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Authors were provided a format and clear instructions for lay-out. Most authors followed these instructions very good, leading to a consistent presentation of most of the individual papers. Due to the large number of papers, the editors were unable to embark on the time consuming process of adjusting any lay-out errors in papers submitted. Papers had to be reproduced here in the lay-out in which they were submitted, and where authors did - or could - not follow our instructions this may have lead to slight inconsistencies in presentation.

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**Poster
Presentations**

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Chapter 1 European toolbox of EARLY WARNING SYSTEMS for small and medium-sized enterprises (SMEs)

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1 Introduction

To be aware of future trends and developments, companies and organisations have to evolve their own “individual early warning system” to be successful nowadays and in the future. If we anticipate Sustainable Consumption and Production (SCP) as one megatrend of the 21st century, companies and organisations need to take it into account and find solutions to integrate these challenges into their business development. Since there was no collection of early warning systems for small and medium-sized enterprises available, a group of scientists and consultants¹ decided to create such a collection which should enable SMEs to detect changes of their environment’s requests and to take action as early as necessary. The collection of tools includes different kind of tools, part of them include SCP aspects in an integrative way. So early warning could mean that enterprises and organisations anticipate future consumption and production patterns and convert their way of production accordingly.

2 Background

As a partnership in the German EQUAL II programme (2005-2007) (www.equal.de/Equal/Navigation/English/programme.html) a team of institutions has developed a toolbox for SMEs to improve enterprises’ skills and competences to adapt within the fast process of global changes (see the homepage www.fruehwarnsysteme.net, only in German). This team of experts was led by the approach that (lifelong) learning processes are one of

¹ Working group “Entrepreneurial Early Warning Systems” of the National Thematic Network “Life-long Learning in SME” (FRG) within the EU Community Initiative EQUAL, supported by the German Federal Ministry of Labour and Social Affairs

the most important strategies for companies to meet the future challenges. But for pointing out learning potentials you need to know how the present and the future of the company and its employees look like.

Therefore a selection of suitable and practically proved tools, so called »Early Warning Systems« (EWS), was found to be helpful.

The experts analyzed, assessed and documented² 32 different tools and published them in a brochure and on the above mentioned website. The toolbox brochure in German language (Arbeitsgruppe “Betriebliche Frühwarnsysteme”, 2007) was published in Summer 2007 and is already available in the second edition (first edition 3500). In December 2007 the working group was chosen – as one of very few out of several hundred projects – by the organizers of the final EQUAL event in Athens for presenting their results.

In the middle of 2008 the national authority of the European Social Fund in Germany will raise a programme to transfer good practices on a European level. The German editors group would like to participate with the toolbox in this European transfer programme. The authors and their organisations were participating in the development of the toolbox by collecting and documenting tools and as a publisher/editor of the brochure and website.

3 Toolbox early warning systems

3.1 The idea behind this toolbox

Small and medium-sized enterprises nowadays have comparable trading conditions like big companies. The requirements on the leadership of SMEs have become more complex, primarily in decision processes. The quality of entrepreneurial decisions depends essentially on the quality of the available information. Therefore the ability to obtain relevant information and to process according to the needs of the enterprise represents a decisive competition advantage. Helpful is the use of entrepreneurial early warning systems that are adapted to the special needs of the SMEs.

Because they act in their specific environment of needs and threats, risks and opportunities. To prepare themselves for the future challenges and global changes, there are a lot of different occasions and necessities, e.g.:

- reduction of financial losses
- loss of key experts
- deficiencies of internal reporting
- missing flexibility in the production sector
- change of customer requirements
- quality problems because of deficits of the employees' qualification
- legal changes for example within product liability
- global value-added chain and changing delivery structures
- new communication and information technologies
- increasing costs for energy and raw materials
- stringency of resources
- changing consumption patterns

² As described in chapter 3.4

3.2 What are company early warning systems?

Early warning systems are systems, procedures, and instruments that support SMEs to be prepared for future significant evolutions and requirements and to anticipate the economic, ecologic, and social change. Betimes, SMEs should be able to take measures for defence and mitigation of forthcoming risks. Entrepreneurial early warning systems offer the opportunity to improve the controlling of enterprises. This leads to a successful development of entrepreneurial targets – not only economical or financial, but also social and ecological ones.

3.3 What do early warning systems effectuate?

Modern early warning systems allow not only better forecasts of entrepreneurial targets like profits or the order situation, they are also able to explain the development of these values. This is done with the presentment of cause-and-effect chains. The targets of entrepreneurial early warning systems do not forecast entrepreneurial targets as early, as precisely, or as traceably as possible with help of current available and historical information. Beyond they sensitize management and employees of SMEs for a continuous and critical analysis of changes within and outside the company. The use of entrepreneurial early warning systems is connected with the yield of knowledge and therefore leads to better entrepreneurial decisions.

All this could be reason for learning in a company or organisation. By using the EWS the organisation will get a profound advice about the subjects and targets of the necessary learning processes.

The members of the working group have made the experience that successful learning processes in SMEs should be structured like this:

- analysis of the company's needs
- set-up of strategic milestones, targets, activities, and benefits
- design of an activity plan in co-operation with the management
- development of a concept to reach the targets of the activity plan (empowerment approach)
- realisation of the concept within the given schedule
- permanent feedback given by the employees and the management
- review and assessment of the concept/of the processes

And it is beneficial to sell a solution rather than to sell a product!

It is important for the practical use that the early warning systems are adapted to concrete requirements of the SMEs. For this purpose the toolbox offers instruments with various complexity for different application fields. Some of the instruments are suitable for a self-test to get a flashlight assessment of the current business situation and to derive from a thus discovered, concrete need for action. Other instruments are more complex and guide the companies through a process like directions through complex methods. All instruments have been implemented within several companies or organisations.

3.4 Design and development of the toolbox

As the first step of the development the scientists and consultants of the working group compiled a survey of existing entrepreneurial analysis and

improvement tools that were developed within different EQUAL development partnerships in the last few years and that seemed to be adequate as early warning systems for SMEs. This means the considered tools had to be designed for pointing the users to future challenges on the one hand, and had to account for the limited financial, time, and personnel resources of SMEs on the other hand.

For estimating the tools of this survey in view of their adequacy for being EWS for SMEs, the working group found out that EWS could be assigned to three generations of early warning tools: short-term information systems, early recognition systems and early intelligence systems.

The first generation (short-term information systems) only deals with threats but not with opportunities. Such systems often work with a temporal comparison of business ratios that are usually related to the past, sometimes to the present, and so cause a limited early warning effect.

The second generation (early recognition systems) has a higher practical relevance because besides the threats, the opportunities were captured and described, too. Early recognition systems are more long-term oriented than the first generation and use quantitative and qualitative indicators such as incoming orders of a branch or the business climate that point out to relevant evolutions in and out of the enterprise for describing latent threats and opportunities.

Tools of the third generation (early intelligence systems) are to serve the early detection of potential threats and opportunities under securing strategies and actions. Thereby weak signals from the enterprises' surrounding should be perceived at an early stage for the early recognition of discontinuities.

The working group noticed that EWS of the second generation are of high relevance for SMEs, because these systems especially satisfy the peculiarities and the resources of SMEs. For this reason, primarily tools of the second generation were considered by the working group for the toolbox.

Since the sighted tools are products of EQUAL development partnerships, they all are quite well documented so the working group had reasonably valid data for the classification of the tools. However, the scientist and consultants depended on the tool descriptions of the tool developers. Independent sources adequate to genuine scientific claims were not available. Otherwise, being part of the EQUAL network for long time, some of the workgroup members knew the specifications of many tools quite well so they could appreciate the adequacy of these tools as EWS for SMEs pretty accurate.

As result of the procedure just now described, after detailed analysis 32 tools were selected according to the described criteria. The next step was to structure this list because of the different interests and needs of potential users: SMEs that want to optimise their production system should find the accordant tool as well as enterprises that are concerned about legal aspects of their actions or SMEs that want to ensure their entrepreneurial future in an integrated, holistic way.

The different aspects covered by the chosen tools could be concentrated into six categories:

- innovation and co-operation
- employees
- customers, products, markets

- organisation, leadership
- production, services
- finances, legal security

These categories mirror the entrepreneurial aspects to be found in the 32 tools, and similar structures can be found inside of holistic tools (e.g. INC, see chapter 3.5) with the claim to broach the issue of the whole enterprises' action. So the toolbox was structured just as this. Some tools, as mentioned before (e.g. INC and SusEx, see chapter 3.5), cover all of these aspects, but most of the tools have focal points on one or the other aspect so users can easily find the right tools in the tool matrix.

3.5 Two examples of tools in the toolbox

3.5.1 *INC (Initialer Nachhaltigkeitscheck – Initial Sustainability Check) and MNC (Multikultureller Nachhaltigkeitscheck – Multicultural Sustainability Check)*

The INC (Merten et al., 2005; see also the homepage www.kompaktnet.de, only in German) is an internet-based automatic self-assessment tool, which shall familiarise SMEs in the food branch with the ideas of sustainable development. This means that the enterprises are asked for questioning their way of production on the one hand, but also are sensitised for changing consumption patterns. For instance, question number one – “How do you meet customer’s requirements and consumption trends in the development of products and/or services?” – points to converting consumption trends. One of these trends is organic farming, which can hardly keep pace with the annually 10-15 % increasing³ demand for whole food products. Using the multiple-choice method, the INC suggests the following answers for question one:

1. Customer’s requirements and consumption trends are hardly known;
2. Customer’s requirements and consumption trends have been up to now registered in a non-systematic way;
3. Customer’s requirements and consumption trends are regularly registered and taken into account (market analysis);
4. Customers and consumers are involved in the development of products and services (analysis and utilisation of the results of surveys, etc.)

The question and the suggested answers show the necessity and the possibilities to inform about consumption trends and they can call the user’s attention to the few increasing market segments in the food branch, e.g. organic food production.

The INC consists of 21 questions, such as question number 1, that are structured into the following seven topics:

- Products and customer orientation
- Production and transportation
- Personnel
- Enterprise organization
- Cooperation and innovation
- Marketing and public relations
- Finances and strategies

³ Data referring to Germany, state: 2006

So the INC tries to cover the whole spectrum of entrepreneurial practice. Resulting of the estimation of the 21 questions the user gets an enterprise profile in form of a radar chart (see figure 1) so he or she can comprehend the strengths and weaknesses (or “improving potentials”) at a glance. As an impulse for improving the corporate action, following the self-assessment, the INC automatically shows examples of good practice for the poor-rated topics.

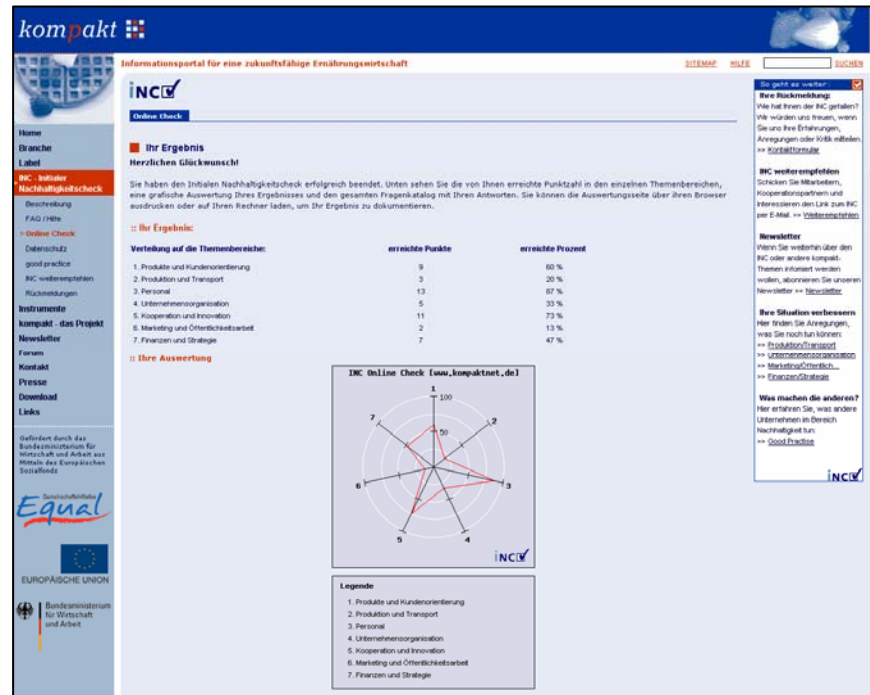


Figure 1: Radar chart of the INC (www.kompakt.net.de)

Because of its specifications – 21 multiple choice questions to be answered in about 20 minutes, free of charge, anonymous, non-binding, and available in the internet around the clock – the INC is a tool that wants to expose especially small enterprises to basic ideas of sustainability. Of course this works quite superficially; for a deeper look into the theme of sustainability and a solid status quo analysis, interested SMEs have to use more complex tools, e.g., SAFE - Sustainability Assessment For Enterprises (Baedeker and Rohn, 2006; Baedeker et al, 2002; Rohn et al., 2001; see also the English site <http://www.trifolium.org/index.php?id=35&L=2>) or Sustainable Excellence, which is described in the following chapter 3.5.2.

To assure the practicability as well as the theoretic coherence of the final tool, the INC has been developed in several steps, below described abbreviated, by a working group⁴ representing scientific and entrepreneurial know how. First, sustainability indicators and indicator systems, partially from existing sustainability checks, have been sifted and checked with regard to their adequacy for the planned tool. Then, many selected indicators

⁴ The following institutions were represented: future e.V. – Umweltinitiative von Unternehme(r)n (an entrepreneur’s association focussed on environmental themes); Wuppertal Institute for Climate, Environment, Energy; Trifolium – Beratungsgesellschaft mbH; Witten/Herdecke University

were discussed with members of the target group, thus owner or managers of SMEs, for choosing the most relevant indicators. Finally, the INC had to stand different pre-tests; the results of these tests allowed a final precise adjustment.

One important attribute of the INC is the integration of sustainability indicators into a conventional economical raster as seen above (products, production, personnel, etc.). This break-up with the classic sustainability model (triangle or three pillars: economic, ecological and social issues) is not only a tribute to entrepreneurial reality where it is not practicable to improve economic, ecological and social issues separated – which often leads to the situation that enterprises first (and only) try to strengthen and to optimise the economic pillar and then have no resources left for improving the ecological and social performance, and this usually has negative repercussions on the economic benefit on the long run. Beyond, the integrated sustainability treatment is an expression of a paradigm change in the applied sustainability research: to single out the cross-linked character of entrepreneurial action, sustainability theory can't illustrate sustainability as a triangle and then wonder why in practice the triangle is heavily biased to one side. So the integrated arrangement of sustainability-related issues is a logical conclusion, but also a normative statement on the part of science.

