing our total consumption level and changing our consumption habits — for example, finding new ways of travelling on an everyday basis, changing dietary habits and perhaps working less in favour of enjoying more leisure.

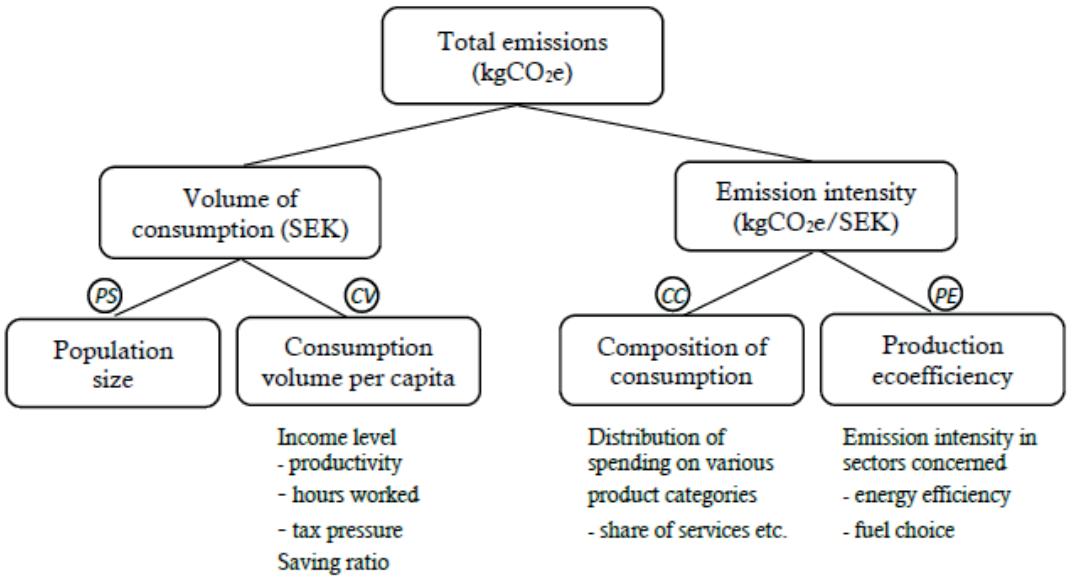

Figure 2. *Researchers at Chalmers University of Technology have collaborated in developing a model for calculating consumption-based carbon emissions. According to this model, emissions depend both on how much and on what we consume.* [10]

The goods and services we produce in Sweden are constantly improving in environmental terms. This might be perceived as showing that we have liberated our economic development from environmental impact. But since we have simultaneously increased our total consumption and also come to import more goods from countries with less stringent environmental controls than Sweden's, the environmental impact of Swedish consumption is undiminished.

[10] *Hållbara konsumtionsmönster* ('Sustainable Consumption Patterns') by Jörgen Larsson, Report 6653, Swedish Environmental Protection Agency 2015.

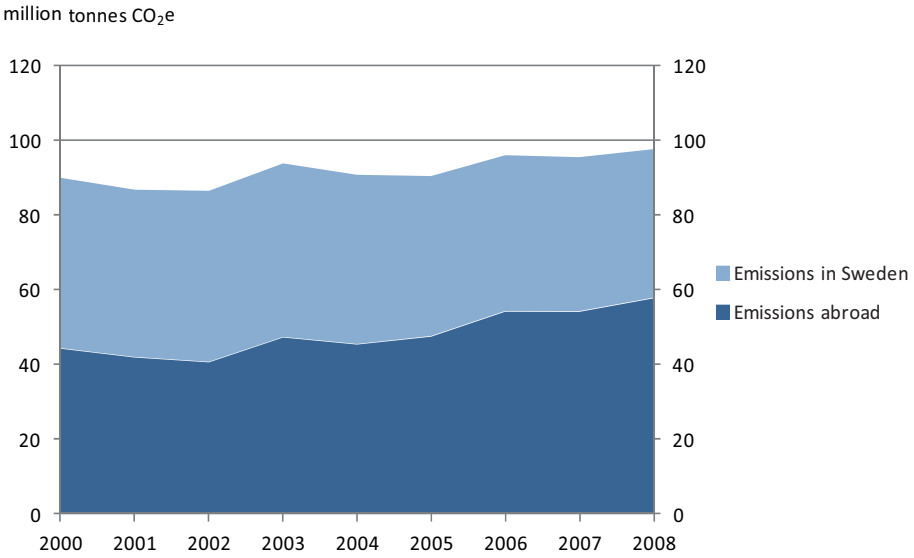

Figure 3. *Model calculation of Sweden's consumption-based emissions of greenhouse gases. Despite the increased efficiency of various products, carbon emissions due to Swedish consumption are increasing. Causes include the increases in total consumption and in goods imports from countries with an environmental performance inferior to Sweden's.*

Consumption of food, housing and transport affect the environment most

Food, housing and transport are the three consumption categories that impact the environment most, which is hardly surprising since they are what we spend most money on. Researchers at Chalmers University of Technology and SP Technical Research Institute of Sweden have made consumption-based calculations of Gothenburg residents' GHG emissions. Their study shows that the three categories jointly account for more than 60% of the average Gothenburger's consumption-based emissions. It also shows that emissions vary from one group to another: the highest earners are also the people with, on average, the heaviest impact on the environment.

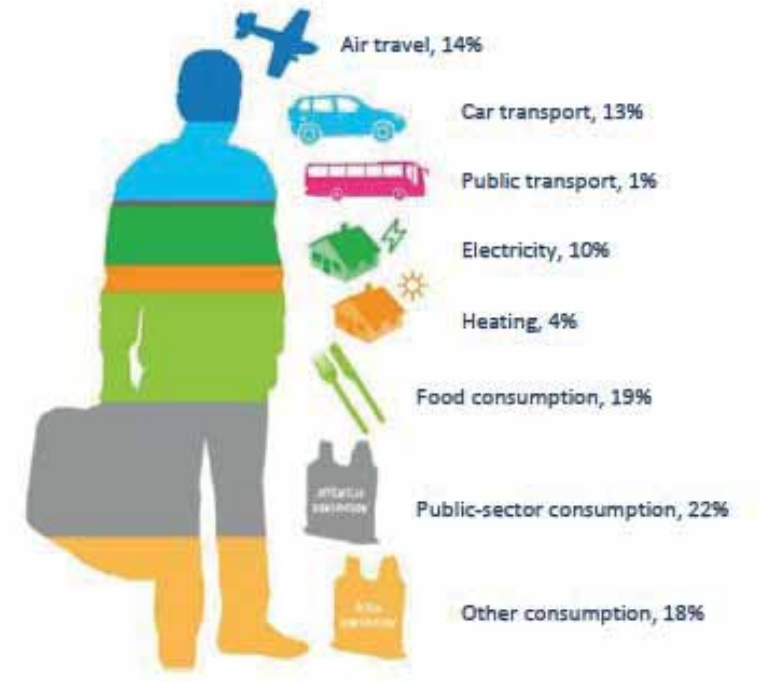

Figure 4. *The average Gothenburg resident's GHG emissions in terms of consumption. Housing, food and transport account for nearly 60% of emissions.*

Source: Low-carbon Gothenburg 2.0. Technological potentials and lifestyle changes*, by Jörgen Larsson and Lisa Bolin. Mistra Urban Futures Reports 2014:01.*

Unevenly distributed scope for emissions

Globally, consumers' impact on the environment varies and scope for emissions is inequitably distributed between the world's drich and poor countries. Calculations show that if we are to distribute the scope for emissions at all fairly among future consumers, OECD member countries need to reduce their consumption-based emissions radically. International differences in total emissions and emissions per capita are due mainly to how much countries' inhabitants consume, not the environmental performance of different products.