Conclusions according to the success of the INC can hardly be made because of the anonymity and the non-binding character of the tool – the administrators don't know who uses the INC and they don't know at all what the users do with the finding they owe to the INC. They can only count the number of the uses. Since 2004, the check has been used several hundred times by users from companies who fulfilled the check completely and confirmed themselves as companies users. The real amount of users of the check is much higher but not counted.

Beyond the online check a consultancy based on the INC has been carried out a few times. In these enterprises the achieved results of the self-assessment were discussed with the consultants and actions were deducted and implemented. In these cases, a (positive) statement about the success of the INC can be made.

Based on the systematics of the INC the MNC was developed, which focuses on SMEs with a migration background. In Germany such SMEs often have no customer base (and no staff and trainees) besides their ethnical group, have problems with German language and administration and know little about sustainability. Otherwise, the multiplicity of enterprises with a migration background and their possible function as promoters for the integration of immigrants in Germany disclose this SMEs as important economic and social actors. To appeal to this interesting, but "problematic" target group, the MNC was adapted to the specific needs of enterprises in Germany with a Turkish, Italian, Russian, or Finnish background. For a better understanding the MNC has been translated into Turkish, Italian, and Russian. Further adaptations are nowadays realized in the project eukona (Rohn, 2008) for Hungary and Spain beside the 1:1 translation into English language.

3.5.2 *SusEx (Sustainable Excellence)*

Within the Nuremberg Network COUP 21, the Sustainable Excellence Group (SEG) developed an approach that holistically and globally connects sustainability and business excellence. This singular approach is called Sustainable Excellence (SEG, 2006; see also the homepages www.sustainable-excellence.de and www.susex-team.de) and is based on the Europe-wide accepted self-assessment concept of the EFQM (European Foundation of Quality Management), the EFQM Model for Excellence. By revising the Excellence Model in 2002/03, the EFQM incorporated most of the suggestions from Nuremberg, whose formulation was supported by the DBU (Deutsche Bundesstiftung Umwelt – German Federal Environment Foundation). Now the “EFQM Model 2003” is effective in this revised form European-wide.

But still there are important issues and themes that were not incorporated in the revised model, whether they are important to reach sustainability goals. Such themes are, e.g., integrated product policy/product-integrated environment protection, reference numbers for the environmental performance or eco-efficiency, or, in the field of social issues, regarding the matters of external stakeholders. So the EFQM Model 2003 is a solid base for a sustainable enterprise development. However, Sustainable Excellence goes the sustainable way more decidedly as a tool for a really responsible entrepreneurial action.

This integration – sustainability and business excellence – is not yet completed since both systems are quite open concepts and are advanced permanently.

One important difference between Sustainable Excellence and excellence is the fact that sustainability-related issues, which are facultative for excellence, are obligatory for Sustainable Excellence. The latter especially emphasises the following aspects:

- ethical attitude and value orientation
- responsibility for society
- rights and interests of following generations (long-term orientation)
- stronger accentuation and integration of stakeholder interests
- management concepts for the employee’s development in attention of the demographic change
- advancement of global environment, integrated product policy, stronger weighting of material- and energy efficiency at process optimizing
- equal opportunities and cultural diversity
- global and regional responsibility

Whether this sounds very ambitious Sustainable Excellence wants to merge these parallel developments and make it applicable for SMEs. Since the EFQM tools are rarely used by SMEs, it was the aim of the Sustainable Excellence Group to point out new approaches and ways for SMEs. In this context it plays the major role for enterprises to learn to assess themselves, to measure their advancement, and to improve themselves continually.

At this, the following aspects and matters are essential:

- identifying and evaluating the stakeholders, which influence the organisation and their needs

- creating an own policy and strategy, also called mission statement or leitmotif
- establishing measurable and adequate ratios for success detection and controlling

The integrated treatment of sustainability, as described in conjunction with the INC, is also a central character for SusEx. Taking the idea of an integrated sustainability model seriously (all sections and levels and actually all entrepreneurial action have to assure a long-ranging and responsible success), it is just a logical step to merge that idea of sustainability with the highly integrated and holistic business excellence model.

This merger yields an ambitious and extensive sustainability management system that allows a systematic look on everything that has to do with the enterprise's production and the production's relation to the (actual and future) consumer's needs. In this way SusEx can be seen as an instrument for organisational learning. In inquiring their social and natural environment, enterprises can react early on changes of anticipated consumption patterns, but they can even try to influence their environment for the purpose of setting trends by acting sustainable. So the enterprise is not only a defensive re-actor, but also an actor that can boost sustainable consumption e.g. by making sustainable products or services trendy.

3.6 Further development of the toolbox

The toolbox presents the state of the art of a tool collection from German national development partnerships in the period of 2005-2007 in the EQUAL II initiative. The idea is to revise and to adapt the toolbox for the use on the European level.

For this purpose a selection of tools will be as a first step translated into English and into other languages.

In a second step it will be worked out if and how these tools can be transformed and adapted to the specific local and intercultural requirements of the different European countries. The third task will be the test of the transferred tools with the SMEs in the economies of the co-operating partners. In step no. 4 the toolbox shall be enlarged on European level by identifying and integrating early warning systems from the transnational EQUAL level and other programs/initiatives.

4 Overall conclusion

As shown in the earlier chapters the toolbox with EWS for SMEs can be seen as a contribution to a sustainable consumption and production – not least because of the tools' close relation to entrepreneurial practice. With the help of the EWS, entrepreneurial actors e.g. can anticipate changing consumption patterns and reform the way of production, but they can also try to enforce incipient sustainable consumption trends. As a tool collection for enterprises and not for consumers, consumption is naturally handled from the producer's perspective; this fact maybe let the toolbox appear rather production-oriented. But even if several EWS in the toolbox indeed have their focal point on production, other tools also have an eye on consumption so the toolbox can overall be regarded as an instrument for dealing with both aspects.

Another important aspect of the toolbox are the mainstreaming activities. These activities are not to be restricted to Germany where the demand for the toolbox is already very pleasant. One step to a European mainstreaming are the adaptations for the eukona project. A subsequent step will be the further development of the toolbox on European level so it can make a contribution to sustainable consumption and production throughout Europe.

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Chapter 2 Opportunities of the financial sector in a climate friendly and resource efficient economy

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1 Resource- and material-efficiency - the key to competitiveness of companies

Along with the proposed directive of the European Commission for the future trading scheme of certificates of greenhouse gas emission published in January 2008, the medium-term targets for the reduction of emissions as well as the planned future shares of renewable energies on gross energy consumption have been announced. The general targets of the European Union are to cut emissions by 20 percent by 2020 and to increase the share of renewable energies up to 20 percent (European Commission, 2008). Resource- and material-efficiency will play a key role to achieve these targets (Schmidt-Bleek, 1994; Liedtke and Busch, 2005; Seiler-Hausmann et al., 2004). For instance, this aspect is prominently mentioned in Germany's national strategy on sustainability ("Nachhaltigkeitsstrategie"): resource- and material-efficiency is supposed to double compared with 1990 (Bundesregierung, 2007). Within the strategy there is also a direct link to the concept "factor4" that aims at the bisection of the exertion of natural resources along with the doubling of wealth on a global scale (Weizsäcker et al., 1997). A lot of initiatives – like the Austrian sustainability strategy – name even more advanced targets, for instance the factor 10 for industrialised countries (Schmidt-Bleek, 1994; BMLFUW, 2002). The material flows are supposed to be cut to 1/10 until 2050. This could be realised if resource-efficiency will increase by 4-5% annually (Liedtke and Welfens, 2008; Busch and Liedtke, 2006; Liedtke, 2004).

Until the end of the 1990th, in economic science it was insufficiently analysed both theoretically and empirically, how far a decreasing use of resources and material do influence the competitiveness of companies. The hypothesis that environmental protection will result in deterioration of competitiveness has already been rejected. Roeder and Liedtke (2006) as well as Roeder and Bleischwitz (2006) give an overview of theoretical economy-approaches that connect the competitiveness on company-level

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with resource- and material-efficiency . One of the basic results concluded was that on a microeconomic scale the increase of resource- and material-efficiency has positive feedback to the competitiveness of companies. One of the most known approaches is the so-called Porter-hypothesis, which postulates a strengthening of competitiveness if adequately environmental action is performed. This hypothesis even holds in an open economy because costs of adaptation are overcompensated by innovation. (Roeder and Bleischwitz, 2006) The concluded quintessence is as follows: Decreasing use of material implies a lower cost load.

Since the end of the 1990th the amount of empirical results regarding this issue has increased significantly and strongly support the theoretical conclusions. To exemplify that, two interesting empirical studies regarding the German economy are to be mentioned. In a study of Aachener Stiftung Kathy Bays a simulation on a macroeconomic level were able to show that an increase of 20 percent of material- and resource-productivity over 10 years will result in an *additional* increase of GDP of 12 percent, drop of absolute resource consumption and creation of about one million additional full-time jobs. (Aachener Stiftung Kathy Beys, 2005) An other study of ADL / Wuppertal Institute / ISI analyses potential improvements of competitiveness for selected industries if the use of resources / materials are reduced. A connection seems to be obvious for some German industries because of their high share of material costs on total cost (e.g. in manufacturing industry the material cost add up to 40.1% and energy cost up to 1.6% of total costs). The study estimated the realisable technical potential to cut the use of material for several industries for the next 7-10 years. If the results of this study are connected to the average total costs of these analysed industries, an estimated potential in reduction of total costs up to 12 percent are derived (figure 1)!

Industry	(1) Material consum ption (bill. €)	(2) Share of material consumpti on on total costs	(3) Saving potential of material consumptio n (bill. €)	(4)=(3)/ (1) relative saving potential of material consumption	(5)= (4)* (2) maximum saving potential of total costs
Basic metals	18.3	35%	0.8-1.5	4-8%	3%
Construction of energy supply infrastructure etc.	10.2	40%	1.5-3	15-29%	12%
Chemicals	11.1	31%	1.8-3.4	16-31%	10%
Rubber and plastic products	10.8	40%	10-2.0	9-19%	8%
Construction	11.1	21-32%	1.2	10%	3%

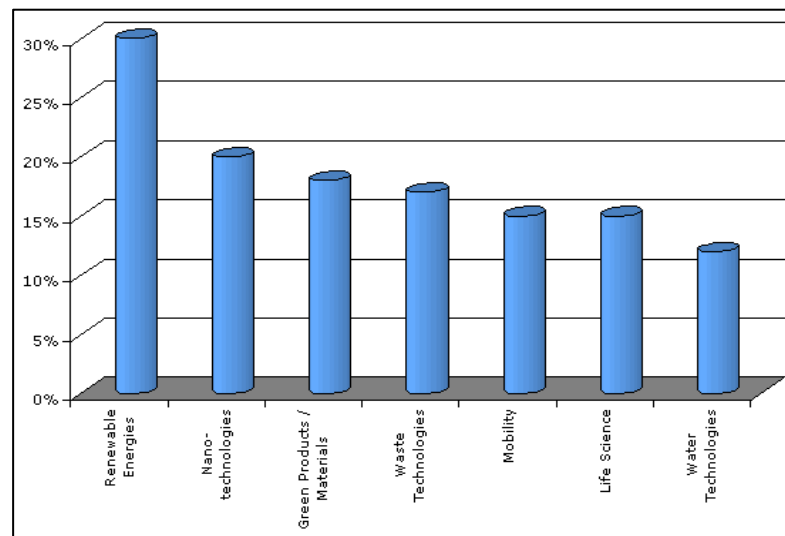
Source of (1), (2), (3): ADL / Wuppertal Institute / ISI, 2005:1 and 2005:2

Figure 1: Potential savings in material consumption for selected German industries on a time horizon of 7-10 years, basis year: 2002

These exemplary results point out that increasing resource efficiency will in average result in a decrease of total costs; therefore the profitability of companies might improve along with their competitiveness.

Due to the national and international efficiency targets (and furthermore individual optional higher targets) certain key technologies and key markets will exceptionally benefit from this trend, inasmuch as they provide solutions for increasing resource-efficiency in companies. Often these so-called lead markets do not correspond to the conventional classification of industries. Rather they affect almost all industries and can be understood as cross-section markets. Very often the growth rate in these areas have been double-digit for the last years (ref. figure 2). According to estimations of BMU and Berger (2007) the national share of gross value added of green technologies will increase up to 16 percent until 2030, which represents the double or triple share in comparison to “classical” industries like automotive

or



engineering (BMU and Berger, 2007).

Figure 2: Global Growth of selected Lead Markets in 2005
(BMU and Berger, 2007)

For future growth and future competitiveness of companies, resource efficiency is not only a question of the structure of total cost but in many industries also an issue of strategical product positioning as an answer to the dynamic change of markets. The decision if and to what extent advances in ecological innovation – be it technological innovations, process innovation or product innovation – are supported, will significantly influence the individual’s competitiveness (Bundesministerium, 2006). In particular the following growth segments / technologies seem to become relevant: Energy production and technologies for power stations, energy efficient technologies, recycling and waste management, mobility and traffic technologies, water and waste water technologies and last not least environmental engineering / system engineering (Bundesregierung, 2006; BMU and Berger, 2007).¹

¹ For an extensive discussion about these growth areas as well as international lead markets refer to Liedtke 2007, pp. 47ff., and Bundesministerium 2005, pp.12ff.

2 The relevance of resource- and material-efficiency for financial institutions

In this chapter the hypothesis will be discussed that the strategical positioning of companies with respect to material- and resource-efficiency is a decision, which also directly affects banks in their function as principals. Here the central assumption is applied that an improved competitiveness of a company will directly result in a reduction of its individual business risk. In principle it is possible to use a risk management perspective to evidence this hypothesis: Here changes in crucial business figures (e.g. growth of revenue and profit) is supposed to change business risk and will therefore result in changes of the classification to other peer-groups that might have better historical analogies than the previous. However, for the hypothesis substantial reasons out if the classical risk management can be given, too:

As shown in chapter 1, actions to improve the material- and resource-efficiency usually imply significant savings in total material use as well as savings in total costs. This residual cash flow does increase the company's profit and can be used to distribute higher profits and/or to increase its return in investment (or alternatively: improve the capital structure). Another possibility for the use of this cash flow is the expansion of the marketing-mix to directly improve the current competitiveness (e.g. price cuttings, sales promotions).