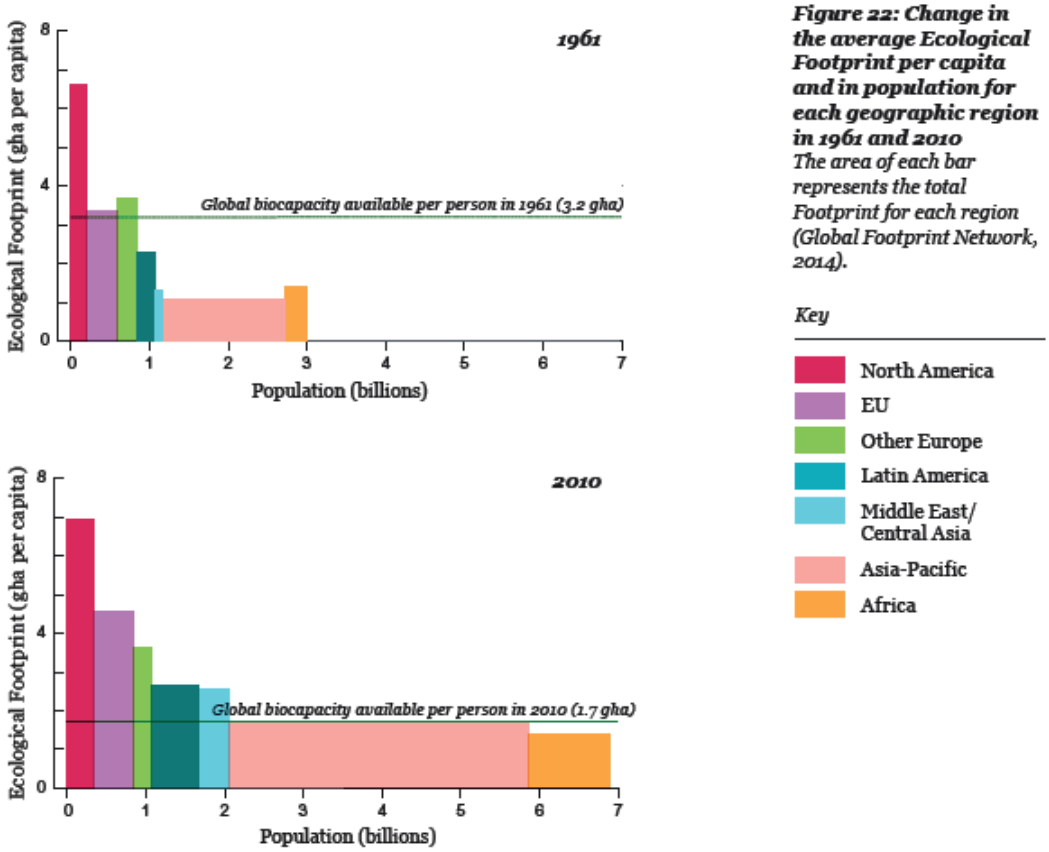

Figure 22: Change in the average Ecological Footprint per capita and in population for each geographic region in 1961 and 2010
The area of each bar represents the total Footprint for each region (Global Footprint Network, 2014).

Figure 5. *Ecological footprints per capita for various countries in 1961 and 2010.*[11] *The abbreviation 'gha' stands for 'global hectares'. Beginning with the 2012 edition of the National Footprint Accounts, all Footprint and biocapacity results are expressed in constant global hectares, i.e., global hectares which for all previous years have been normalized based on the average yields of productive area in the most recent year being reported. The biocapacity available per person has decreased over time, owing to the global population increase. To attain a sustainable level and equitable distribution, the world's rich consumers need to reduce their resource use radically.*

Consuming does not make us happier

There are several adverse effects of consumption on individuals. Physical ailments due to tobacco, alcohol and fatty food are classic examples; but allergies, respiratory diseases and other illnesses caused by toxins in food, products and the environment also have detrimental effects on people. Then there are, of course, children and adolescents of both sexes who incur eating disorders and other manifestations of mental ill-health because of unreasonable beauty ideals. Given these ill-effects, perhaps the most important questions are whether, and if so how, our consumer society actually helps to make us happier and more satisfied with our lives?

[11] WWF's *Living Planet Report*, 2014.

According to *Consumption Report 2014* from the Centre for Consumer Science at the University of Gothenburg, people who consume a great deal — that is, those who are better off financially — are happier than those with more limited scope for consumption. This is hardly surprising: it is presumably correlated with socioeconomic factors characterising the latter, such as low income, unemployment and ill-health, and also due to the fact that we human beings tend to compare ourselves with others. If, on the other hand, one studies how people in whole countries have rated their wellbeing over time, no connection between greater happiness and greater consumption is discernible after a country has attained a certain level of prosperity. This is because it is mainly factors like social relationships, health and the sense of being able to influence one's own life situation that govern wellbeing.

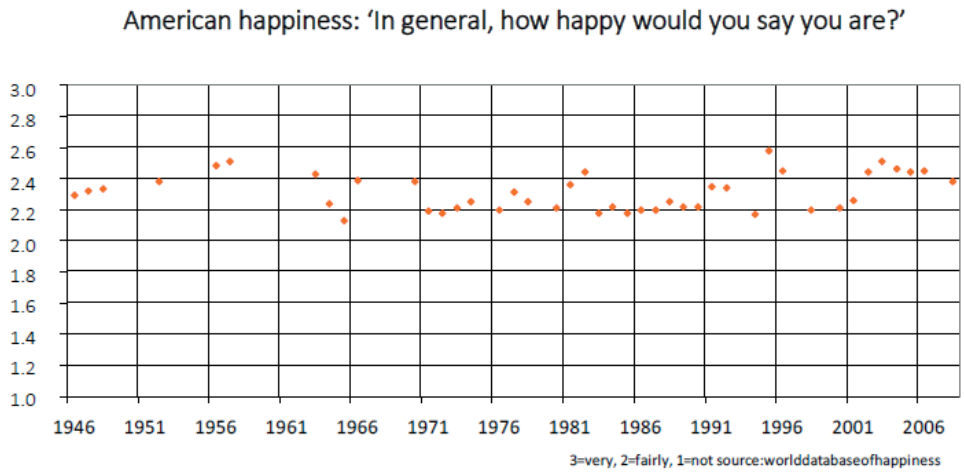

Figure 6. *The growth paradox. American statistics show that people do not think they have better lives today than people had 70 years ago, although total consumption has increased several-fold since the 1950s.*

There are also studies comparing well-being in different countries. In these, one sees that a high GDP does not automatically bring enhanced well-being. Factors like culture, faith in the future, democratic stability and social structures are at least equally influential.

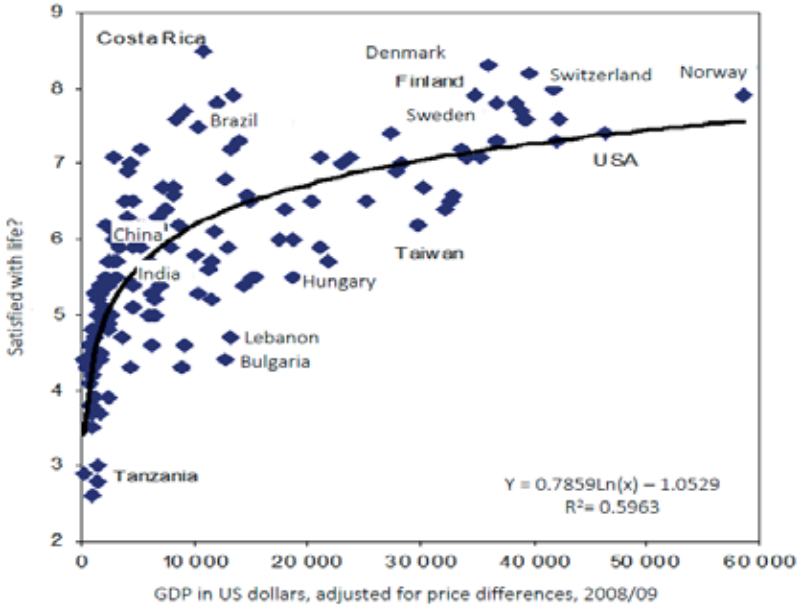

Figure 7. *Self-appraised happiness in various countries.*[12] *The numbers are means for the whole population. High values mean that, on average, the inhabitants are highly satisfied with their lives.*

Faraway poor pay highest price

The social dimension of sustainable development is increasingly relevant to consumption. Clothing, electronics, bananas, coffee, chocolate and palm oil are examples of products whose social downsides have attracted attention in the media and from organisations that lobby for human rights. Inhumane working conditions, low wages and local environmental degradation are examples of social consequences that we do not always see. Child labour, extremely long working days, sexual harassment, corruption and bans on trade-union activities are other problems. The Swedish Fair Trade Association (*Föreningen Rättvis handel*) describes the challenge thus:[13]

> *'Globalisation has yielded development opportunities for many countries, but along the way people frequently suffer. Many producers in developing countries often have limited resources and find it difficult to assert themselves on the world market. To be able to operate there, and sell their products, they are forced to lower their prices, relax controls on working conditions and sell through several middlemen who themselves take a large share of the proceeds. As a result, many people are not paid enough for their work and, as a result, cannot support themselves or their family and develop their local community.'*
> (Translated from Swedish.)

Children hit hardest

As always, it is children who suffer most. The organisation Swedwatch has issued several reports on conditions among people who produce what we buy. One of their latest reports is about children.[14] It is based on interviews with 44 children of textile workers who live in slum areas of Bangladesh. The report paints a gloomy picture of poverty and destitution, and points out the vicious circle for textile workers, with low wages and high costs that, in turn, make it impossible for people to extricate themselves from poverty. The report starts with some grim statements:

> *'The children of the people who sew our clothing are poor. They are children who miss their parents, who often feel ill, who wish they could get an apple to eat sometime, who dream of a better life. Many of these children will drop out of school. Several will work long before their 16th birthday, and they will probably never leave the slums. In ten years' time, it is these children who will be working 10–12 hours a day, sewing our clothes, if nothing happens.'*

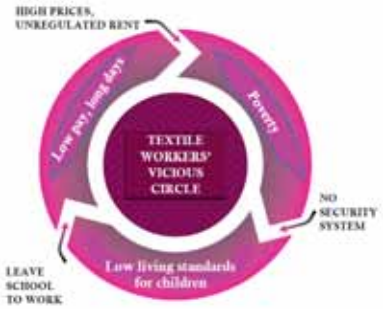

Figure 8.
Textile workers in Bangladesh earn between 10 and 15 Swedish kronor an hour. Low wages, lack of welfare systems and cultural factors lock the children into a vicious circle that makes it hard for them to break out of the poverty.

Source: www.swedwatch.se

[12] World Database of Happiness, *The CIA World Factbook*. Adapted by Tomas Ekberg, West Götaland region.

[13] For the original Swedish text, www.rattvishandel.net/om-rattvis-handel/.

[14] 'Forty-four children with parents in the textile industry dream of a better life' (*44 barn med föräldrar i textilindustrin drömmer om ett bättre liv*), Swedwatch, 2014.

GLOBAL DEFINITIONS OF SUSTAINABLE CONSUMPTION

The terms 'sustainable consumption' and 'sustainable production' are often heard in the debate. But what do they actually mean?

UN definition used most

'Sustainable consumption' has emerged as a concept and policy area over a long period. One of the first definitions was announced in Oslo in 1994, by the UN Commission for Sustainable Development. In it, sustainable consumption is linked with the Norwegian Prime Minister Gro Harlem Brundtland's definition of sustainable development and the mirror notion of sustainable production. Sustainable consumption is:

> *'… the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations.'* (Norwegian Ministry of the Environment, 1994.)

This 'Oslo definition' is the most useful one, and today there are several more highly developed ways of describing sustainable consumption. Above all, it reflects the attempt to clarify the fact that sustainable consumption must also meet the social dimension of sustainable development, with the addition of words and phrases like 'health', 'better living conditions' and 'equitable resource distribution'. There are also definitions that clarify who is responsible for the attainment of more sustainable consumption.

Sustainable consumption closely associated with lifestyle

In recent years, the term 'sustainable consumption' has also been broadened and linked with the notion of 'sustainable lifestyles'. This is because consumption is not only a way for humankind to meet basic needs, such as food and a roof over one's head. Consumption has become consumerism, and today our purchases of goods and services are among the pillars and hubs of society. By consuming, we keep the economy going and create the financial basis for prosperity. Simultaneously, consumption is interwoven in our social life: consuming offers us a means of telling others who we are and positioning ourselves in various status hierarchies. The United Nations Environment Programme (UNEP), in its 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP), defines a sustainable lifestyle as follows:

> *'A "sustainable lifestyle" is a way of living enabled both by efficient infrastructures, goods and services, and by individual choices and actions that minimise the use of natural resources, and generation of emissions, wastes and pollution, while supporting equitable socioeconomic development and progress for all. Creating sustainable lifestyles means rethinking our ways of living, how we buy and how we organise our everyday life. It is also about altering how we socialise, exchange, share, educate and build identities. It is about transforming our societies and living in balance with our natural environment.'* (ABC of SCP: Clarifying Concepts on Sustainable Consumption and Production, UNEP, 2010.)

Numerous stakeholders

Most people agree that there are three groups of stakeholders who need to cooperate for more sustainable consumption: businesses, politicians and consumers. The businesses are wide-ranging, from raw-material producers and consumer companies to media, advertising, design firms and banks. Similarly, many different policy areas are involved: energy, consumer rights and global trade agreements, to name but a few. Although the adverse effects of consumption on human beings and the environment are well known, numerous challenges need tackling before we have a sustainable system for consumption and production.

Cooperation among companies, politicians and consumers needed

Most reports on sustainable consumption indicate the need for a systemic view. Their authors think a more holistic understanding, a better ability to deal with complexity and a life-cycle perspective must permeate efforts to achieve sustainable consumption. Individual stakeholders need to understand their role and fit their own pieces of the puzzle in place with all the other stakeholders'. They all need to trust one another and create systems based on transparency and accountability. Most reports emphasise that consumers bear a major responsibility for seeking new knowledge, and need to want to change their consumption habits. At the same time, there is agreement that the system associated with the consumers — the context — must support new consumption habits. If consuming in a sustainable way is expensive, complicated and of low status, it will naturally be difficult for consumers to change their habits. Ultimately, then, when it comes to sustainable consumption heavy responsibility nonetheless rests on politicians and businesses.

Clarity of system perspectives

System models can make it easier for different stakeholders to discuss their own roles and areas of responsibility for sustainable consumption. Many reports describe the consumption and production system in a linear manner, by following the life cycle of a product or service. These reports represent consumption as stemming from some form of need or desire, real or invented, which leads to a chain of actions. Materials are extracted, whereupon goods and services are produced, marketed, transported, sold, bought and used. Finally, they become waste or are recovered or recycled. Throughout the chain, there is an impact on the environment and people, some of whom benefit while others suffer from environmental degradation and poor working conditions.

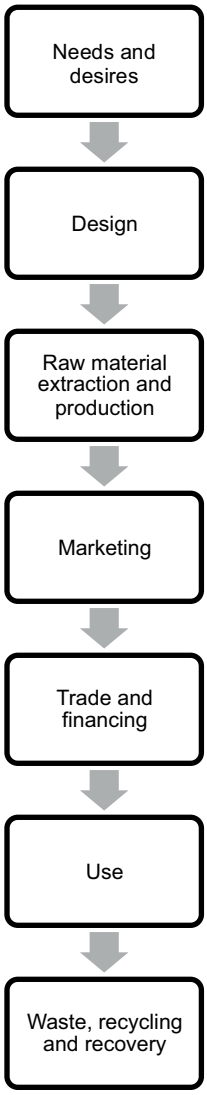

Figure 9. *A simple model can make it easier for stakeholders to discuss their roles and areas of responsibility.*

Challenges to world markets not all the same

Different parts of the world wrestle with divergent challenges where sustainable consumption is concerned. In simplified terms, the consumption challenge may be split into three parts:

- *Relatively rich consumers in OECD countries:* to them, the challenge is to reduce the overall ecological and social footprint from goods and services and to modify consumption, making it considerably more economical in terms of resources. What counts is thus both what we buy and how much. There is an emerging market for ecological and socially sustainable products in these countries, but the dominant consumption principle is still downward price pressure, rather than demand for quality and sustainability.

- *Emerging middle class in Asia, Africa and Latin America:* to them, the challenge is to avoid the unsustainable habits that characterised Europe's and North America's consumption in the 20th century. The prospects are favourable, in a way: these populations live in cultures and social contexts that variously facilitate sustainability. Nevertheless, they often lack the requisite infrastructure for sustainable consumption, not least systems for product labelling, waste management and public transport.

- *The world's poorest inhabitants, in Africa, Asia and Latin America:* to these people, the challenge is to get access to cheap, reliable and sustainable products and services that provide them with food, housing, education, health care and the opportunity to create a future for themselves and their families.

Many obstacles on the way to sustainable consumption

In recent years, terms like 'action gap' or 'implementation gap' have proliferated, both in the literature and in the debate on major challenges to society. These terms seek to capture the gap that exists between our theoretical knowledge about negative effects of human activities and our practical ability to find and apply solutions. Inability to solve shared problems besetting society is often due to their complex, hard-to-define nature; they are what are known in research as 'wicked problems'. These are social and cultural problems of the kind that are difficult to solve because they contain contradictions and change over time. The problems are large, and often seen as too complex and unmanageable to solve. Many of our major social challenges — those associated with sustainable development, poverty, health and wellness, for example — are regarded as 'wicked problems'. Not infrequently, we hand over the job of finding solutions to problems of this type over to politicians. Bjarne Pedersen of Consumers International describes the action gap from a consumer viewpoint:

> *'For me the action gap is not a surprise — in reality I do not know many consumers who set out to "do bad" when they make choices. What we do have is the well-worn challenge of trading off the consumer's core fundamentals (like price and quality) with the citizen's ethical considerations (such as development, climate change and fair trade). Additionally, in our busy 21st century lives, there is the pressure of time and complexity — think Friday evening shopping for the family in the local supermarket — which is not really conducive to making consistent and coherent ethical choices.'*[15]

[15] *Sustainable Consumption: Stakeholder Perspectives*, World Economic Forum, 2013 (http://www3.weforum.org/docs/WEF_ENV_SustainableConsumption_Book_2013.pdf).

Many organisations and individuals in Sweden and worldwide are engaged in building knowledge and conducting an active debate on sustainable consumption. They point to the obstacles that exist and show conceivable solutions. Obstacles that are often emphasised are listed below.

Consumers

- Knowledge and information, such as product labelling, are lacking.
- Society is strongly marked by consumption, which makes it difficult for individuals to break patterns.
- Access to sustainable products and services is lacking.
- Systems for sustainable management of waste, recycling and recovery are lacking in many countries.
- Consumption is a matter not only of meeting practical needs but just as much of status and identity creation. This makes it difficult for consumers to weigh up traditional traditional consumption parameters (price, quality) and personal parameters (status, shortage of time, health) against ethical considerations (the environment, workers' conditions).
- Consuming sustainably takes time — something many present-day consumers lack.