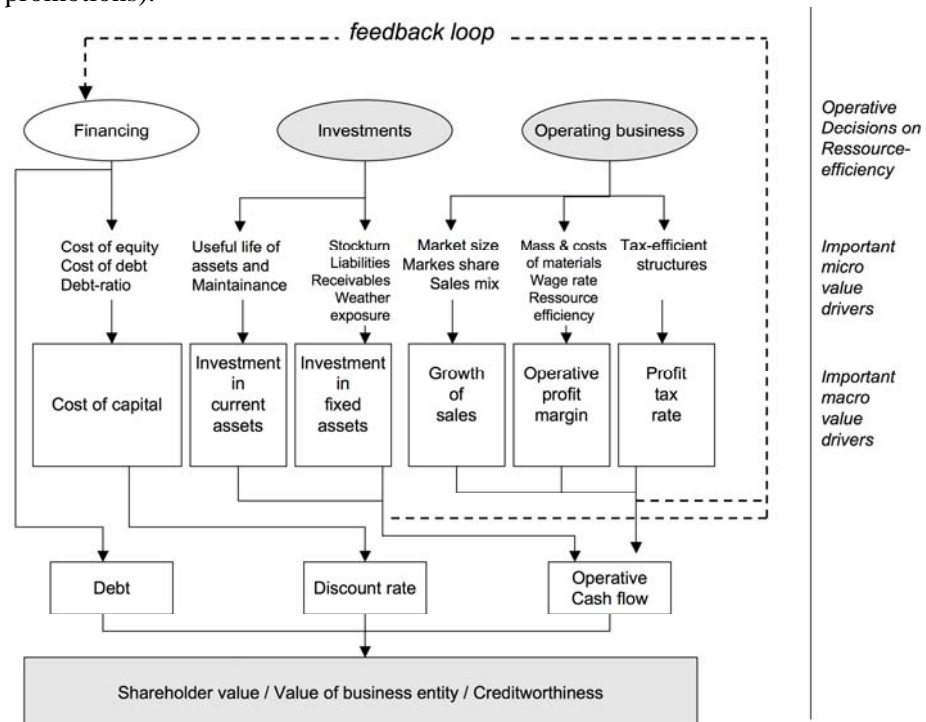


Figure 3: Influence of resource-efficiency on shareholder value and creditworthiness (source: Onischka, refinement of Rappaport 1999)

As already outlined in chapter 1, an increase of material- and resource-efficiency might even cause a more fundamental advantage in competition, too: Very often changing efficiency involves a more intense use of innovative green technologies, which results in technological, process or

product innovation – be it in the company itself or in an external organisation.

In the long run, a stronger focus (directly or indirectly) on the already mentioned lead markets and growth segments will improve the chances to participate in their high growth rates and market volumes. It is also possible to obtain this link by using Rappaport's shareholder value approach, which became one of the standard approaches in finance during the last 10-15 years:

For this it is shown in figure 3 how management decisions effect free cash flow and shareholder value by influencing the macro and micro value drivers. If this basis model is used to show the main effects of decision on resource efficiency in companies, it is possible to obtain a connection between operative decisions to improve resource-efficiency on the one hand and the competitiveness of the company on the other hand. Interestingly, it is also possible to derive from this simple model a clear feedback to the conditions of financing and therefore to the core business of banks. Macro value drivers (e.g. growth of sales, operative profit margin, investments in fixes assets) usually belong to the main business key figures used in the quantitative and qualitative scoring process performed for grating of credits (Reichling et al., 2007). The better the company's business figures are, the better the scoring (that means the creditworthiness resp. risk of default) will be. A feedback in this context means that action to improve a company's resource-efficiency will result in a better risk scoring and therefore better conditions for financing (e.g. lower interest rates).

These micro economical interrelations are not only used for credit granting but also in other business segments of financial institutions. In particular in asset management and investment banking the logic of company assessment models are heavily based on this kind of interrelation. But there is a substantial difference: In financial analysis important value drivers of the concerned company are estimated for future periods. This means both today's management decisions and expected future decision will be taken into consideration of the assessment (Onischka and Orbach, 2008). Up to now, banks do not practise such an anticipatory work. One of the main reasons is the current regulation of the financial market (e.g. the BASEL II accord) that prescribes the exclusively use of historical data for risk assessment and risk valuation as well as for backtesting / stresstesting of market models.² In the end, this focus to historical records has an important dimension for risk management and the risk bearing ability of banks. If todays and foreseeable future decision regarding material and resource-efficiency is not considered the following issue might arise: The chosen risk classes are too high, because positive effects on competitiveness are not considered. This results in too high financing costs (i.e. interest rate) (that boosts the bank's profit) but lowers also the total credit volumes for the concerned industries because there are usually more restrictive global / industry credit limits for more risky industries / companies. The main risk for bank is rather the following: Wrong or delayed strategic decisions of the debtor regarding resource-efficiency will result in a deterioration of competitiveness and therefore will increase the business risk. Banks might be faced by the danger that such kind of companies will be provided with both too low financing costs and to high volumes as a result of too high

² for an extensive discussion of these problems as well as possible strategies according to current and future regulation framework, ref. Onischka and Fucik 2008

credit limits according to their wrong risk categories. This outlined issue also has a macroeconomical dimension: Without the consideration of current and future developments in resource-efficiency of the debtor the risk arises that environmental-friendly companies are systematically faced by too high financing costs. Regarding the future ecological challenges, it will be even more critical that companies with less effort in resource-efficiency will be systematically overfinanced. In other words: This behaviour is unintentionally “awarded” with good financing conditions. Therefore for credit institutes it will become more important to consider the material- and resource-efficiency of their clients in future.

Even if the current regulation of risk management limits significant changes in the assessment and rating models, there are still ways to react right now. One of several possibilities is the active support of their customers in implementing management systems and instruments to improve their material- and resource-efficiency. This issue can already be included as qualitative criteria in credit scoring today. Another possibility might be the strategical focussing on growth sectors resp. “winner” sectors due to the upcoming ecological challenges. From an macroeconomical point of view such an emphasis would lead to a win-win-situation, because firstly the banks obtain better chances to grow as a result of the right customer segmentation which improves the stability of the financial sector, and secondly industries with above-average growth in resource-efficiency will be better supported, consulted and financed.

Exemplarily for Germany the following chapter gives an rough information – even though on an highly aggregated level – which industries will have which growth rates when their resource-efficiency is increased.

3 Potential growth markets and future business focuses for credit institutes in Germany

The previous discussion will now be substantiated on an appropriate example. For this the development of resource-intense industries in terms of their nominal economical growth will be analysed. Based on an open static input-output-model and coefficients of the Leontieff-Inverse a study of Acosta-Fernandez and Bringezu (2007) already calculated how changes in national resource consumption affect absolute sectoral resource consumptions as well as their aggregated demands. Amongst others, here the direct increase of the gross value added of the sectors was calculated for the case of an increase of resource-efficiency of 10 percent (figure 4, column 5). These results of Acosta-Fernandez and Bringezu were put into relation to the absolute sectoral gross value added as well as the historical sectoral growth rates. The advanced results are shown in figure 4.

Column 6 of figure 4 shows how strong the additional growth of selected industries might be. Due to the assumptions of the model as well as roundings the presented figures should be used as rough approximation only. Even though the growth rates of the industries food, chemicals, automotive and basic metals are evidently double-digit. It is not possible to make evident conclusions for the micro economic level out of these calculations but it seems to be obvious that these sectors will obtain significant additional growth if their resource-efficiency is improved. Assuming that the analysed industries will have in future similar growth rates than from 2000 till 2005 anyway, it is possible to estimated a “virtual” growth rate (column 8, figure

4) that results from the normal growth rate (column 7, figure 4) and the additional growth rate as a result of improve resource-efficiency (column 6, figure 4). From a methodical point of view, the summation is critical because some parts of the growth contribution of column 6 are already included in column 6 (in fact between 2000 and 2005 there has been improvement of resource-efficiency to some extent). However, this circular argument can be set aside because for further argumentation not the exact growth rate is of interest than the qualitative outcome. As a result of this exercise column 8 gives a possible growth of the sectors for 5 years under the assumption that resource-efficiency will be increased by 10 percent. In other words, there is an answer to the question: Which sectors will be the winner in terms of sectoral growth in future, resp. where are the national growth drivers? ³

	(1)	(2)	(3)	(4)	(5)	(6)= (5) / (2)	(7)= (3)- (2) / (2)	(8)= (6)+ (7)
Industry	TMR 2000 (in tons)	GVA 2000 *	GVA 2005 *	directly induced GVA per resource consumption €t	absolute growth of GVA at RE of 10% *	relative growth of GVA at RE of 10% *	historical growth rate of GVA (2000-2005)	virtual total growth of GVA
Agriculture	182683	21.43	15.68	63	2	9%	-27%	-17%
Construction	963754	96.21	79.85	176	3	3%	-17%	-14%
Coal, peat	187818	1.58	1.46	2	0	0%	-8%	-8%
Stones & soil	135882	34.61	35.31	4	0	0%	2%	2%
Glass, ceramics, cement	157243	56.04	61.47	53	1	2%	10%	11%
Engineering	211032	62	69.18	403	3	5%	12%	16%
Coking plan, oil	157264	41.26	47.41	21	1	2%	15%	17%
Food	464615	5.68	4.74	147	3	53%	-17%	36%
Chemicals	269239	20.02	21.76	215	6	30%	9%	39%
Automotives	334975	49.11	63.67	258	6	12%	30%	42%
Basic metals	459231	16.57	20.56	27	4	24%	24%	48%
Energy	404899	28.68	41.78	43	1	3%	46%	49%

* in bill. EUR # GVA ... Gross value added # RE ... Resource-efficiency

Sources: (1),(4),(5): Acosta 2007 # (2),(3): DESTATIS 2007 # (6),(7),(8): own calculations

Figure 4: Growth rates of selected sectors as a result of increased resource-efficiency

The results of this simple calculation are very informative because it is possible disclose a relationship between general growth sectors and sectors with high contribution to growth due to improvement in resource-efficiency. For the German economy these sectors (mainly industry and manufacturing) are dominated by medium-sized companies. In particular this applies to automotive, basic metals but also to food and engineering. The good news for the medium-sized companies is that they have excellent growth potential as soon as they intensify their efforts on resource- and material-efficiency. Beyond that the derived winner sector partly align with growth segments and

³ Special cases like the energy sector that also pretend to belong to the winner sectors will not be further discussed because the results mainly depend on (historical) international energy prices and distort projections heavily.

lead markets mentioned in chapter 1 – already today growth areas like mobility, green materials or water technologies are mainly covered by small- and medium-sized companies that statistically belong to these sectors.

For banks the conclusion from this calculation and its results seems to be obvious: The issue of material- and resource-efficiency of the industrial sectors and companies has a direct impact to the future business developments of banks, because the connection between increasing resource-efficiency on the one hand and economical success on the other hand is even on a macroeconomical level out of question. Generally speaking, the results of this calculation make clear that in particular industries dominated by medium-sized companies (like automotive, metals, food or engineering) will have excellent prospects of growth and therefore may imply exceptional potentials in profits for banks. Nevertheless, for their business policy it would be problematical just to concentrate on these discussed industries. Apart from an essential diversification of a bank's credit portfolio, an in-depth analysis of Acosta-Fernandez and Bringezu (2007) arrives at the conclusion that the gross value added of all industries are positively correlated with resource-efficiency (refer to column 6, figure 4. This does not give any information about the allocation of the increments of the gross value added (i.e. how are they allocated between wages, profits and subsidies / depreciations), nevertheless the general statement that on average the profitability will improve and therefore business risk will decrease seems to be self-evident. Regarding the financial sector, it can be concluded that improvements in resource-efficiency of their customers will to some extent result in lower general business risk and higher profitability for the financial institutions.

4 Conclusion

A significant increase of material- and resource-efficiency is crucial to achieve the announced environmental and climate targets for the next decades (Schmidt-Bleek, 1994 und 2007; Latif, 2007; Rahmstorf and Richardson, 2007). The often used argumentation that strict regulations or action to improve the resource- and material-efficiency on a company-level damages business can be rejected based on scientific findings: Based on both the theoretical and empirical knowledge the clear conclusion can be drawn that the (early enough) improvement of resource-efficiency has a positive economical impact on totals costs as well as future competitiveness. These correlations can also be derived with established interdependencies and standard assessment models and intensively used by the mainstream of the financial sector.

If actions (and even neglected actions!) to increase resource-efficiency imply direct financial implications, the financial sector must analyse and consider them, especially in granting of credits and asset management. Certainly, the current regulation of financial markets makes it very difficult to implement such aspects systematically in risk management and accommodation of loans in a prospective way. This might even lead to a situation where less risky and sustainable companies will be discriminated undesignedly. Credit institutes should react in so far that at least a strategical business focus would be put on lead markets and identifiable winner sectors as a result of increasing resource-efficiency. Results of several studies as well as estimations made in this paper make very clear that it is possible to

achieve additional contribution in economical growth in a sustainable way during the next 10 years.

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Chapter 3 “Sustainable Weeks” in Austria

Raising awareness through sustainable products

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1 Introduction

The change of the consumer buying habit in the industrial countries is one of the fundamental conditions for accomplishing a sustainable development. Because of an absence of alternatives as well as individual barriers in the perception and realizing available options, the scope for sustainable consumer behaviour is limited. The potential in changing lies in raising efficiency in the use of resources especially in the change of value systems and life styles as well as in the broad attendance of the population. Sustainable consumption won't be enabled till an appropriate offer in the market exists and therefore the basic requirement is a changed way of production in the economy.

2 Conception and Target

2.1 The basic idea

With the resolution the “Austrian strategy for sustainable development“ in 2002, the Austrian Government has made a decision for the path of sustainable development.

Political conditions also the way of doing business and living in the country should be directed to the principals of sustainable development. In consequence of the phase of implementation of the Austrian strategy for sustainability the topic “Sustainable Consumption“ has gained in importance. Sustainable development can take shape especially in this topic and therefore become even more assailable and directly perceptible for each and everyone. Awareness building initiatives, which show appropriate courses of action, should take centre stage during the implementation. Because: In front of the display shelves the consumers have the opportunity to decide.