Politicians

- Knowledge about the magnitude and importance of the issue is lacking.
- The complexity of the issue can render decision-makers paralysed.
- Existing policy instruments (statutes, grants etc.) favour unsustainable consumption.
- Externalities (clean water, air etc.) are difficult to price.
- There are goal conflicts among different interests, not least between rich countries and countries undergoing development.
- Current measures for sustainable consumption are fragmented.
- It is difficult to obtain acceptance for control instruments that influence people's consumption.
- Influence is exerted by strong lobby organisations.
- Efficiency measures result in enhanced performance instead of reduced consumption.
- Services become relatively more expensive when the efficiency of goods production increases.
- Reduced consumption may entail decreased economic activity and, accordingly, less potential for growth and new jobs.

Businesses:

- Knowledge about sustainability is lacking.
- Owners' approaches are characterised by short-termism and profit maximisation.
- Many markets are characterised by price minimisation rather than quality.
- There are many consumers who do NOT demand sustainability.
- Legislation and economic policy instruments do not promote sustainable production and products.
- Linear business models and product design work against reuse, recycling and recovery.
- Investment cycles in production equipment are long.
- Reduced consumption may entail decreased economic activity and, accordingly, less potential for growth.

- It is difficult to agree on standards for sustainable products and services: how, for example, should product life cycles be calculated?

Consumers in the lead

The markets for sustainable products are expanding around the world, although they still make up a small proportion of total consumption. In Germany, for example, the value of the country's 'green products' is expected to exceed the entire car industry's turnover by 2020. The emergence of these new sustainable markets is, of course, due to an interplay among producers, politicians and consumers. Let us begin with the consumers.

Many consumers aware of negative effects

Many people are concerned about the adverse effects of consumption, both on our own health and on ou society and the environment as a whole. In the EU, for example, 96% of citizens consider that environmental issues are important to them personally.[16] Similar figures have been found for the US and Canada. Although environmental issues engage people, the social dimension of sustainable development is even more important for many consumers. In one survey[17], carried out in the EU in 2012, some 4,400 people from six different countries were asked to rank various social and ecological problems. Topping the list were child labour, deforestation and starvation, while issues relating to climate and energy came last on the list of sustainability issues that respondents worried about. When focus groups were arranged in the countries taking part, child labour, animal protection and poor work conditions were the three single most important issues that the participants wanted to discuss.

Few go from concern to action

Unfortunately, there are few consumers who turn their worries into action and, in their work, researchers and marketing companies therefore seek to understand what drives different consumer groups where sustainability is concerned, so that policy instruments and commercial offers can be adapted on the basis of consumption behaviour. Many models segment and categorise consumers in various ways[18]. Overall, roughly 10–15% of the rich world's consumers can be catogriezed as "convinced sustianablitity consumers", this core of "sustainability consumers" make active choises regarding the eco-efficiency and social sustainablitity when the by products and services and are in gerenal driven by values of "greater good", but also their personal helth and supporting the local economy. These consumers tend to base their descions on facts and knowledge about sustainability issues. At the other end of the scale there is a group, of approximately equal size, of consumers who rarely tend to consume sustainably. For theses, prize, convenience and confort are the most important values when consuming. There are abundant studies investigating what stops consumers from selecting products associated with environmental awareness and social sustainability. Factors that are often emphasised as crucial are lack of understanding of the gravity of sustainability challenges and unwillingness to make concessions in terms of personal comfort and convenience, but also high costs of sustainable consumption choices.

Rapid rise in environmentally aware consumption

Simultaneously, development is rapid and consumer groups that demand organic, 'fair' products are growing around the world. The proportion of organic food sold in Sweden

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[16] European Commission, Eurobarometer 295, *Attitudes of European citizens towards the environment*, 2008.

[17] Grunert et al, 'Sustainability labels on food products: Consumer motivation, understanding and use', *International Journal of Food Policy*, 2014.

[18] See, for example, http://www.hartman-group.com/pdf/sustainability-webinar-2013.pdf

is, for example, rising annually[19]: a sales increase of 38% in 2014 was found. Another trend is emerging criticism of earlier forms of wastefulness, such as using too much energy or discarding food. The minimisation trend is also spreading to products like textiles and electronics. Repairing things is increasingly common. Another exciting development is that more and more people want to borrow and share items instead of owning them, and in towns and cities around the world phenomena like car and bicycle pooling are gaining momentum. Several praiseworthy attempts to create 'clothing libraries', 'tool pools' and the like are also under way. There are also people who decide not to shop at all, one example being the journalist Gunilla Brodrej, whose book *Shop Stop* is about her year without excess consumption.

Gender divergence

In rich and poor countries alike, women's consumption differs from men's. The differences are due mainly to men's and women's divergent access to resources and gendered division of household tasks. In general women have lower incomes than men, as their consumption choices reflect. They are also responsible to a larger extent for the household's day-to-day consumption.

Statistics for the OECD countries show the following differences in men's and women's consumption:[20]

Women

- make more than 80% of decisions on household purchases
- buy cheaper basic goods, such as food, clothing and household articles, more often
- do more shopping.

Men

- spend more than 80% of household income
- buy expensive capital goods, such as homes, cars and electronic products, more often
- travel and fly more often
- eat more meat.

The statistics show that women's consumption is often the same thing as their families'. Overall, men's consumption is more energy-intensive and environmentally harmful than women's. Accordingly, one might also draw the conclusion that women often have smaller ecological footprints than men, in both rich and poor countries.[21] There are also studies showing that women have a greater propensity to buy organic food, recycle to a higher degree and care more about efficient energy use than men.[22] At the same time, it is important to remember that statistics often become stereotypes. The differences among individuals are considerably greater than generalised gender images, not least in the Nordic countries where, today, we divide housework and child care on a relatively equal basis.

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[19] Article in *Dagens Nyheter*: www.dn.se/ekonomi/efterfragan-pa-ekologisk-mat-okar-i-rekordtakt/, in Swedish.

[20] OECD. 2008: G*ender and Sustainable Development. Maximising the economic, social and environmental role of women*, at www.oecd.org/dataoecd/58/1/40881538.pdf.

[21] Johnsson-Latham, G. 2007. *A study on gender equality as a prerequisite for sustainable development*. Report to the Environment Advisory Council, Sweden 2007:2.

[22] OECD. 2008: G*ender and Sustainable Development. Maximising the economic, social and environmental role of women*, at www.oecd.org/dataoecd/58/1/40881538.pdf.

Fair Trade

Corporate social responsibility (CSR), joint certification systems and increased consumption of products labelled for their fairness aspects are manifestations of consumers' and businesses' endeavour to bring about more socially sustainable consumption.

The Swedish 'Fairtrade' label is the most common one for ethical consumption in Sweden. Through the Swedish Fair Trade Association, growers and employees in countries with widespread poverty get access to an international market and scope for increasing their sales. The criteria impose requirements concerning pay rates and a guaranteed minimum price for the product, including long-term trading relationships and agreements between producers and buyers. The criteria also regulate working conditions for labour employed, in terms of worker safety and health.

Read more at http://wfto-europe.org/the-european-branch-of-the-world-fair-trade-organization/.

How do Swedish consumers behave in terms of sustainability?

Every year, the company Sustainable Brand Insight carries out a study on brands and sustainability. Based on this study, four consumer groups have been identified whose behaviour is distinctive in terms of sustainability and brands. Consumers are categorised as follows:

1. Ego (26% of Swedes)
This group is oriented mainly towards price, irrespective of what they purchase. After price come functionality, perceived quality and durability as the most important attributes. These people are characterised by short-term thinking; they seek simple solutions, choose whatever product or service fulfils their needs, and care only about what is best for themselves. The level of knowledge about sustainability in this group is low.

2. Moderate (50% of Swedes)
This group makes up roughly half of the population. They make general demands on durability, quality and functionality. They prioritise price, but also think sustainability is interesting. They are primarily passive recipients and aware of the sustainability debate. Members of this category show an even distribution in terms of gender, age and income.

3. Smart (17% of Swedes)
This group consists of purposeful people, mainly women. They are interested in and aware of which products are good for body and soul. Price is not the primary consideration, since they are willing to pay for the right content and can afford it. They are curious about and interested in sustainability, and gladly discuss it with others. They actively seek information before buying, and are often regarded in their social circles as knowledgeable about sustainability.

4. Dedicated (7% of Swedes)
This group is the smallest part of the population but by far the most devoted to the notion of sustainability. To them this is the key factor, regardless of purchase and situation. The only thing that sometimes gets in the way is lack of funds, since this is a group with slightly lower incomes than the others. They seek and learn information about sustainability, and are glad to discuss it in their social circles. They give and receive information about sustainability to a high degree, and are likely to contact companies to learn more and ask questions.