The best way to advance sustainable behaviour are concrete behavioural offers , which are as possible as closely orientated to the needs of the users.

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By the development of a PR-concept “Sustainable Austria” (Initiator: Austrian Federal Ministry of Agriculture, Forestry and Environment, and Water Management, which also coordinates the implementation of the Austrian strategy of Sustainability) the topic “sustainable consumption“ should be forced in the publicity. Sustainable products, which bring out a significant improvement to the status quo in an ecological and socio-cultural way, have left the stage of being a niche product in the last years. Products of organic farming and regional production and commercialisation, products of fair trade, environmentally compatible production or products, which are especially energy saving, are already in shelves of many significant trade chains. By an arranged and media-effective campaign with trading partners, these products should be consciously placed in the delivery device and advertised as “sustainable“ products. The topic sustainability, which is often hard to convey, will be more assailable for the population.

2.2 Target of the campaign

The initiative “Sustainable Weeks” should show how the main idea “Sustainable Austria“ is able to realize in everyday life. Through this project the possibility to orientate their personally consumer behaviour by sustainable and ethic-ecological aspects, is provided for the consumers. Existing certification marks and labels are decision support – an additional brand mark is used as an eye-catcher. The matters of sustainability are furthermore shown in information folders.

Target is to raise the Austrian consumer’s awareness for “sustainable consumption“ and thus to enhance the sale of products, which are on a way to sustainable development. In doing so the attention should be directed to the increasingly strongly diversified range of products. Interested consumers should be invited to buying “sustainable products” by concentrated information, advertising and accessory public relations.

3 Definition “sustainable“ products – the label-program

Sustainable products, with more dimensions of sustainability, such as organic produced products from regional materials and environmentally compatible packed, are still barely available. However there is a multiplicity of products in trade, which show significant advance in specific criteria compared to conventional products.

In the organic sector more than 60 eco-certifications (Öko-Zeichen) indicate a sustainable product.

Products, which are on the way to sustainability, are from fair trade, organic farming, regional production and commercialisation, environmentally compatible production or especially energy saving. On this basis guidelines for “sustainable products“ have been developed for the implementation of this project and to label-programs abstracted and made available for trade chains.

Sustainable products are orientated by the requirement to the following five guidelines:

1. Organic production and treatment

2. Fair trade (“global responsibility”)
3. Energy efficiency/ preservation of resources
4. Environmentally compatible treatment (e.g. reusable bottles)
5. Regional production and treatment (“regional quality”)

Each guideline is based on already available certification mark. For the guideline “regionality”, criteria for the different types of products are defined, by workshops and interviews with experts. Each label-program is available for possible additions or new labels.

In 2004 the first label-programs were established. In the last 4 years they have been consistently updated in content. Furthermore new label-programs were established for new branches in this campaign. In the meantime there are label-programs for:

1. hardware stores
2. health and beauty retailers/ chemist’s shops, health food shops
3. electric shops
4. food trade, bakeries, butcher’s shops and
5. furniture stores

The following table shows the branches with the types of products assigned to their specific guidelines, which were discussed during the Sustainable Weeks in 2004.

Table 1: Branches and types of products of the Sustainable Weeks since 2004

Branch	Guidelines with types of products	Sustainable Weeks since 2004
DIY stores, Hardware stores	Guideline ENVIRONMENTALLY COMPATIBLE TREATMENT: building materials; bottom covering; isolation; colour, varnish and glaze; garden; derived timber products, wooden furniture and other wooden products; returnable products; water and energy saving sanitary equipment; solar panel; combustibles of biomass Guideline ENERGY EFFICIENCY: energy saving lamp Guideline FAIR TRADE: e.g. football, wickerwork, carpets	2004; 2005: energy saving lamp
Drugstores, health and beauty retailers/chemist’s shops, health food shops	Guideline ORGANIC PRODUCTION AND TREATMENT: organic food Guideline FAIR TRADE (“global responsibility”): fair traded food Guideline ENVIRONMENTALLY COMPATIBLE TREATMENT/ returnable, e.g. reusable bottles: multi purpose cleaner and cleaning supplies for sanitary facilities; sanitary paper; detergent; dishwashing detergent;	2004: food as well as sanitary products etc.; 2007: natural cosmetics

Branch	Guidelines with types of products	Sustainable Weeks since 2004
Electrical retailers	<p>soap, shampoo and conditioner; natural cosmetics products</p> <p>Guideline ENERGY EFFICIENCY or PRESERVATION OF RESOURCES:</p> <p>brown goods (DVD Player, DVD Recorder; TV), grey goods (printer, monitors; oven), energy saving lamp, white goods (freezer, chest freezer, refrigerator; dishwasher; washing machine)</p>	2005: white goods, energy saving lamp; 2006: brown and grey goods
Food trade, bakeries, butcher's shops	<p>Guideline ORGANIC PRODUCTION AND TREATMENT: organic food</p> <p>Guideline FAIR TRADE ("global responsibility"): fair traded food</p> <p>Guideline ENVIRONMENTALLY COMPATIBLE TREATMENT: (e.g. sanitary products) or returnable, e.g. reusable bottles: multi purpose cleaner and cleaning supplies for sanitary facilities; sanitary paper; detergent; dishwashing detergent; sea fish</p>	2004: food trade; 2006: bakeries; 2007: butcher's shops
Furniture stores	<p>Guideline REGIONALITY („regional quality“): regional produced food</p> <p>Guideline ENVIRONMENTALLY COMPATIBLE TREATMENT:</p> <p>bottom covering; wooden and derived timber products, wooden furniture; mattresses; upholstered furniture; paperhanging; wall paint; other products (e.g. office chairs and swivel chairs)</p> <p>Guideline ENERGY EFFICIENCY or PRESERVATION OF RESOURCES:</p> <p>Household appliance (oven; freezer, chest freezer, refrigerator; dishwasher; washing machine), energy saving lamp</p> <p>Guideline FAIR TRADE: e.g. wickerwork, carpets</p>	2007

4 The implementation of the campaign

4.1 The brand mark “Das bringt’s. Nachhaltig.“ (“Getting there the sustainable way”)

To advise the consumers to the diversified choice in Austrians trade chains, the brand mark “Das bringt’s Nachhaltig“ (“Getting there the sustainable way”) (Figure 1) was developed together with involved trade chains. This is not to understand as a certification mark, but as an instrument of advertising for a better overview of products as an optical exclamation mark for a product with ecological and social value. This brand mark only advises to products, which have labels, brands or certification marks from the developed label-programs or comply with their criteria.

Determining for the development of the brand mark was:

1. The trade chains are able to change the colouring of this brand mark to assure the integration in to their own CD. Shape and typography have to remain.
2. Sub logos are established in order to differentiate within the topic. These are placed right next to the particular product and therefore explicit differentiate between “organic“ and “fair trade“ for example.
3. The brand mark is never shown alone and is always to combine with slogans, an accompanying text, and the homepage of the campaign or the sub logos. (see example in Figure 2)



Figure 1: Brand Mark “Getting there the sustainable way” for promotion of products



Figure 2: Examples for Sub logos (“action symbols“): Echt Bio, Gut zur Umwelt, Energie Sparen (“real organic”, “good for the environment”, “saving energy”)

4.2 Product-Check-Service

For the trade chains a product-check-service was established and offered to the involved trade chains. The check-up of the products according to the

defined criteria of the label-programs should assure that the products chosen by the trade chains are capable for the sustainable weeks.

4.3 Advertising material

The campaign of the sustainable weeks is supported by the following advertising material.

4.3.1 *Folder and dispenser*

Folders for the participating trade chains are produced – food trade, bakeries, butcher's shops, health and beauty retailers, electric stores and building & living.

The folder is additional information for the consumers, to demonstrate very effectively and strikingly, what kind of product's advantage is regarded as "sustainable" in the target sectors. They function as a mass-market medium for the sustainable weeks.

The folders are primary disposed in the subsidiaries of the trade chains and in the stores of the independent merchants, but they are also distributed at regional activities. The key contents of the sustainability are presented for concrete life situations in each topic (organic, regional, fair, environmentally compatible, energy saving, returnable, building, living, etc.). The partners of the project and trading partners are also presented as logo, pictures and statements. Also dispensers for the area in the cash point and for the shelves are used.

A raffle on the backside of each folder creates an additional stimulation to read through the information, because the answers to the competition question are to extract from the text in the folder.

4.3.2 *Poster*

There are different types of posters as well as the folders. The posters should remind the interested consumer of the idea and the concern of the sustainable weeks and their products every year. Therefore they locally support the actual buying decision. Posters are used for declaration of special areas, for the entrance area of shops, in communities and at regional activities. On demand several trade chains get posters with a mutation of the logo.

4.3.3 *Shelf stopper, ceiling dangler and sticker*

Standardised produced shelf stopper are also used (true organic, regional quality, fair trade and energy saving). A plug-in tongue provides to place the stoppers in any shelf.

Ceiling dangles are branded with the respective logo of the trade chains and are available for them.

Stickers are made for affixing on households devices for electric stores as well as labelling and packing of regional and organic food for several trade chains.

4.3.4 *Merchandising products*

At regional activities merchandising products such as shopping trolleys coins, cotton shopping-bags and t-shirts will be passed out.

4.4 **Internet**

The website www.nachhaltigewochen.at is an appropriate tool to present the project, its targets, activities and players in detail.

Besides the user friendly design, an online-quiz with questions about “sustainable topics” as well as specific slideshows about model products have been arranged.

4.5 **Accompanying PR campaign**

4.5.1 *Kick off – press conference*

At a kick off – press conference of the sustainable weeks, where the initiator (Austrian Federal Ministry of Agriculture, Forestry and Environment, and Water Management) as well as the co-operation partners and commercial representatives participate, topics of the campaign – like organic products, regional commercialisation, fair trade, ecological building and living and energy saving, will be discussed in their different facets of sustainable development.

4.5.2 *Media work*

Subsequent to the press conference, targets and matters of the campaign will be sent out as kick off press releases to technical periodical. A press release with pictures of the conference, a press kit and detailed information of the participating trade chains will be sent out additionally after the kick off – press conference. Furthermore media work will be afforded in the provinces. Editorial cooperations (no paid activation) with several printed medias, medias in provinces and the Austrian broadcast (especially television) have been decided.

4.5.3 *Activities in the provinces*

The sustainable weeks include besides co operations with trade, tours through provinces, where the Austrian minister of environment visits each province, whose provincial governments participate the sustainable weeks as project partners.

Target of these tours is to advert to the production and marketing of sustainable products or to products on a sustainable way, in and beyond the participation trade chains and the corresponding subsidiaries.

Therefore different regional initiatives and model products from the sustainable topic are chosen and presented in public campaigns or media meetings.

Examples for activities in this vein:

1. Visitation of a traditional regional cheese manufacture with tastings – creating a kind of market place situation – with the possibility to visit specific stations and tasting.

2. “G’scheit Frühstück“ (“sustainable breakfast”) with sustainable products in a plant, which build low-energy finished part houses.
3. Lunch at a school, which is regarded as a role model project for canteen kitchen. They were highly anxious about applying a completely assortment of organic products with adequate quality.
4. Sustainable movie weeks with premieres and following discussion.
5. A series of technical discussions “Sustainable Talks“ with main focus like “healthy living”, “regional food”, “natural cosmetic”. Representatives of trade, production, management and NGOs face up to these topics and the professional public as well as the media.

Chosen provincial and local media are invited to several meetings.

5 Results and evaluation

This campaign is evaluated from the beginning of every year on the basis of following criteria:

5.1 Marketing attendance

In initiative of the Austrian Federal Ministry of Agriculture, Forestry and Environment, and Water Management three ministries (ministry of health, ministry of economics and the Austrian development cooperation of the ministry of foreign affairs), as well as the Chamber of Commerce of Austria and four provinces (Styria, Upper Austria, Lower Austria) have supported the project in 2007.

In 2007 altogether 28 of Austrian trade chains (in 2006 were 22 trade chains) from industries like food trade, bakeries, health and beauty retailers, hardware stores, electric store and for the first time butcher’s shops and furniture stores agreed to put specific “sustainable“ products in their window display.

Also 2,700 independent merchants supported the sustainable weeks 2007 with information, advertising and counselling in their stores.

5.2 Commerce advertising

In approximately 8.000 subsidiaries of the participating trade chains were over 1 million folders (total circulation was 1,053,400) about the sustainable weeks. The return of the quiz cards was about 14,141, which are 1.5%.

Approximately 400,000 shelf stopper, posters (>10,000) or stickers adverted to the campaign.

5.3 Business effects

The trade chains and the initiators of the project need to keep the respective sales figures in confidence for competitive reasons.

However most of the trade chains merchandised chosen sustainable products with low prices during the promotion period. Therefore basically an increase in sales can be assumed, especially in the sectors of organic food, reusable bottles and fair trade products.

Within the sustainable weeks numerous products were registered for the first time. In the last 4 years following sectors were in particular affected:

1. Food trade and hard ware store registered several fair trade products for the first time.
2. Food trade registered several organic products for the first time or clearly expand their assortment of organic products.
3. Food trade registered regional products for the first time.
4. Food trade clearly expand their assortment of organic and fair trade products.
5. Bakeries completely change their choice of coffee to fair traded coffee beans.

5.4 Awareness raising

During the years 2004-2006 a polling firm accomplished a survey by telephone (with 500 Austrians from the age of 15 years and up) before and after the campaign of the sustainable weeks.

In September 2005 only 15% of Austrians did already heard about the initiative the sustainable weeks. In September 2006 already the value raised to 22% and in October 26%.

After all every third women (30%) indicates to know the sustainable weeks.

Rising values in matters of commitment in Sustainability show accomplished surveys from the initiator of the project (BMLFUW), and several partners like the ministry of economics and the ministry of foreign affairs.

5.5 Media feedback

More than 150 media reports were achieved in 2007. This equals to an increase of approximately 50% compared to the previous year.

Thereof the biggest part was released as electronic media (28%) and in the internet (25%), as professional media (15%) and local media (11%). The presence in daily newspapers was about 7%. Giving a broad audience beyond the circles of experts an understanding of the topic sustainability was achieved by the media work.

The media's attitude towards the sustainable weeks was very positive. Every participant and partner was clearly present in the media and the press coverage was established.

5.6 Participation of provinces and initiatives

From the beginning 3-4 provinces participated in the campaign of the sustainable weeks. Besides the provincial governments and provincial agencies further independent regional initiatives or companies got involved at regional activities.