Sustainable consumption on the political agenda

Sustainability and, in particular, environmental issues have tended to lose ground in the public social debate since the financial crisis, especially in the media. But behind the scenes, both globally and nationally, persistent political efforts are under way to create a more sustainable production and consumption system. The focus of this work is still mainly on making the system more efficient and reducing the negative effects of individual products, rather than decreasing total consumption. Rather, ideas that economic growth can be freed from negative environmental influence and socially unsustainable development are dominant.

UN-generated consensus

The United Nations has, for example, a 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP), whose purpose is to speed up development both politically and in the business sector. A key part of 10YFP is education and training for sustainable development.[23] The programme, which was prepared by means of the 'Marrakech Process', has been in progress for three years, and its most recent meeting was held in New York on 14–15 May 2015. Subjects discussed at the meeting included the question of how sustainable consumption can be followed up and measured at national and global level. There is also a special emphasis on sustainable consumption in the UN's new goals for sustainable development, to be adopted in September this year. One of the 17 proposed goals (No. 12) is about sustainable consumption och production. The first interim target under goal 12 is about implementing 10YFP. Aspects concerning sustainable consumption and production are also included in many of the other goals. The programme has a good website, where one can read about various initiatives in other countries, in the extensive database that is being established: http://www.scpclearinghouse.org.

[23] http://www.unep.org/10yfp/.

TWENTY-THREE SHORT-TERM MEASURES

1. Strategy for sustainable consumption.
2. Studying the impact of Swedish consumption on the environment and health in other countries.
3. Exploring possible policy instruments to make products more durable.
4. Focused support for sustainable business development.
5. Innovation competitions and innvovation procurement.
6. Best practice and agency collaboration for a circular economy.
7. Environmental rating of pension funds.
8. Annual monitoring of the impact of consumption on the climate.
9. Needs analysis for a life-cycle database.
10. Better knowledge of dangerous chemicals taught in schools.
11. Preparations for a knowledge centre for replacing hazardous substances in products.
12. Setting up a programme for the urban environment.
13. Set aside street areas for car pooling.
14. System of rewards and penalties ('bonus-malus system') for passenger cars.
15. Exploring possible charging infrastructure.
16. Policy instruments for reduced climate impact from aviation.
17. National inputs for reduced food wastage.
18. Overview of tax system in the food sector.
19. Information inputs for microproduction of electricity.
20. Measurement and pilot study of households' electricity use.
21. Identifying obstacles to environmental measures in buildings.
22. Deductions for energy efficiency measures
23. Consumer guidance for sustainable building and housing.

Source: the Swedish Environmental Protection Agency's report on its government remit to draft action proposals for more sustainable consumption.

EU promoting market for ecoproducts

In the EU, too, a great deal of work on sustainable consumption och production is under way. There is, for example, a special action plan[24] for these issues. One intention of this plan is to create uniform systems of consumer information on the environmental impact of products. Another is to promote energy- and resource-efficient products through legislation and by facilitating green procurement. The EU also devotes considerable resources to research, development and innovation on new sustainable products and services, with such initiatives as Horizon 2020. Much of the EU's work has been focused on the environmental dimension. One step taken to include the social dimension in sustainable consumption and production has been to supplement the array of policy measures with a strategy for CSR issues.[25] In addition, questions of sustainable consumption and production are also included in EU work on waste issues. In this work, minimisation of waste is one of the main strategies, and we shall be able to achieve this only with new consumption and production patterns.

Lack of Swedish national strategy for sustainable consumption

Sweden has no coherent national strategy for sustainable consumption and production, although various stakeholders periodically point out that some form of common agenda is needed for these issues. Instead, responsibility for sustainable consumption and production at national level is borne by several Swedish sectorial agencies, such as the Consumer Agency, Environmental Protection Agency, Governmental Agency for Innovation Systems (VINNOVA), National Board of Health and Welfare, National Food Agency, Board of Agriculture, Energy Agency and county administrative boards.

The Environmental Protection Agency currently has something of a collective role. It is, for example, Sweden's National Focal Point for the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP), and in 2014 it implemented a government assignment to describe action proposals for more sustainable consumption.[26] Its final report lays particular emphasis on the fact that influencing what we consume is not enough: we also need to find ways of reducing the total quantity. Moreover, the report pinpoints the need to price environmental costs better and Sweden's need to take responsibility for the social and environmental repercussions of Swedish consumption outside this country.

The Consumer Agency also has a special remit of working to promote sustainable consumption. A research unit provides the Agency with scientific advice.[27]

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[24] http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0397:FIN:EN:PDF.

[25] http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0681:FIN:EN:PDF.

[26] 'Proposed measures for more sustainable consumption' (*Förslag till åtgärder för en mer hållbar konsumtion*), Swedish Environmental Protection Agency 2014, ref. NV–00685-1.

[27] http://www.konsumentverket.se/Om-oss/Organisation/Vetenskapliga-radet/ (in Swedish).

How can digitisation contribute to sustainable consumption?

A new report from the Swedish Environmental Protection Agency sheds light on ways in which digitisation and IT might help to bring about sustainable consumption. According to the report, which was written by Åsa Moberg and others at KTH Royal Institute of Technology, digitisation represents a major opportunity for Sweden in the work of attaining the established national environmental objectives. IT has great potential in terms of creating alternatives to accustomed patterns and also new, sustainable ways of behaving and consuming.

In their report, the researchers identify four ways of reducing environmental burdens and resource use by means of IT:

1 *replacing* activities
2 *intensifying* use of products, areas and vehicles
3 *increasing efficiency* of processes
4 *informing* people about alternative options.

With IT people can, for example, meet at a distance; get information on transport pooling opportunities and public transport; make better use of heated space (Airbnb, Hoffice, couch surfing); and create easily accessible secondhand markets (eBay, Gumtree). But to attain the potential offered by this type of IT application, there also need to be powerful, environmentally efficacious measures to combat resource wastage. Digitisation with any other form of control poses a risk of boosting consumption, since it can generate scope for even more consumption. Through a combination of digitisation and vigorous environmental policy, the Swedish Government could create ample opportunities for more sustainable consumption.

'Sweden has an explicit IT policy aim of becoming best in the world at making use of the scope of digitisation. This is a good objective, but we find that more effort is being made to achieve digitisation itself than to use it to create a more sustainable society,' says Åsa Moberg, Assistant Professor at KTH Royal Institute of Technology.

'Digitisation can help us to achieve the environmental objectives, but then it must be combined with a radical environmental policy. At the same time, digitisation can create acceptance for this particular kind of policy, by offering alternatives to resource-demanding activities,' says Mattias Höjer, Professor and Director of the Centre for Sustainable Communications (CESC) at KTH.

Read more and download the report (in Swedish, except for the Summary on pp. 8–9): www.naturvardsverket.se/Om-Naturvardsverket/Publikationer/ISBN/6600/978-91-620-6675-8/.

Business sector assuming responsibility

Many companies, trying to stay one step ahead, actively pursue the issue of sustainable consumption. In doing so they apply clear strategies, such as the following:

- offering wholly new products and services, more sustainable than today's options
- phasing out poor products and making existing ones more sustainable
- communicating with customers to guide them towards more sustainable action
- making accountability feasible through enhanced transparency
- imposing demands on subcontractors
- lobbying for more stringent legislation and other joint policy instruments.

International coordination

Companies often coordinate their work on sustainable consumption in their respective trade associations. Through these, they lobby decision-makers, create standards and engage in dialogue with customers. At international level too, there is coordination. The World Business Council for Sustainable Development has, for example, issued an excellent report on sustainable consumption jointly with its members.[28] Another international body engaged in matters relating to sustainable consumption is the World Economic Forum. The WEF has, for example, issued a report that clarifies the issue of sustainable consumption from a stakeholder perspective and contains brief contributions from decision-makers in the business sector and elsewhere.[29]

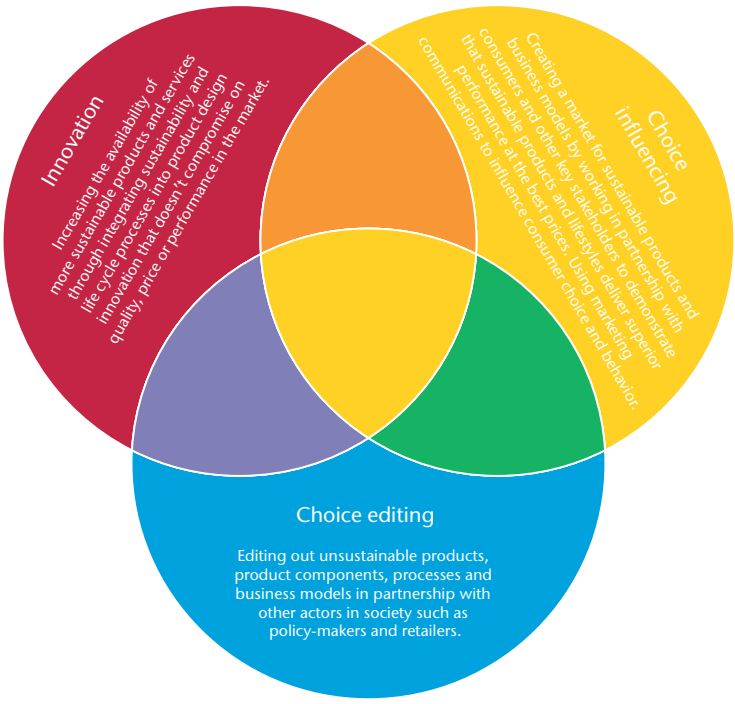

Figure 10. *The World Business Council for Sustainable Development[30] identifies three roles that businesses need to assume for the sake of sustainable consumption and production: conducting a dialogue with consumers to influence their choices, modifying their own offerings and being innovative so as to find new solutions.*

[28] http://www.saiplatform.org/uploads/Modules/Library/WBCSD_Sustainable_Consumption_web.pdf.