Many regional activities in the participating provinces provided the possibility to personally appeal to the population in to introduce the campaign.

5.7 Participation of NPOs and NGOs

Many leading NPOs and NGOs were engaged in the project or appeared as multipliers and/or took a stand with critical and constructive suggestions. The project is taking seriously from the NPO and NGO scene and particularly released in their own media.

5.8 Further effects

5.8.1 *Offering Product-Check-Service*

The arranged product-check-service was offered to every participating partners in 2007. It was well adopted from trade chains, bakeries, butcher's shops and health food stores.

Furthermore an assortment check was accomplished for a trade chain, which supported a labelling of proper products on the sustainable way.

Check-service was an important tool for a successful accomplishment of the sustainable weeks and supported the trade chains for a general offer of products.

5.8.2 *Visits on the homepage*

The website www.nachhaltigewochen.at underwent a relaunch in 2007 and was available for consumers and journalists as information and service platforms. In 2007 approximately 47,000 page impressions (compared to 2006: 37,000 PI) documented.

5.8.3 *Informative meeting Sustainable Talk*

The Sustainable Talk is a proper way of event to get information to the professional public during the sustainable weeks. In 2007 series of conferences which were initiated in the previous year was continued. Sustainable Weeks 2007 included a technical discussion about natural cosmetics, which were considered as a new part in the label-program. Representatives of trade, production, management and NGOs faced up to the professional public and the media about this topic. Because of this event a development within the topic in the "Austrian food codex" (Österreichischer Lebensmittelcodex) (term of natural cosmetics is defined) could achieved.

5.8.4 *Contests in schools*

Since 2006 schools are more and more involved within the sustainable weeks. In fall 2007 a contest in school started. Adolescents can bring in a contribution in the categories video, radio and multimedia in either one of these subject areas, sustainability, sustainable way of life, sustainable consumption.

The contributions should be innovative, inspiring or pragmatic. Adolescents should be motivated to reconsider their attitude. They also should get practical advices and applications to change something. The best contributions will be presented to the public during the sustainable weeks 2008.

6 Outlook

The project sustainable weeks shows how the idea of a “sustainable Austria“ already starts to gain ground in everyday life. Because of the multiplexed appearance of trade and other involved parties of the sustainability throughout the country the public’s attention is attracted.

A continuation and emphasis of the campaign is planed for the next year. The appearance in advertising and in subsidiaries will be continually improved and new sectors will be invited to participate. In 2008 textiles will be included.

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Chapter 4 Public understandings of sustainable consumption

A Synthesis Review

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1 Introduction

The UK Strategy for Sustainable Development ‘*Securing the Future*’ identified a ‘*One Planet Economy: Sustainable Consumption and Production*’ as one of the key areas where government needed to focus its attention (Defra, 2005). To work towards SCP, the Department for the Environment, Food and Rural Affairs (Defra) has identified a need to build on people’s growing awareness of social and environmental concerns and the importance of their roles as citizens and consumers. Encouraging pro-environmental behaviour, through the encouragement of measures such as energy saving, water conservation, and waste management, is understood to be central to mitigating the impact that society has on the environment (Jackson, 2005). The catchphrase ‘think global, act local’ encapsulates this line of thought; encouraging people to reflect on the impact their lifestyles have on the environment and to engage with the solutions.

However, at the heart of current policies that aim to encourage sustainable behaviours are two key assumptions. Firstly, many of the behaviours that government are seeking to change have been treated as compartmentalised rather than interlinked. As a result, many strategies focus on modifying the behaviours for which local government has targets to meet, such as recycling. And secondly, reliance on the causal linear model has led to an implicit assumption that knowledge alone leads to behaviour change (Barr and Gilg, 2007).

The linear model, which is also known as the information deficit model, assumes that information is central to encouraging individuals to adopt more sustainable behaviours. In other words, if individuals are made aware of the problem and provided with information about how to address it, they will be encouraged to act (Barr, 2003; Jackson, 2005). However, evidence has

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shown that knowledge alone does not necessarily lead to modifications in behaviour and, similarly, that an intention to act does not necessarily lead to action (the so called 'value-action' gap) (Darnton, 2006; Barr and Gilg, 2007). Behaviour change theory has demonstrated that there are a whole range of factors that influence behaviour, of which knowledge and information are only one part (Jackson, 2005). Furthermore, how information is processed and interpreted will depend on an individual's values and experiences.

The UK government has recognised that changing behaviour is more complex than simply providing people with information and has sought to establish a robust evidence base to support the delivery of SCP, and to ensure policy development is embedded in the latest evidence. The research analysed in this paper was commissioned by Defra to provide a current picture of where the public stand in terms of their current behaviour, expectations, aspirations, assumptions and understanding.

2 Methodology

Five qualitative research projects were commissioned by Defra to provide an in-depth analysis of the public's current expectations, aspirations, assumptions and understanding of pro-environmental behaviour. The five projects reviewed here are:

Public Understanding of Sustainable Energy Consumption in the Home (Brook Lyndhurst, 2007)

Public Understanding of Sustainable Finance and Investment (Dawkins et al., 2007)

Public Understanding of Sustainable Leisure and Tourism (Miller et al., 2007)

Public Understanding of Sustainable Consumption of Food (Owen et al., 2007)

Public Understanding of Sustainable Transport (Richardson et al., 2007)

Each project aimed to engage over 100 people in qualitative research and to incorporate a deliberative element. The projects explored these themes as well as responses (acceptability, motivations and barriers) around specific behaviour goals in each of these key areas. Four of the research projects used a segmented approach to recruitment based on a preliminary Defra segmentation model to explore differences across the population. These segments were based on attributes, such as environmental attitudes, values and beliefs; further development of this model is underway. Box 1 describes the characteristics of preliminary segments. This paper is based on the findings of a synthesis review of the five projects.

Box 1. The seven population segments

<p>Greens (GR) are driven by their belief that environmental issues are critical. They are well-educated on green issues, positively connected to pro-environmental arguments and do not see environmentally friendly people as eccentric.</p>

Consumers with a Conscience (CWC) want to be seen to be green. They are motivated by environmental concerns and seeking to avoid guilt about environmental damage. They are focused on consumption and making positive choices.

Wastage Focused (WF) are driven by a desire to avoid waste of any kind. They have good knowledge about wastage and local pollution, although they lack awareness of other behaviours. Interestingly, this group see themselves as ethically separated from GR.

Currently Constrained (CC) want to be green, they just do not think there is much that they can do in their current circumstances. They have a focus on balance, pragmatism and realism.

Basic Contributors (BC) are sceptical about the need for behaviour change. They tend to think about their behaviour relative to that of others and are driven by a desire to conform with social norms. They have a low knowledge of environmental issues and behaviours

Long Term Restricted (LTR) have a number of serious life priorities to address before they can begin to consciously consider their impact on the environment. Their everyday behaviours are often of low impact for reasons other than environmental.

Disinterested display no interest or motivation to change their current behaviours to make their lifestyle more pro-environmental. They may be aware of climate change and other environmental issues but this has not entered into their current decision making processes.

(Source: An environmental behaviours strategy for Defra: Scoping Report)

The ‘Disinterested’ segment was excluded from all of the research projects that used segmentation, because it was felt this was not a key segment for immediate Defra interventions.

3 Research Findings

3.1 Myths and Assumptions

A variety of assumptions and myths are prevalent in the public’s understanding of pro-environmental behaviour. Participants across all projects, and across all segments, demonstrated a poor understanding of the relative impact of different behaviours on the environment. There is a belief that frequent, day-to-day behaviours have more of an impact on the environment than one-off event-driven behaviours, leading to the assumption that ‘good’ daily behaviour, such as recycling, legitimises or offsets occasional ‘bad’ behaviour, such as flying. Pro-environmental behaviour is frequently associated with one or more of the following:

- Sacrifice
- Higher cost
- Poorer quality

As a result, sustainable choices were not viewed favourably by the majority of participants.

3.2 Expectations of government, industry and consumers

Across all projects, participants displayed high expectations of government and industry. There was a widespread expectation that government should be taking the lead on environmental issues, in part due to the scale of intervention required. But despite this, evidence of a deep

mistrust of government and scepticism about motives also emerge. Key findings related to expectations were:

There is tacit support for choice editing, with participants thinking this is already taking place more than it actually is.

Despite some suspicion surrounding the motives for environmental taxation and concern about the disproportionate impact such taxes may have on the poor, there was also a feeling that green taxes were appropriate, providing transparent hypothecation occurs.

There is widespread belief that making sustainable choices needs to be made easier through the provision of lower cost of organic, seasonal and local food, and market intervention to remove unsustainable products and increase the availability of sustainable products.

There is a recognised role for the Government as an educator and information provider, but at the same time there is mistrust about some messages emerging from government.

Expectations of business and industry varied across the projects. Industry is seen to have a key leadership role in facilitating change, tempered by scepticism about information that industry provides about some sustainable products. It was recognised that individuals and consumers have some personal responsibility for changing their own behaviour, but numerous barriers were claimed to prevent action.

3.3 Role of information

Participants across all projects had little scientific knowledge about environmental issues, notably climate change, and said they wanted clearer, more concise information to aid understanding. The source of such information emerged as vital in determining the extent to which people receive and, more importantly, trust it, while it was also clear that information needs to be carefully targeted according to both its audience and the behaviour that it addresses. Participants are more likely to rely on advice from others at the point of sale during one-off or occasional behaviours, but want to feel well informed enough to make educated decisions in the context of their daily lives. There was some evidence that people are more receptive to information when it is found to be surprising. Across all projects, participants were confused by mixed messages about the impact of different behaviours, leading to several recommendations related to the need for more consistent messaging.

3.4 The behaviour goals and segmentation

The following findings relate specifically to the different behaviour goals that the projects investigated and the responses relating to the early Defra Segmentation Model¹. Although many of these are project-specific, their inclusion here implies they have wider implications for all pro-environmental behaviours.

¹ The Defra Segmentation Model has undergone considerable development since this research was carried out. Summary profiles of the revised segments, including new names and detailed descriptions of each, can be found in Defra's Environmental Behaviours Framework report, published in January 2008 and available from <http://www.defra.gov.uk/evidence/social/behaviour/index.htm>

Greens emerge as the only segment which has, at least some, members prepared to accept some personal costs for the sake of the environment alone, whether these be financial, time or convenience. However, even within this group, there were limits to what was considered acceptable; many were not prepared, for example, to pay extra for green energy tariffs.

Consumers with a Conscience are the only segment, apart from Greens, that are prepared to spend more on greener products. To do this, they need to be persuaded that there is some other associated benefit, such as convenience, health, better quality or lower running costs, and that the choice will not involve a sacrifice to their current lifestyle.

Currently Constrained also consider environmental issues, but lack of money is a concern for this segment. For this reason, adopting behaviours that are more expensive is currently unacceptable and unachievable.

Wastage Focused do not factor the environment into their lifestyles. Indeed many have a rather negative attitude towards environmentalism. They are driven primarily by a desire to save money and a sense of efficiency.

Long-Term Restricted also do not consider the environment and voice rather negative attitudes towards environmentalism. They are short of money and can therefore be motivated by financial incentives.

Basic contributors can be distinguished from the other groups by their lack of motivation to adopt pro-environmental behaviours, even when faced with choices that may save money.

4 Discussion

4.1 The importance of methodology

Due to methodological differences between projects the patterns observed were not entirely equivalent. Two of the projects, food and household energy, put all participants belonging to the same segment together in their focus groups. The finance project did not segment participants, although there was an attempt to retrospectively segment them based on demographics and what was said in discussions. The leisure and tourism project purposely mixed people of different segments together in its focus groups then retrofitted to the segmentation model in a similar way to the finance project. The transport project instead held deliberative events, putting people belonging to the same segment together in groups, but also allowing them to interact with people belonging to other segments during the event.

The projects that found clear patterns between segments were food and household energy. In retrospect, it seems likely that being placed in focus groups with people belonging to the same segment (as in the food and household energy projects) created a discussion among more like-minded people that expressed the thinking of that segment more forcefully.

It could therefore be argued that single-segment focus groups gave better results because clear differences between segments were demonstrated. On the other hand, social dynamics of the situation may have exaggerated the characteristics of the group. The former interpretation seems more likely as there were clear differences between groups in the questionnaires used at the recruitment stage.

4.2 Relating the findings to behaviour change theory

As discussed previously, variations in the project methodologies mean that it is not possible to make conclusive comparisons across all the projects. However, the research does reinforce the importance of normative influences, in particular identity, lifestyles and social norms, when considering, and particularly when trying to motivate, pro-environmental behaviour. In doing so, the research strengthens the call from those working in the area of behaviour change for more holistic approaches to intervention, that go beyond simply providing information or providing fiscal incentives.

Across all the projects, there was evidence that the importance of social norms varied by segment, mattering more and in different ways to some groups compared to others. For example, while members of the 'Greens' and 'Consumers with a Conscience' segments were generally content with being seen to be 'green', to others green lifestyles were associated with 'hippies' or the affluent, who are thought to be able to afford the luxury of sustainable choices.

As much literature on consumption testifies, the consuming of material goods is an important means by which people construct their identity. Across several of the reports, the ways in which pro-environmental behaviour are associated with certain identities and lifestyles was apparent. Presenting a key challenge to those seeking to promote a more sustainable transport system is the fact that cars remain an important symbol of social status. Within the transport project (Richardson *et al.*, 2007) bigger, even 'shinier' cars were aspired to. Within the same project, young people in particular saw cars and driving as a 'rite of passage': for example, '*It was the thing to do*' and '*It is natural when you're 17*' (ibid: 16). In contrast, coach travel was associated with the elderly, and was generally considered unaspirational.

5 Recommendations

A number of recommendations emerged from the synthesis of the five public understanding research projects, as are summarised below:

It is apparent that there is a need for government action to raise awareness and promote sustainable consumption. Both explicit and implicit support for greater regulation and choice editing emerged from several of the projects.

Poor transport infrastructure and high costs were repeatedly cited as barriers for adopting more sustainable transport behaviours, leading to an immediate need for government to improve transport infrastructure.

Information campaigns to raise awareness about environmental issues, particularly climate change, are still necessary, although it is imperative that messages from government are consistent. The lack of trust in government means that campaigns should be run in association with independent organisations, who also have a lead role to play in verifying product labelling schemes.