[29] http://www3.weforum.org/docs/WEF_ENV_SustainableConsumption_Book_2013.pdf.

[30] http://www.saiplatform.org/uploads/Modules/Library/WBCSD_Sustainable_Consumption_web.pdf.

In the EU, there are several forums where decision-makers in the political sphere encounter members of the business sector to talk about sustainable consumption. One example is the Retail Forum for Sustainability[31], which includes some 20 major retailers, such as Carrefour, C&A and IKEA. Since its start in 2009, the Forum has held some 15 meetings on topics ranging from efficient goods logistics and animal welfare to the role of the retail sector in communication and marketing. These meetings are all summarised in simple 'Issue Papers'.

Abundant good examples

There are numerous fine examples of individual companies that are at the leading edge in terms of sustainable consumption — the dialogue that Max, the hamburger chain, engages in with its customers about its vegetarian products; Nudie's contribution to creating a culture of mending in jeans fashion; and the Afro Arts business model, which is based on close, small-scale collaboration with local handicraft cooperatives. These are all Swedish examples of best practice that are familiar to many.

An amusing example from abroad is the campaign launched by French food chain Intermarché, which decided about a year ago to do something about food wastage. Through smart communication and a lower price for 'misshapen vegetables', they have succeeded in creating a market for products that would otherwise be discarded. The initiative has been a success, and the Swedish Coop chain has recently adopted a similar initiative, as the first food chain in Sweden to do so.[32] Louise König, who is in charge of sustainability at the Coop, stated in the press release that, according to estimates by the UN Food and Agriculture Organisation (FAO), it takes some 2,000–5,000 litres of water a day to produce food for one person. As she points out, this makes nonsense of picking out and discarding fruit and vegetables that do not conform to the standard shape.

Figure 11. *The French food chain Intermarché has been selling misshapen produce with the re for the past few years. With humour and facts, they have succeeded in holding a dialogue with their customers about sustainable consumption*

[31] http://ec.europa.eu/environment/industry/retail/issue_papers.htm.

[32] http://www.dn.se/ekonomi/coop-forst-ut-med-fula-frukter/ (in Swedish).

Wide-ranging research on sustainable consumption

A great deal of research concerning sustainable consumption (and production) is in progress. Every component of the production and consumption system is being studied, and many people are trying to apply a more comprehensive approach. Research is often needs-driven and about finding methods and tools that enable different stakeholders to understand consumption and influence it in a more sustainable direction. Projects of an interdisciplinary nature are also common. This means that many academic disciplines — natural sciences, political science, sociology, psychology, anthropology, law, business administration and design, to name a few — have connections of one kind or another with the area.

Broadly, research on sustainable consumption may be said to seek either understanding of the *effects* of consumption on people and the environment or finding *ways of making consumption more sustainable*. There is also much research aimed at understanding *why we consume as we do* and *how consumption might become more sustianble in the future*. Research is often carried out on a particular kind of consumption — of fashion and clothing, cars or food, for example — or involves studying a new phenomenon affecting consumption, such as IT, reuse or service development.

A general account of the areas of focus issues for research on sustainable consumption follows below. These areas are based on an overview of current Swedish research projects and also, to some extent, existing research literature[33]. A summary of ongoing Swedish research projects on sustainable consumption is provided in Appendix 1.

Effects of consumption: how does it affect people and the environment?
How much, and what, do we consume? How can the effects of consumption be measured in terms of its impact on the environment and other people? How does our consumption affect us ourselves, other people and Earth's ecosystems? What are the repercussions of consumption on society's economic development?

Future visions and scenarios: what is a sustainable level?
How much can Earth's ecosystems withstand? What types of consumption are better than others? How can we define 'sustainable consumption'? What will the climate-smart and resource-efficient lifestyles of the future be like? How much emissions will each sector have? Is it enough to increase efficiency and reduce impact, or must we quite simply consume less? What bearing do 'rebound effects' have on total impact? What would a world without growth and mass consumption be like? What measures of success does our society use? Is GDP the correct one, or should we seek another? Should it be local and on a small scale, or something large-scale and global — what is in fact best?

Consumer perspective: why do we consume as we do?
What characterises the 'sustainable consumer'? What governs consumer behaviour in different situations? What are the features of different consumer groups? What bearing do status, norms and values have on how we consume? Does consumption make us happy? How do people apportion their time? How do we behave when we use different products?

Production perspectives: how do we design and produce goods and services that are sustainable?

[33] See for example: "Handbook of Reserch on sustainable Consumption", L A. Reisch and J Thøgersen, Edward Elgar Publishing, 2015.

Are CSR, life-cycle analysis and product labelling the answers? How can we understand and report on the impacts of individual products and services? Recycling, reuse and adaptation to ecological cycles? IT? Factor 10? Design för recycling, recovery and reuse? Can services replace products? What will future circular business models be like?

Media, advertising and retail perspectives: how should sustainability be marketed and sold?
What is the role of media and advertising in sustainable consumption? How can business transactions and retail outlets be designed to facilitate sustainable consumption?

Society's viewpoint: how can policy aims and instruments be shaped to promote more sustainable production and consumption?
What is the role of consumption in the economy — are people citizens or primarily consumers? How do different groups respond to policy instruments? Which instruments have the greatest effect? What can be done at local and national level? When do we need to cooperate globally? What pathways are available - How can consumption become more sustianble in the future?

Conclusions

During the collection of material for this report, it has become clear that there is a broad consensus among politicians, representatives of the business sector and consumers alike: that we need more sustainable consumption. The latter concept is well defined and there are many proposed solutions. A great deal of research is also in progress. At the same time, we have a long way to go before we can resolve the issue, if this is even possible. In its complexity and scale, the problem is a fundamental challenge to our society and requires thoroughgoing changes in the systems of production and consumption that predominate today.

Given the research that is being done and the challenges that sustainable consumption is wrestling with, a research initiative on sustainable consumption for Mistra's part may conceivably have the following objectives:

- focusing on one or more clear challenges in the area
- contributing to solutions, rather than describing the impact of current consumption
- being interdisciplinary
- forging contacts with problem owners who can make a difference
- contributing to network building and coordination of Swedish research in the area of sustainable consumption, which is partly fragmented at present.

Appendix 1

Examples of current research in Sweden on sustainable consumption

This Appendix contains a review of five major Swedish research funders' ongoing projects. The projects directly connected with consumption and consumers are listed below. There are also many research projects about developing better, more sustainable products and services for private consumption, but this summary excludes these. The descriptions of the projects are taken primarily from the funders' websites.

Swedish Research Council Formas

Att dela på ting och rum: om urban samkonsumtion **('Urban Sharing: The rise of collaborative consumption and co-use of spaces'), Karin Bradley, KTH Royal Institute of Technology (Architecture, Urban Planning)**
Growing criticism of our contemporary consumption culture and commercialisation of public spaces is discernible. In response, and in the wake of the global economic crisis, citizen initiatives have emerged whereby systems have been developed to share resources like tools, clothing, vehicles, premises etc. This is a way of reducing the need for individual consumption and simultaneously developing local networks and social fellowship. The purpose of the project is to investigate systems for sharing objects and spaces, why these systems arise, how they work and what their wider social significance, in terms of social, economic and spatial organisation, may be. The focus is on co-use and 'collaborative consumption' in urban areas. Case studies will be carried out in three cities where collaborative consumption has expanded in recent years: Barcelona, Bristol and Stockholm.

FOCAS — Food, Convenience and Sustainability, Helene Brembeck, University of Gothenburg (Ethnology)
How do consumers define 'convenience food'? How is people's intake of fast food influenced in relation to their knowledge of healthy food and sustainability? When, where, how and why do consumers use convenience food? Four case studies of various types of convenience food will be carried out: ready-made baby food, ready-made meals from shops, meals served at workplace restaurants, and raw produce delivered in bags for ready-planned meals.

Matens betydelse för växthusgasutsläpp i Sverige **('The Role of Food in Greenhouse Gas Emissions in Sweden'), Katarina Bälter, Karolinska Institute (Epidemiology)**
Bälter studies the connections between eating habits, nutrient content and GHG emissions.