Pro-environmental behaviour is often assumed to involve sacrifice, higher cost and poorer quality; campaigns should challenge these mistaken assumptions and misconceptions about sustainable consumption, emphasise the impact of personal lifestyles, and try to make sustainable behaviours normative. There would be value in information campaigns that seek to

dispel the negative associations that some segments have with environmentalism. The positive influence (in the energy project) that the provision of personally tailored information had on participants' behaviour also suggests that environmental audits could be used to overcome misconceptions.

Cost savings and health benefits emerged as powerful motivators from the research projects, suggesting that efforts should be made to emphasise these 'double wins'. Finally, it is necessary to systematically remove the excuses people give for inaction as people will find as many excuses not to act as possible.

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Chapter 5 To buy, to buy green or not to buy, that is the question

Consumption and political philosophy

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1 Introduction

Considering sustainability as re-inventing the concept of quality of life is a paradigm shift with implications at a political philosophy level. Proposing responsible consumption as a feature of a citizenship which changes its traditional focus on rights into responsibilities is part of a transition to sustainability. Nevertheless promoting specific lifestyles implies researching “What would be acceptable for public authorities to do/promote?” This is one of the most important questions of this century. There are limits, and we need to learn how to manage them. Obesity, tobacco smoking, drunken driving or even just driving and parking limits, these are some of the new limits societies need to start thinking seriously. Consumption or unlimited consumption is also part of the list of issues to which this question has to be raised.

Our liberal systems are based on the idea of respecting the private realm of citizens. Consuming behaviour is a private decision, and citizens are usually not willing to be told what to do. On the other hand, the current consumption pattern of the Western world is not only unsustainable but also unjust. Would it then be philosophically acceptable to promote a lifestyle based on less consumption within a liberal system? How should this promotion take place? Which instruments would be acceptable to use? What would be the danger of civil disobedience in case of “too many” norms limiting a previously unlimited “life”/consumption?

The trick, we believe, is trying to turn responsible consumption as a rewarding behaviour and not as a sacrifice or a perceived sacrifice. If this turning takes place, it would help its political promotion within a liberal setting.

Virtue politics based on the *eudaimonia* (the Greek word for flourishing or happiness or well-being) concept and on promoting virtues might be an interesting area of research. An environmental virtue politics based on

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behaviour change and outlook shift in favour of more virtue (responsibility) in sustainability responses and the inter-connexion between these with a notion of well-being (e.g. the “feel-good” factor) will be proposed.

2 The argument

2.1 Introduction

Sustainable consumption (and production) is a burgeoning field in environmental policy. This paper’s main question is on what are the conditions of possibility, at the political philosophical level, for promoting lifestyles that are more environmentally responsible on the consumption dimension?

The mainstream approach to sustainable consumption (and production) is mainly using technology, economic instruments and the marketplace to promote it. The objective of this paper is to enquire the possibility of a political alternative (or complementary) route, inspired in the one recommended in Rio de Janeiro stating that Governments should invest on “new concepts of wealth and prosperity which allow higher standards of living through changed lifestyles and are less dependent on the Earth’s finite resources and more in harmony with the Earth’s carrying capacity” (UNCED, 1992).

Our concept of wealth and prosperity is generally linked with owing more. Even our concept of happiness is linked with consumption and more opportunity for consumption. To argue for decreasing consumption is hard at all levels - personal, social, economic and political – as we spent all our lives listening to the opposite.

This paper will only browse through the personal, social and economic dimensions of consuming less. Its focus will be on justifying at the philosophical level that politically it might be defensible to promote less consumption and yet remain in a liberal setting.

2.2 Citizenship

The impact of western lifestyles in both the political, social, economic and environmental systems cannot be underestimated. Qualities and attitudes of citizens are shaping the evolution of our political societies. As Habermas (1992, p.7) says “the institutions of constitutional freedom are only worth as much as a population makes of them”. It seems that to have a stable and increasingly better democracy, individuals must increasingly feel and act as citizens.

In our recent history, citizenship has been focusing on rights, mainly influenced by the classical analysis of Marshall (1950), who in a post-war setting thought that citizenship was mainly a question of ensuring that everyone should be treated as a full and equal member of society. He focused on civil, political and social rights. Having said that, now for the twenty first century, emphasizing responsibilities rather than rights seems what most authors writing on citizenship are focusing on (Kymlicka and

Norman, 1994). Kymlicka and Norman (1994) reckon that the balance of rights and responsibilities is one of the most fundamental questions in any contemporary theory of citizenship. On our liberal tradition though, the dilemma between fostering responsibility and obligations *versus* being “uncomfortable with imposing obligations as a matter of public policy” (p.357) remains a problem difficult to compromise. However difficult it might be to compromise between rights and responsibilities, most authors do not believe there is any other way out. Giddens (1998, p.65) even claimed that the third way should be one based on the motto “no rights without responsibilities”.

Promoting responsible citizenship might be helped by promoting civic virtues and education. Kymlicka and Norman (1994) agree that one of the very few, “but still too modest and gentle, ways of promoting citizenship” is to focus on civic virtues.

Different types of political systems agree that investing on civic virtues is one of the possibilities for promoting citizenship. For civic republicans, fostering political participation seems the main virtue to develop. Civil society (recent development of communitarians) theorists emphasize the necessity of fostering civility and self-restraint. They believe that voluntary organizations of civil society are the main providers of such virtues. Liberals, even though too often associated with a too strong commitment to liberty and neutrality and therefore potentially incapable to tackle the concept of civic virtues, are nonetheless also working on that. A current within liberalism is in fact developing the concepts of civic virtues seriously, coming up with interesting proposals. They range from public reasonableness, to a series of virtues¹ that are required specifically for responsible citizenship (Galston, 1991). Liberals that agree on the importance of virtues think that the system of education is the best vehicle for passing them.

Regarding education, a transversal and common issue in most citizenship literature, the interesting theory of de-Shalit (2004), who sees the teaching of political philosophy as the best way to empower citizens², should be taken seriously. Drawing on Sen’s and Nussbaum’s theory of capabilities, de-Shalit sees it as essentially a theory of freedom which enlarges the “range of options available to a person in deciding what kind of life to lead” (p.804). Only when citizens are able “to conceptualize, theorize, criticize and put forward arguments that may modify public policies” can they exercise their citizenship fully (p.804).

Considering responsibility towards the environment as a virtue and promoting it as such is the proposal in this paper. The emphasis is put in the individual and his/her character formation and his relationship with the

¹ Four groups of virtues for responsible citizenship: “General virtues: courage, law-abidingness, loyalty; social virtues: independence, open-mindedness; economic virtues: work ethic, capacity to delay self-gratification, adaptability to economic and technological change; political virtues: capacity to discern and respect the right of others, willingness to demand only what can be paid for, ability to evaluate the performance of those in office, willingness to engage in public discourse” Kymlicka and Norman’s summary of Galston (1991).

² “When political philosophers teach, write and research, they can help to empower citizens. They help their audience not so much to know the right answer to certain questions, but to benefit from being autonomous, rational, more critical, more attuned to political events and to better comprehend politics” de-Shalit (2004, p.803)

others. As Dean (1991, p.502) says “Inclusive relationships are achieved in the context of specific social networks of care and responsibility and cannot be created by ascribing rights and responsibilities. The citizen must first be understood not as an abstract individual or “equal rights holder”, but as a “self-in-relationship””. The proposal is based on the idea that promoting responsible citizens is a justifiable political action and furthermore, considering it a virtue, it might also contribute to a notion of well-being that fits into liberal objectives. The main trick would be to transform responsible consumption into a rewarding attitude, a “feel good” attitude.

2.3 Consumption

Current patterns of consumption in the Western World are unjust, unhealthy and unsustainable. Measuring the ecological footprint of our Western societies is depressing, “humanity's Ecological Footprint is over 23% larger than what the planet can regenerate” according to the Global Footprint Network³.

Tackling consumption can follow two different approaches. The first, more widely accepted at political level, is based on promoting eco-efficiency and other market instruments for shifting consumer patterns. For e.g. Finland's approach, entitled “Getting more from less” focuses on eco-efficiency, UK approach focuses on the three pillars of sustainable development, namely economic growth, social cohesion and environmental protection, and EU relies on more efficient use of resources, hoping it might create business opportunities, innovative environmental technologies and services.

An alternative approach, inspired by the 1992 Rio Conference and by environmental ethics currents in general (deep ecology, land ethics, environmental virtue ethics, ecofeminism), is on investing more on the self, on changing lifestyles, and be happy about a life in more harmony with nature. This is an approach that has been generally ignored by public authorities. Grounding such an approach at a political philosophical level is the main challenge from now on.

Promoting less consumption has implications at other levels, namely social and economic ones. As mentioned earlier, those are not the focus of this paper. Nevertheless it might be worth mentioning some arguments that dismiss to quickly the possibility of decreasing consumption on the grounds of its need for economic growth.

For example, household consumption represents 60% of the EU GDP and yet it is at the same time responsible for about 50% of GHGs in the EU and as the Stern report mentioned “the costs of stabilising the climate are significant but manageable; delay would be dangerous and much more costly” (Stern Report, 2006). Ecological economics (EE) is a growing field working on alternative ways of seeing economy as a sub-system of the ecosphere and dependent on it for material and process resources. Woodward and Simms (2006) denounced that the fixation on economic growth is due to “a growing obsession with quantifiable indicators of policy performance and a failure to make what is important measurable rather than

³ Available at: http://www.footprintnetwork.org/gfn_sub.php?content=footprint_overview. (Consulted on 23.01.2008)

making what is measurable important” (p25). Daly (2002, p.3) mentions that “Ecological limits are rapidly converting “economic growth” into “uneconomic growth””. But of course this is a subject and a paper (or several), on its own.

Regarding the Social and personal dimensions it is important to notice that consumption is often more than provisioning and is also aspirational consumption, retail therapy, self-expression, need for belongingness, self-esteem, self-validation, political statement, ethical choice, status display, loyalty to social groups, identity, etc (Røpke, 1999; Burgess et al, 2003). To understand the cognitive processes in consumer choices and what could promote environmental relevant behaviour is therefore an enormous challenge. In the context of this paper we might only want to mention that recent studies have increasingly shown that we have been often misled in pursuing happiness through material welfare. Lipovetski (2006), for e.g., says we have been putting all the “happiness eggs” in the same basket, the one on consumerism, and we are now beginning to realise that it was a false bet, and so we should invest on other sources of happiness. Later on we will tackle this happiness issue again.

So we come back to our original research line. At the philosophical political level can we argue for a lifestyle change that implies less consumption?

3 The proposal

The proposal is based on the idea that to complement those existing economic instruments, technological innovations and even legislative initiatives, it might be worth investing on working directly with people, with their inner selves, their character formation, and therefore influence them towards a responsible consumption which would contribute to make them feel better and yet remain in a liberal setting.

3.1 The four arguments

Liberalism emphasizes individual rights and equality of opportunities. Individual rights are an individual's moral claim to freedom of action and equality of opportunity ensures that individuals are not excluded from the activities of the society (education, employment, health care, etc). A liberal system is based on the idea of promoting and respecting the private realm of citizens. The idea of a common good defended and promoted by the State is outrageous. Each person should choose it and the role of the Liberal State is to enable it and not interfere with it. The danger of a proposal that claims to know what is best (decreasing the ecological footprint) and promotes behaviour to attain it (responsible consumption) is exactly if it falls under such attack. The following four arguments will try to justify and defend this promotion of different consumption behaviour across the Western world.

First, statements such as “In 2002, EU-25 contained 7% of the world’s population and its consumption generated 17% of the world’s ecological footprint”, (EEA, 2005, p.15) prompt feelings of uneasiness such as the one which gave rise to social liberalism, based on Bentham and Stuart Mill

utilitarianism defending, above all, the welfare of the society and not so focused on the individual welfare.

Secondly, Rawls (1971) starts his “A Theory of Justice” claiming that justice is the first virtue of social institutions. The way consumption (and production) has grown is increasingly setting patterns of injustice, both nationally but mainly internationally. It is therefore time to question the compromise of the so-called neutrality of the public institutions and their functioning in relation to people. The main idea is questioning if public institutions might foster individual responsibility towards the idea of sustainable development and of course sustainable consumption on the grounds of the current patterns being unjust.

The third argument is the so-called positive and negative liberty. Berlin (1958) wrote a landmark essay “Two concepts of liberty” discussing it. My freedom finishes where someone else’s begins. This is a widespread and acceptable concept of freedom and Berlin further proposes that “conceptions of freedom directly derive from views of what constitutes a self, a person, a man.” (p.134). Given the negative impacts of our consumption levels in other parts of the world (mainly due to resource extraction, production, processing and transportation, and also personal travel and tourist activities) we might admit we are interfering with someone else’s freedom to enjoy a less heavily impacted planet.

A fourth argument might be taken from a very interesting paper which presents five rationales for promoting greater individual responsibility, namely (Brown, 2005: p24):

1. “Utility – individual responsibility tends to promote happiness and desire satisfaction
2. Self-respect – encouraging individuals to take greater responsibility for their own lives and livelihoods can enhance self-respect
3. Autonomy – expecting people to take individual responsibility for the success or failure of their own lives is an important way of showing respect for their competence as freethinking agents
4. Human flourishing – individual responsibility is an essential part of what it means to lead a good life
5. Fairness – assigning responsibility to individuals for the situations in which they find themselves can in some cases be the fairest way of resolving a conflict of interests between taxpayers and welfare claimants”

These five rationales might enter in a conflict but, Brown argues, can still help a coherent and attractive social welfare strategy.

These four arguments (individual vs society; justice; negative freedom and; rationales to be responsible) do justify its promotion within a liberal setting. The next question would be how to promote this change of behaviour, and influenced by the last argument might take us into an idea of responsibility towards changing current patterns of consumption as a virtue.

Thinking on virtues and the potentialities of virtues lead us to researching virtue ethics and politics. These are essentially based on *eudaimonia* (the Greek word for flourishing or happiness or well-being) and on promoting virtues which will, by definition, contribute to this well-being. An environmental virtue politics based on behaviour change and outlook shift in favour of more virtue (responsibility) in sustainability responses and the inter-connexion between these with a notion of well-being (e.g. the “feel-good” factor) is the proposal.

3.2 Virtue ethics

Aristotelian ethics, which is arguably the strongest influence on contemporary virtue ethics, was mortally wounded in the aftermath of modernity, and it took long before anyone started looking at it again as a normative ethics (Annas, 2005, Nussbaum, 1999, Hursthouse, 1999). The revivalism of virtue ethics has brought up a shift from an emphasis on choice, on how to choose what to do, into an emphasis on the motives and intentions behind the choice, and into the whole life of the ethical agent. The literature on virtue ethics is now quite overwhelming (Foot, 1978, 2001, MacIntyre, 1981, Trianosky, 1990, Oakley, 1996, Hursthouse, 1999, Slote, 2001, Swanton, 2001).

The question that interests here is if virtue ethics would be a good ethical normative approach for developing responsibility within an environmental policy context? Environmental virtue ethics is also a relevant field of enquiry and quite a significant number of authors (for ex. Hill, 1983, Frasz, 1993, 2001, Westra, 1998, Sandler, 2004, Hull, 2005) have been building it up. Environmental virtue ethics embraces a perspective of cultivating human character traits that enhance a healthy and harmonious relationship and interaction with nature.

In this inquiry the idea is developing responsibility as a virtue, a trait of character, meaning educating children and people into the habit of responsibility, which basically translates into one being considerate towards the Other⁴, respecting oneself and the Other, assuming one's actions and being accountable for one's actions. When applying this habit of responsibility to the environment it will require also virtues of thought, namely wisdom (*sophia*) on environment in order to be able to take the right actions, and practical wisdom (*phronesis*) which will be transformed into the need for individuals to participate actively in the polity.

This means that the process has three stages. First, one should develop responsibility as a habit, secondly one should be given the opportunity and have the openness and the will to learn about the environment, and lastly one should develop an active mood in one's being in the world and in a polity, and in this case consume less or at least consume green.

Getting the habit of responsibility and of thinking, feeling and acting in accordance to that habit is the first phase. The second phase is based on investing in people's environmental education as for people to feel responsible and know how to act responsibly, they must know something about the environment. This means empowering people and de-Shalit (2000) considers three levels for an environmental empowerment:

- Environmental literacy – accessing available information;
- Environmental awareness – to acknowledge that environment affects our life;
- Environmental consciousness – deeper level of concern.

This process of empowerment is a fundamental step in a virtuous learning. Getting to a stage of fully virtuousness is not so much the objective (as it is virtually impossible), so the important is the path in its direction.

⁴ The other can also be nature, or the environment

Environmental literacy, awareness and consciousness are the necessary conditions for a productive use of the environmental responsibility virtue. But this process requires an effort, not only at individual but also at political level.

Politically the system must provide the conditions for this empowerment to take place and at the same time it must open itself for more participation, as for people to get a better sense of ownership of decisions; more transparency and communication as to people understand what is going on; and more cooperation so that we feel we are all in the same boat. Institutionally the new trend of governance and its related principles - openness, participation, accountability, effectiveness and coherence - (EU, 2000) might be the direction to head on.

On the third phase it is required from individuals to participate in the polity. If individually/privately one needs openness to learning and reflection and choosing to be a specific kind of person with a specific type of attitude, politically/publicly it might mean shifting one's passive type of attitude into an active citizenship. In fact, politically, individuals are often more related with an idea of receptors than as actors in the system. Not only being worried by what one needs from the system, but also focus on one's contribution to it⁵. "We must be responsible" rather than discarding responsibility to everyone else. In our case this means having an informed and thoughtful perspective of the consumption action. So the idea is that if one can develop responsibility towards nature as a virtue, one might attain a more conscious consumption attitude, one that is interiorized and not imposed. But furthermore, the advantage of a virtue politics is that it fuels at the same time well-being, happiness.

3.3 Happiness

The question of happiness and its importance is becoming quite popular in Western societies. The literature about happiness in this new century is quite overwhelming. Quite a few numbers of new books⁶ are being written focusing on this problematic. Most of this literature starts by questioning the idea that since people are nowadays better off namely materially, socially, health wise, than our ancestors have ever been, why does it seem we are not happier? Translating quality of life into a good material life is proving to be a false myth. Lipovetski (2006), as mentioned above, mentions that we are struggling to find other sources of happiness, than the one on consumerism. One of those alternative sources might, for example, be related with finding a meaning in life.

Susan Wolf defends that "the meaning of life" is not part of the philosophical inquiry anymore having been substituted rather by an inquiry

⁵ One always remembers Kennedy's famous sentence in his inaugural speech as president "And so, my fellow Americans, ask not what your country can do for you; ask what you can do for your country" which might also be an example of this idea of attributing responsibility to citizens/agents rather than seeing them as citizens/subjects

⁶ *Happiness: lessons from a new science* by Richard Layard; *Stumbling on Happiness* by Daniel Gilbert; *Le bonheur paradoxal – essai sur la société d'hyperconsommation* by Gilles Lipovetski; *The happiness hypothesis* by Jonathan Haidt, are some of the new books on that theme.

of what is “a meaningful life”⁷. Wolf accepts that because there might be no meaning to life, this is not contradictory with people having or seeking meaningful lives. Wolf describes a meaningful life as one that is involved in “at least partly successful engagements in projects of positive value” or “projects of worth”.

And this is what we would like to retain from this discussion, which is if someone dedicates some part of their energy to projects of worth, which are difficult to define, but intuitively intelligibly grasped, then the meaningful of their lives is increased. Both investing in having a virtuous character and actively engaging on “defending” and being responsible towards the environment are examples of some intuitively projects of worth.

Grounding responsibility as a virtue in both the need to better take care of our relation with nature and with the possibly of more meaningful life to ourselves is the proposal, which might be supported by new evidence in studies on environmental policy.

In fact there are several studies, namely in household waste reduction (Fahy and Davies, *in press*) and transport studies, where people are reported to state that they recycle or they take public transports because that makes them feel good. For example, the results of an active research project in Ireland on household waste reduction, state that “They also acknowledged that after the first week they experienced the “feel good factor” because “less waste going out makes you feel good that you are doing your bit for the environment”. There is a growing body of literature addressing issues of environmental responsibility and citizenship (Dobson, 2005)⁸, which suggests that behaviour driven by environmental citizenship is more likely to continue in comparison to driven by financial incentives.” (Fahy and Davies, *in press*, p.9).

Anable, Lane and Kelay (2006) in a review report for the UK Department for Transport on public attitudes to climate change and transport behaviour, report several studies⁹ which highlight the importance of personal responsibility, non-selfish concerns and moral concerns on directing travel behaviour.

3.4 Virtue politics

One might be feeling a bit at a loss, because virtue ethics and responsibility might seem an interesting issue within the environmental problematic, but the crucial question always coming up at this moment of the argument is: What about the political side? Is virtue ethics not too apolitical? Is virtue politics possible or even more, is it desirable? Could either the concept of flourishing, happiness, meaningful life be translated into a political sphere without compromising the principles of liberalism, or could

⁷ Luso-American Foundation (Lisboa, Portugal) organised a session on 22 July 2005 where the American moral philosopher Susan Wolf exposed this theory. (Personal attendance and notes)

⁸ Dobson, A., 2005. Environmental Citizenship: towards sustainable development. Paper presented at SDRN / RICS Sustainable Development and Quality of Life Lecture Series 15th February 2005. RICS: London. The reference is from Fahy and Davies (*in press*)

⁹ Page 89 of the report, mentions six such studies.

virtue influence, determine or change institutions, policies, and politics? These are difficult and challenging questions.

Salkever (1974) is a Neo-Aristotelian who defends that there are two ways of interpreting and understanding the meaning of politics as an activity: “politics conceived as a problem of moral and intellectual virtue, and politics conceived as a problem of obligation and legitimacy” (p.78). He recognizes that the first one is now rare and might almost seem odd, while the second is the commonly way of thinking about politics. This implies that the question “why should I obey the law” becomes the way most of us understand our relationship with politics. This question of legitimate authority becomes crucial and opposes an Aristotelian conception of politics for which the crucial question was what is best for man. The question “Does it enhance the human aspects of human nature?” has been substituted by “Is it legitimate?” and Salkever (1974) observes that indeed liberty, authority, obligation, legitimacy, and related contract-linked concepts are much more present than the concept of virtue.

Salkever (1974) thinks that it is important to come back to the “why” question: why should man enter a political relationship? Even though this is a complex question, one way to see it is to relate it to what kind of things is good for human beings. The question of what is desirable enters the public sphere and therefore politics. If the objective of politics is to take us in the direction of what is good for man, then that is the reason why we should enter a political relationship. The question of the legitimacy of authority loses its centrality. We are a “political animal” because it is through the political relationship that human beings can achieve excellence of character. For Aristotle, politics has as its aim the development of moral virtue among its citizens. It is therefore judged on those terms rather than on economic growth or individual liberty or legitimacy.

Most of contemporary political philosophy does not consider these Aristotelian perspectives, apart from a few exceptions, and it might be relevant to ask why this is so. Is the question of what is the best human life, still a valid and meaningful question? As Salkever (1974) reports, Machiavelli defended in “The prince” that how we ought to live was an irrelevant political question because we never live as we ought to. Moral virtue is therefore not a political term and is instead related with the private sphere, a matter of taste. This idea that it is not possible to answer what the best life for man is in a rational way (supposing that there is a best or virtuous live, this does not mean that all individuals would want to pursue it) further supported the dismissal of virtue thinking in politics.

The bottom line of Salkever’s position is that we have seen a worrying narrowing of the range of questions which inform philosophic inquiry into the political things. This narrowing may be distorting in the way we grasp the political reality. The questions of “legitimacy, authority, obligation, liberty are focused on the manner in which the polity is constituted rather than on the goals or values of life styles which the polity explicitly encourages or implicitly rewards” (p.92).

Does politics exist mainly to promote our interests or to defend our rights? If it seems to have started with the first, lately it is being focusing on the latter. But if promoting our interests is still a legitimate role of our institutional system and if these interests contribute to our well-being, then there are reasons to justify an active leadership from public authorities in interfering with our current unsustainable, unjust, and unhappy patterns of

consumption. And yet remain in a liberal setting. Working with people attains then, the highest priority of environmental policy.

4 Concluding

Current trends on citizenship and current patterns on consumption justify that we should propose to invest on essentially working with people and how they function. Arguing with four strong arguments (individual vs society; justice; negative freedom and; rationales to be responsible) that one can do this and yet remain in a liberal setting, took us into looking to virtue ethics and virtue politics as a plausible bet to get forward. Virtue ethics helps us working with people in a way that they value who they are, think on who they want to be, why they are like that and why they act like that. The aim of the proposal is not to suggest a universal way of how people should be or act, it only focuses on changing their attitude towards the environment, by developing a virtue of responsibility towards the environment. This virtue would both influence their consumption patterns which are becoming unsustainable and contribute to their flourishing / well being.

Nevertheless promotion of responsible consumption requires efforts not only from consumers who should increasingly see themselves as citizens rather than as consumers but also on the authority side.

On the authority side, the issue is quite fragile but there have been some interesting evolutions in how to tackle the issue. For example there is an interesting framework (in the UK) based on four actions for catalysing the breaking of habits: Enable – make it easier; Engage – get people involved; Encourage – give the right signals; Exemplify – government take the lead. Also at European level, increasingly, its policy is investing in working with people (one of the priority avenues of strategic action of the 6EAP is on the need to empower people as private citizens and help them to change behaviour). Empowering citizens instead of taking decisions on their behalf will demand new ways of doing politics such as governance which invests on openness, participation, accountability, effectiveness and coherence. The proposal put forward by this paper is also focused on justifying that authorities should invest in people and empower them, believing that politics might look back on time getting inspired by when it focused more on well being and what would be the values that would support such a journey towards flourishing or well being. If acting virtuously might be part of this journey then there would be a justification to invest on a political path that promotes it. We are not discussing in this brief paper the possible dangers of an universal common good (which is exactly what liberalism is afraid of, when talking about an authority defending a conception of well being that might not be universal after all), but it is worth pausing and also think about it. Nevertheless, for the narrow scope of this paper, one might dismiss it on the grounds of the almost universal acceptance of the identification of the environmental crisis, which might justify these courses of action, which have the further advantage of not being imposing but rather suggestive.

On the consumers/citizens side responsible consumption is both a political and a private act. It is a political act as it is a tool for practising ecological citizenship since it implies making political and environmental choices in private consumption decisions (Seyfang, 2005). We would rather say, consumption is a private act and responsible consumption is a political

act and the transfer from one into the other is a win-win situation for both people and the polity. The trick then is to change our status from consumers into citizens, and within that process to change the patterns that govern the consumption. Recently the public environmental discourse is becoming appellative and strong and therefore many of us started consuming green.

4.1 Consume green or consume less

To consume green is the first step towards responsible consumption. Even though it is an important step, we wonder if it is not just a question of transferring our responsibility on the matter. “I pay carbon offsetting when I travel, therefore I can travel as much as I can”; “I bought a new “green” car, so I can drive as much as I need”; and so on. Again it seems we are not taking a personal lead in our behaviour and need for responsibility towards the carrying capacity of the Earth, we are just transferring it.

The next big step to be given could only take place when we will be ready for a discourse that defends less consumption and not just green consumption. That is the true management of limits that must shape this new century.

Consume less and feel happy, that is the proposal of this paper that believes on the development of virtues. Environmental virtue politics, a political philosophy based on the importance of the notion of virtue which includes a mix of being and acting good (and responsibly towards nature), for the self, for the other, for the future and for the planet and of *eudaimonia* coupled to the notion of pleasure of acting as an environmental citizen was the main proposal. Using responsibility towards nature as a virtue attains two objectives at the same time, improving the environment and eventually helping us feel more meaningful and ultimately happier persons. If to buy, to buy green or not to buy is the question, the answer should be increasingly:

Let's consume less!

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Chapter 6 Design for sustainable mobility of protected areas

Inter-modal system aimed to the conscious and assisted fruition National Park of Abruzzo

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1 Introduction

The reflections about the theme of environment, suggested in this paper, come from the consideration that the Italian territory shows a large environmental estate which has been scarcely developed, while the demand for eco-tourism has been increasing more and more.

There is a lack of project-strategy, able to establish the culture of a steady presence of man in the name of sustainability (Wilson, 2004). In this sense, design can be in the future the protagonist of a project-culture strategically oriented to carry out a stimulating role to start a transforming process of the environmental estate to be developed into resources for the future. In territories showing high environmental value, everything seems to suggest the creation of new management service reception, fruition and communication. Among so many different possibilities, an idea on the role of design about landscape development of parks and protected areas, has been suggested and applied to the theme of sustainable mobility, with particular regard to an inter-modal System aimed to the conscious and assisted fruition of the National Park of Abruzzo (D'Onofrio, 2007).