Bortom BNP-tillväxt. Scenarier för hållbart samhällsbyggande **('Beyond GDP Growth: Scenarios for sustainable building and planning'), Göran Finnveden, KTH Royal Institute of Technology (Environmental Strategies, Engineering Sciences)**
The project seeks to generate visions of what may happen in the future if growth comes to an end. One example of a question addressed is what the quality of life is like in these future scenarios in terms of time use, housing work, mobility, fellowship, security and social life.

Välbefinnande i hållbara städer: Att utforska vägar mot en koldioxidsnål framtid **('Well-being in Sustainable Cities: Exploring new paths towards attractive low-carbon futures'), John Holmberg, Chalmers University of Technology (Physical Resource Theory, Engineering Science)**

The project involves studying which paths to the future are in line with human wishes and, at the same time, contribute to the target of keeping global warming below 2°C. Does support exist for alternative lifestyles that contribute to lower emissions because of behavioural changes rather than costly technical investments? Which lifestyles combine ample well-being with low emissions of carbon dioxide?

Delade eller individuella värden på ekosystemtjänster? **('Shared or individual values of ecosystem services as decision support?'), Cecilia Håkansson, KTH Royal Institute of Technology (Environmental Science)**
How should our common resources be priced? Who should pay and how much are clean water and fresh air worth? The purpose is to improve current methodological frameworks to identify, develop and clarify the value of ecosystem services so as to reflect scope for the joint values that are at stake.

Stora tekniska system i hushåll – att synliggöra och förstå konsumtion av vatten och energi som socio-tekniska processer **('Major technical systems in households: Clarifying and understanding water and energy consumption as sociotechnical processes'), Helena Köhler, Linköping University (Geography)**
The project involves investigating the relationship between users and systems at a time when our water and energy systems are changing in various ways. Some of the changes are directly connected with sustainability measures (introduction of individual households' water-heating gauges), others not (deregulation of the electricity market). The work will apply a consumer point of view, focusing particularly on different households' capacity to perceive and understand the changes and, accordingly, change their consumption patterns.

Urban Rekonomi: delning för cirkulär resurseffektivitet **('Urban Reconomy: Sharing for circular resource efficiency'), Oksana Mont, Lund University (Environmental Management and Policy, Engineering Sciences)**
Since urban life is seen as one of the leading drivers transforming our communities in a sustainable and resource-efficient direction, the question is how the sharing economy and collaborative production can help to bring about closed urban resource flows and, through these drivers, contribute to a circular urban economy: 'Urban Reconomy'. The purpose of the project is to study the sharing economy and collaborative production from economic, environmental and institutional entrepreneur-creating viewpoints. As a result, we shall gain a greater understanding of how such systems can facilitate a transition from what are, at present, linear resource flows in unsustainable towns and cities to circular resource flows in Urban Reconomy. The project will address the following questions:

1. *How should the sharing economy and collaborative production be organised in an urban environment, in terms of features, value creation, various operating routines and institutional environments?*
2. *What are the prospects of this helping to enable a circular economy to be utilised through innovative institutional groupings and entrepreneurial processes in different urban contexts?*

MEI metoden – En kombination av materialflödesanalys och livscykelanalys för att utvärdera ändamålsenligheten och potentialen för kommunala åtgärder i arbetet med att nå uppsatta miljömål **('The MEI Method: Combining material flow analysis and life-cycle assessment for evaluating effectiveness and potentials of municipal measures to reach environmental targets'), Greg Morrison, Chalmers University of Technology (Road and Water System Engineering/Environmental System Analysis, Engineering Science)**
Consumption of resources and products in a municipality causes accumulation of materials and waste, just like the circulation in natural systems, and may be described as the area's 'metabolism'. The purpose of the project is to create understanding of how municipalities'

metabolism, municipal environmental measures and the actual environmental influence achieved by these measures are associated. For this purpose, a new method of calculating environmental performance in municipalities, Municipal Environmental Impact (MEI), will be developed and tested.

Analys av hur internationell handel med jordbruksprodukter bidrar till växthusgasutsläpp och förlust av biodiversitet från förändrad markanvändning i tropikerna **('Greenhouse gas emissions and biodiversity loss from land-use change embodied in international trade of agricultural commodities: A pan-tropical assessment'), Martin Persson, Chalmers University of Technology (Physical Resource Theory, Engineering Science)**
Growing globalisation and commercialisation of the drivers of deforestation give consumer groups and countries scope, if the connections between consumption and environmental impact in the form of changes in land use can be clarified, to exert pressure on producers to modify their production methods so as to reduce environmental impact. However, for this to work one requirement is access by consumers and consumer organisations to knowledge of how their choices affect the environment at the other end of the global supply chains. The project involves, for example, investigating how Swedish imports of farm produce derived from tropical regions contribute to land-use changes, and which effects on climate and diversity are thus exerted over time. In this part of the programme, we shall also examine how far countries that, historically, have shifted from contracting to expanding forested areas have done so by 'exporting' their environmental impact to other countries.

***Post Car(d) Urbanism*, Alexander Ståhle, KTH Royal Institute of Technology (Architecture/Urban Design)**
Today, there are more than 600 million motor vehicles on Earth, and the figure is rising. Cars have a crucial bearing on the global economy, modern society and contemporary lifestyles. But several underlying social, economic and environmental drivers indicate that they may be less dominant in the future. The aim of this research project, a collaboration between KTH in Stockholm and MIT in Boston, is to examine conceivable forms our urban areas may take if vehicle use declines radically within 50–100 years. The target vision is a 90% fall in motorised travel. The project will involve analysing and simulating future car-free urban development in Stockholm and Malmö. In talks with a unique international research group and with the public in these two cities, future projection maps and realistic visualisations in the form of 'postcards from the future' are being developed — hence the project name 'Post Car(d) Urbanism'.

Marknadsföring och marknadsskapande av ekologisk produktion och konsumtion **('Marketing and market creation for organic production och consumption'), Susanne Sweet, Stockholm School of Economics (Business Administration, Marketing and Strategy)**
The purpose of the project is to study the various stakeholders operating on markets for organic products, and how they cooperate to support consumers' shift towards buying more organic products. How and why markets for organic foods arise, are created and develop are central issues. The project is based on two different case studies of markets for organic food, in the conventional grocery trade and through alternative distribution channels outside the traditional market respectively. The findings from these studies will then be tested theoretically with a questionnaire survey of consumers. Studying processes of exchange among producers, retailers and consumers makes it possible to identify tools and methods that may be useful in developing new markets.

Eco2 – Globala och lokala paradoxer i produktion och konsumtion: Ett försök till en modell för att styra lokal mot både hållbar ekonomisk och ekologisk utveckling **('Eco2 — Global/Local Paradoxes of Production and Consumption: A tentative**

model towards local economic and ecological sustainable development'), Elin Wihlborg, Linköping University (Political Science)
The conventional view of development is based on economic growth, whereby the money supply expands. This kind of view promotes the global spread of manufacturing and production. We can drink bottled French spring water almost anywhere in the world. This creates production patterns that are dispersed in space and compressed in time. With our present-day approach, this is deemed economically sustainable. Ecological sustainability, on the other hand, is about reduced transport services and minimal inputs of external energy. Accordingly, production should take place close to consumption: the processes and then spatially compressed but temporally drawn out. Attitudes of this kind are captured in slogans like 'slow food' and 'buy local', but they are in contrast to economic sustainability and the principles of growth. This paradox between economic and ecological sustainability is the focus of the research project proposed here.

Adlerbert Research Foundation

Hållbar shopping i det digitala samhället – en studie av gröna appar **('Sustainable Shopping in the Digital Society: A study of green apps'), Christian Fuentes, University of Gothenburg (Business Administration/Marketing)**
The purpose of the project is to investigate, describe and conceptualise the ways in which green apps make sustainable shopping feasible. Central questions are: In what different ways can green apps be used? What functions do they have? In what ways do apps permit and change sustainable shopping?

Swedish Research Council

Re: heritage. Cirkulering och kommodifiering av ting med historia **('Re: heritage. Circulation and marketisation of things with history'), Helene Brembeck, University of Gothenburg (Ethnology)**
Today, things with a history are marketed in a range of different contexts, in venues from flea markets, secondhand and retro shops to exclusive vintage boutiques or online stores. How do used objects take on their financial, historical and emotional value? How do they circulate on the secondhand market and what is the importance of the places, streets, flea markets and buildings where the selling takes place?

Digcon: Digitaliseringen av konsumtionskulturen **('Digcon: Digitisation of the consumption culture'), Magdalena Petersson McIntyre, University of Gothenburg (Ethnology)**
The purpose of the project is to investigate the social, cultural and economic consequences of digitising consumption. Collaborating in this international, interdisciplinary project are researchers from the Centre for Consumer Science and the Centre for Retailing at the School of Business, Economics and Law at the University of Gothenburg, the Stockholm School of Economics and the University of Toulouse II. To understand how digitisation is affecting consumption culture, one needs to study the social and cultural contexts of technologies and consumer goods alike, the manufacturers and marketers that have devised and disseminated the technologies and the consumers expected to use them.

Kön och jämställdhet i medierna i ett globalt perspektiv **('Gender and gender equality in the media in a global perspective'), Monika Djerf Pierre, University of Gothenburg (Journalism)**
The project involves examining gender and gender equality in the news media in various

countries around the world. Gender equality in the media is investigated in terms of:

- *content (how often men and women feature, and how they are described, in the journalism of news media)*
- *roles in media organisations (the extent to which women and men may be found in different positions and have divergent status in media companies)*
- *men's and women's access to and use of news media (access to various platforms and consumption of news in the press, on the radio and TV, and on the Internet).*

Swedish Energy Agency

Hållbara livsstilar – kartläggning, segmentering, scenarios **('Sustainable lifestyles: survey, segmentation, scenarios'), Sara Ilstedt, KTH Royal Institute of Technology (Product and Service Design)**

The purpose of the project is to develop methods, first, for understanding and, second, for generating new knowledge about human habits, lifestyles and practices relating to sustainable consumption, and developing effective ways of communicating and conveying this knowledge to different stakeholders. The aim is that the project should contribute to the development of more user-friendly, sustainable products and services.

Utrikeshandelns effekter på koldioxidutsläppen **('The effects of foreign trade on CO_2 emissions'), Astrid Kander, Lund University (Economic History)**

The proposed project is intended to develop a method of reporting countries' climate-affecting emissions — one that, more than the methods that have dominated the climate debate so far, takes into account the effects of foreign trade (both imports and exports).'s profileAccording to the applicant, such a method should apportion responsibility for emissions in relation to what people can influence. This includes their country's energy system and production technologies, as well as the level and composition of their own consumption.

Hållbara hushåll – via normativ feedback **('Sustainable households: through normative feedback'), Andreas Nilsson, University of Gothenburg (Psychology)**

This project is a collaboration between the student housing companies, Exibea (which develops user-friendly solutions for energy-smart homes) and the Gothenburg Department of Psychology. The purpose is to investigate various ways of modifying behaviour to promote energy saving. The energy-saving potential lies in investigating various types of normative feedback, i.e. information enabling individuals to compare their own energy use with that of other individuals or households. Feedback based on comparisons of different kinds is expected to make saving energy more intelligible and meaningful to consumers and enhance their motivation for doing so.

Effektivare energianvändning: Hur berikar vi den energipolitiska verktygslådan? **('More Efficient Energy Use: How can we Refine the Energy Policy Toolbox?'), Andrius Kazukauskas, Umeå University (Economics)**

The focus is on inefficiencies resulting from 'inadequate attention' and 'shared incentives'. Much has been written about these but few studies have provided empirical evidence. The project will contribute three empirical studies: (1) a field experiment, jointly with the housing company AB Bostaden, of how social norms affect Swedish households' electricity and water use; (2) a study of 'inadequate attention', analysing questionnaire data on attitudes, knowledge and stated behaviour related to energy use; (3) a study of energy statements for apartment blocks analysing the significance of various ownership situations.

På väg mot ett hållbart energisystem: beteendeekonomiska bidrag till en effektivare

***energi- och klimatpolitik* ('Towards a Sustainable Energy System: Contributions of behavioural economics to more effective energy and climate policy'), Luis Mundaca, Lund University (Industrial Environmental Economics)**
The purpose of the project is to develop knowledge of human behaviour in scenarios with (ambitious) policy instruments in energy and climate policy intended to bring about a sustainable energy system, and to develop models for modelling of behavioural changes. The research project applies a strong interdisciplinary approach that integrates perspectives from behavioural economics, psychology, organisation theory, environmental economics and evaluation research.

***Tilltron till systemets intelligens som ett verktyg för hållbara energieffektiva beteendeförändringar* ('Faith in System Intelligence as a Tool for Sustainable Energy-Efficient Behavioural Changes'), Maria Nilsson, Viktoria Swedish ICT AB**
Several studies have shown motorists' disinclination to adopt more economical, energy-efficient driving behaviour. The purpose of this project is to confirm previous results showing that faith in the intelligence of a technical system affects individuals' driving behaviour. The project will involve studying whether there are solid grounds for developing a new model to explain why certain eco-driving campaigns are more successful than others.

***Boendets energianvändning kopplad till människors livsstilar* ('Energy Use in Housing Associated with Lifestyles'), Erik Johansson, Lund University**
In this project, the association between people's lifestyles and behaviour and their energy use is being investigated. The project focuses on multi-family dwelling areas in Malmö with ethnic, cultural and social diversity, and is considered to be of high news value because it will boost knowledge in studies of energy use. The project may result in more energy-efficient lifestyles and behaviour among the residents, thanks to information campaigns and advice that the residents perceive as relevant and meaningful.

Swedish Environmental Protection Agency

***Svensk konsumtions miljöpåverkan* ('The Environmental Impact of Swedish Consumption'), Viveka Palm, Statistics Sweden**
The researchers will identify product groups with the heaviest environmental impact for private and public consumption. They will also develop methods to enable us to follow up the 'generational goal'[34]. The research is headed by Statistics Sweden, which has used the internationally harmonised system of environmental accounts to carry out the calculations used to date to assess the environmental impact of Swedish consumption. The research consortium also includes the Norwegian University of Science and Technology (NTNU) and two Dutch partners, the Institute of Environmental Sciences (part of Leiden University) and the Netherlands Organisation for Applied Scientific Research. The latter two are taking part in several ongoing projects to build international databases aimed at assessing the environmental impact of consumption in various parts of the world. This means that the programme has access to several different parts of the world and to five databases, and the means of comparing their structure and suitability to serve for future calculations of indicators for the environmental impact of Swedish consumption.

[34] *Translator's note:* 'The overall goal of Swedish environmental policy is to hand over to the next generation a society in which Sweden's major environmental problems have been solved, without worsening environmental and health problems beyond Sweden's borders' (http://www.miljomal.se/Environmental-Objectives-Portal/Undre-meny/About-the-Environmental-Objectives/Generation-goal/).

Swedish Foundation for Strategic Environmental Research (Mistra)

Several of Mistra's own initiatives partially involve consumption, but no programme has sustainable consumption as the main research issue.

Mistra Centre for Sustainable Markets, Lin Lerpold, Stockholm School of Economics
MISUM, a new research centre focusing on sustainable markets, is now in its start-up phase and working to define its research in detail. Studying sustainable consumption might well be included as part of the centre's profile. The overarching challenge taken on by the centre is described on the website as follows:

> *'Much knowledge is still lacking on how individual markets function — knowledge that could help to influence the markets in a sustainable direction. Markets are governed by statutes and policy instruments, but they are also shaped in complex connections among a long series of stakeholders: politicians, public agencies, companies, interest organisations and private individuals, at local, national and global level. To find new solutions and tools capable of contributing to greater sustainability in markets, and simultaneously strengthening Swedish competitiveness, we must understand the markets better than we do today.'*

Mistra Biotech, Sven Ove Hansson, KTH Royal Institute of Technology
Mistra Biotech has a comprehensive approach to biotechnology in farming and food production. Six subprojects cover every aspect, in terms of ethics and social as well as natural sciences. The natural science projects will involve studying how biotechnology can contribute to better and more environmentally sustainable farm produce — a requirement for more sustainable consumption. Consumer attitudes to various biotech agricultural products will also be studied to gain a better idea of public attitudes towards such products.

Mistra Future Fashion, Åsa Östlund, SP Technical Research Institute of Sweden
Future Fashion is the Mistra programme with the most distinct consumption perspective. The four integrated Research Themes are identified to clarify crucial issues which must be addressed to meet these goals. The Themes are described with the following approach:

1. How to design for a circular economy?
Explore and evaluate the environmental potential of the design and user potential of short-life vs. long-life garments to find the most suitable choices for the transformation into a textile circular economy for different types of garments in order to develop recommendations, guidelines and tools for how to design for resource circularity.

2. How to promote a more sustainable circular supply chain?
Identify the necessary actions in textile and garment supply chains that will enable a circular economy and deliver guidelines for governance on how to transform to and sustain a circular textile supply chain.

3. How can users contribute to a more sustainable fashion?
Make recommendations on how to encourage sustainable consumer behavior and to increase user engagement in sustainable consumption. Specifically recommendations for achieving an increased degree of services for extended life of garments, reuse, and second hand consumption will be included.

4. How to increase textile fiber recycling?

Develop knowledge on recycling methods and impact of post-consumer textiles to provide guidance on necessary steps to enable sustainable textile recycling.

Mistra Urban Futures, David Simon, Chalmers University of Technology
Mistra Urban Futures is a centre devoted to sustainable urban development. It works on consumption issues in various ways, with a particular focus on climate-smart consumption. Researchers at Chalmers have, for example, compiled consumption-based climate data as a basis for the City of Gothenburg's climate strategy, which is clearly oriented towards consumption. Programme researchers are also actively involved in the United Nations' 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP), in which a toolbox for municipalities' efforts to bring about sustainable consumption is being devised. In another project at the centre, researchers have investigated how flea markets contribute to sustainability, in terms both of the environment and of social issues like integration and diversity. The centre has also contributed to KTH researcher Karin Bradley's film about collaborative consumption.