2 The landscape of protected areas between development and defense

Italy owns an extraordinary natural protected estate, which needs to be defended and made accessible and comfortable to be lived. In order to love and defend the environment, it is necessary that use, fruition and preservation of our environmental heritage, become integral part of the estimation developing activity. All this requires both the promotion of environment resources knowledge and an action of design ethically responsible.

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2.1 The sociological and economical perspective of eco-tourism

Reflecting within the field of economics, according to Herman Daly's theories on *sustainable development* and of *ecological economics* by Nicholas Georgescu-Roegen (Bonaiuti, 2001), the general idea of natural estate has been replaced by that referred to environmental goods. That is to say, that the natural estate is not only a territory endowment, but it must be considered as a good to be consumed, that is, used only if the availability is created or renovated. In this sense, the reproduction of environmental resources together with its use, the preservation together with fruition have to become the essential supports of a new dynamic balance, to be researched within the territory.

On one side, some studies related to economy matters, report that it is necessary to invest in the *environment capital*, on the other side, according to the present sociological perspective of environment and tourism, there is an increasing demand for sustainable fruition of environmental resources. In contemporary society new cultural models are shown on life quality and we need to know the world surrounding us more and more. In fact, the English sociologist John Urry, reports that in the range of all possible themes and different interpretation models of tourism, the interest in eco-tourism is particularly increasing (Urry, 1995): that is, for that form of responsible tourism activities which take place in those areas where nature is particularly interesting, in order to use, study and observe those places without altering the balance of local culture by means of active and beneficial involvement of local population from a socio-economic point of view.

2.2 Strategy orientation and guidelines

In this perspective, the protected areas of parks, are the ideal scenery to make tests on new patterns of sustainable intervention without separating protection from development. Protected areas are surely required to defend the most sensitive and precious eco-systems due to bio-diversity, but they are also an extraordinary instrument for the sustainable development in several strategy-sections like tourism, agricultural food production, craftsmanship and management of natural and environmental goods. This means that the problems connected to the environment are no more perceived as an obligation but as an opportunity to get over the "the park project as a pure eco-tourism research". From this point of view, the protected areas and the network of Italian parks covering the Alps and a large part of the Appennini mountains in the central-southern area, can be transformed in a new big "open laboratory" where the management study and scientific research are oriented to complete and harmonize human, natural, cultural, environmental, economic and producing resources (Vallicelli, 2001).

From the point of view of demand referred to tourism fruition of parks, in the last EEC planning-charts meant for a lasting and sustainable development, mass-tourism is reported to be submitted to a significant growth in the next future. The predictions worked out by the World Tourism Organization, estimate the Mediterranean basin as the first tourist- region of the globe since it attracts at present 35% of the international tourism-exchange. As far as parks are regarded, 25 millions tourists visit areas and

park regions both national and regional with a 20% trend referred to these last years. This means that tourism is the major element in the economy of Parks and it must be studied according to a perspective of sustainable development.

2.3 The role of design for the development of environmental resources

We have at our disposal environmental resources and an increasing demand for sustainable tourism, particularly eco-tourism. It seems there is a lack in a project-strategy able to promote the elements of value which are present on the territory. In this perspective, design might be the main character of a project-culture strategically oriented to carry out a stimulating role to start a transforming process of the environmental estate into developing resources for the future (Marano, 2004). This requires a systemic approach to problems associated with a remarkable and skilful ability of observation. Yet this is a dimension considered as specific object of a latest disciplinary field where design is increasing, a strategy-design which pays attention to the building of “frames of sense” referred to project orientation and guidelines for products, services and communication. Within the field of strategy-design, the areas regarded as excellent environment are privileged places where new forms of sustainable development and new concepts of physical and non-material product are to be tested. In territories showing strong environmental value, like mountain parks, everything seems to suggest the creation of new management service, reception, fruition and communication. Parks Corporations are asked to organize a structure of management and preservation for protected areas and to imagine the relationships with the users, working out the idea of service and establishing the requirements of the products to be made related to the park fruition itself. It is a project-choice which believes in the concept that “new services can be thought as an organization of social resources and individual skills founded on the creation of relationships based on mutual interest between the issuer and the user.”

3 System Innovation and project methods

The most attractive perspective now, related to this pattern of opportunities, is to direct again design according to a method approach which tends to combine together sustainable products and services (Marano, 2007):

1. *Preliminary phase* of estate knowledge also referred to what occurs on the territory, in order do detect those “sensitive landscapes” showing high productive, cultural and environmental quality, which are supposed to be privileged places where synergic intervention of defense and development are to be tested. This requires: to be more skilful in recognizing local identities putting them in relation with the largest earthly identities; proper instruments and methods able to catch the complex relations and mutual influences between the parts and the whole; a bigger integration of design joint to other disciplinary fields like sociology, economics, planning and technology;

2. On the basis of this pertaining knowledge (phase 1), promoted by means of systemic thought methods, we move to a *scenery phase* to research “sustainable solutions”, qualified by a coherent system of highly regenerative products and services (Manzini E., Jégou F., 2003). This involves the combined refining of conceptual and operative instruments of guided and oriented strategy design and of design referred to formalization services on the interaction between service supplier and users;

3. The sustainable solutions (phase 2) define the *project-brief* referred to key products of the service proposed. It is a *program-phase* establishing the innovation level of the product required by the “sustainable solution”. This stimulates to fix up and employ adequate instruments of project and assessment;

4. The requirements established in the program phase (phase 3), in the end, play a role of controlling the list for the phase related to *the processing of new product-concept* oriented to the protection and sustainable fruition of environmental estate. This implies a wider ecology-consciousness and the use of specific project guidelines oriented to sustainability (Vezzoli, 2007), in the promising attempt to give ethical value to industrial product.

4 The sustainable solution

On the basis of these methods guidelines, the theme of sustainable mobility has been afforded in protected mountain areas. The application regards a project of an inter-modal System meant for tourist fruition in the National Park of Abruzzo.

4.1 The National Park of Abruzzo

The National Park of Abruzzo has been chosen as “sensitive landscape” for the particular combination between spontaneous nature and landscape created by man on a land inhabited since long time ago, shaped and transformed by traditional culture and thousand year old civilizations (Lepore, 2001). In these last years, the problems connected to eco-development have been raised. That is, the need to harmonize the preservation and the urgent requirements by man of natural resources, between the maintenance of dynamic balance referred to eco-system structures and the necessity of socio-economic development of local population. In particular, the most relevant problem concerns the alteration of the environmental context due to the effect of man’s pressure submitted to a tourist-receptive system showing a high level of non-sustainability: increase of vehicle mobility inside the Park, surface, acoustic and air pollution, overall life quality decrease of the residents.

4.2 The inter-modal system for the conscious and assisted fruition of the National Park of Abruzzo

Inside a general pattern of strategy guidelines established by the Park Corporation, the sustainable solution which has been found responds to question on how it may be possible to manage and enhance the activities of tourist fruition in the Park, respecting the delicate environment balances. The proposal consists of an inter-modal System for the conscious and assisted

fruition of the Park. The solution has been suggested as a service which provides information, assistance, minimal products and equipments for those who want to visit the Park by means of a resource management advanced service entrusted to the Park Corporation.

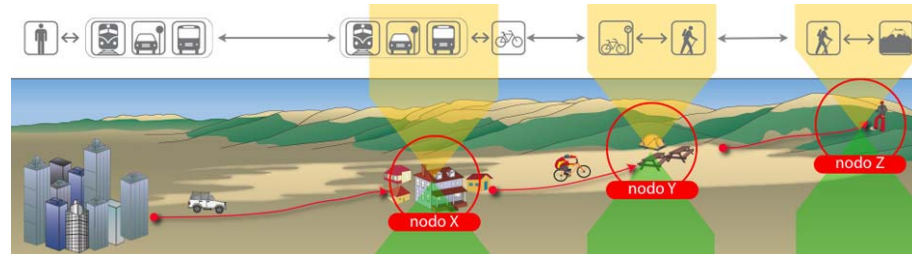


Figure 1: Sustainable mobility system (vehicle + electric shuttle + bike + walk) and strategic points of inter-modal exchange

The system is a network spread all over the area of the Park and it is mainly based on different and interrelated transport modalities characterized by lighter ecological imprints as the demand of tourist fruition is shifted from the populated areas easier to be reached, to places of higher nature value and difficult to be reached (vehicle + electric shuttle + bike + walk).

The service, in fact, includes several strategic points of inter-modal exchange that play also a role of support for the different leisure, sport, didactic and scientific activities. In these points the service offers information, assistance, maintenance, small equipments and products useful for the fruition of the Park. The service guarantees also a good system for collecting rubbish separately. Further, through satellite technology, the interaction between the service manager and the users of the Park is constantly and continuously updated. The service also requires the use of different tools like: digital media interfaces for first aid emergency, orientation and geographical, botanical, geological and zoological information, able to record texts as well as moving and fixed images, signs, furniture products and the small, light and flexible receptive structures spread on the territory of the Park in order to equip picnic areas as well as those meant for didactic, scientific and sport activities, electric bikes for going along the routes of the Park together with specialized supporting Kit to be used for the activities.

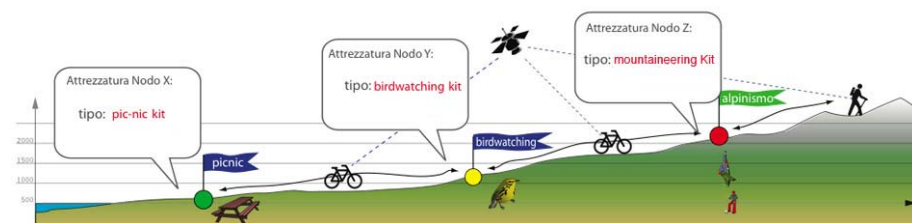


Figure 2: assisted fruition of the Park by means of specialized Kits and support of satellite technology for emergency, orientation and information

4.3 The product concept: the bike of the Park

The analysis of the service map has allowed to get its key-product: the “Bike of the Park”.



Figure 3: MTB version and set-version from the outfit of the Park Bike

It consists of a vehicle made of two wheels, alternative to the traditional motorized mean of transport, meant for a tourist who feels responsible of his role searching in protected areas a fruition experience rich in content at social, cultural and environmental level. The context features, the strategy orientation of the Park Corporation, the targets and the list of service specific requirements have defined the project brief. The concept comes from the careful management of all the inputs coming from disciplines (ergonomy, environment requirements, material technology) where it is absolutely necessary to obtain from, to develop an object to be used according to the patterns of design.

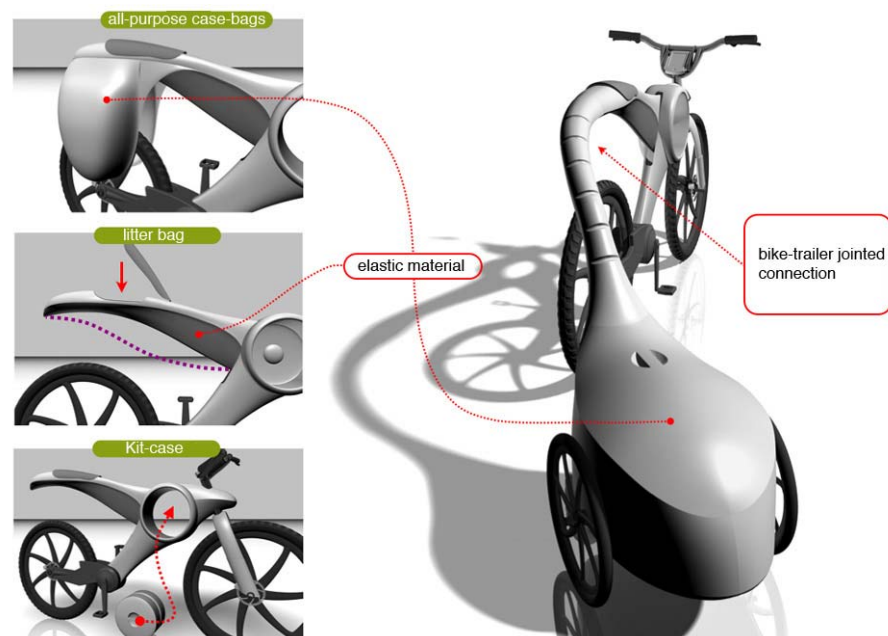


Figure 4: outfit elements of the Park Bike

The high quality formal product innovation consists of: experimental employment of carbon fiber, connection to the satellite information system,

versatility (leisure activities, competition, transport of things), use adjustability, assisted cycling pace, equipment and service tools as part of the frame (universal case - kits for emergency, orientation and first aid, leisure, scientific, didactic activities exc.), a flexible bag for litter to be inserted under the saddle, joint trailer outfits, eco-compatibility according to the criteria of Life Cycle Design (Manzini e Vezzoli, 1998).

4.4 Results and evaluations

The inter-modal system for the sustainable fruition of the National Park of Abruzzo, is the alternative to the traditional mobility mainly based on motorized vehicles.

The solution meets the requirements for developing ecological systems with low transport intensity, to reduce mobility environmental impact as much as possible reinforcing the producing social and local community. The solution, by promoting the multi-modal system of tourism fruition of the Park, activates a network of acting people and infrastructures by means of which the required results can be reached. The Park Corporation has to organize a management and preservation structure of protected areas, projecting the relations with the user, comparing and selecting the producing companies, thinking again about the idea of service establishing the products requirements to be made for the Park fruition itself.

The origin of the elements has allowed to understand what type of function (products mixture, service and communication) were necessary in order to get the Park Corporation distribute the service. And yet, how could the same platform offer different services recombining them and personalizing them in comparison with the users' requirements as in the following cases: small infra-structures meant for reception which are light, temporary, movable and easy to be mounted and dismantled; eco-compatible products as support for the user in the Park fruition activities; shared and flexible employment of specialized equipments common to groups of users showing similar interests; remote control system for information and assistance; renewable power systems for lighting, environments heating regulation and use of electric products. The analysis of the different solutions, obtained by combining products, services, knowledge, organization skills and roles from the subjects-actors has allowed eventually to evaluate positively the service flexibility.

5 Conclusions

In the perspective of harmonizing the development by defending protected areas, design can offer, as a project discipline, instruments and methods which operate and work strategically to improve the offer of reception, information and fruition of environmental resource. The theme related to environment is, for design research, an extraordinary opportunity to expand and make adequate its action field, from product innovation up to development strategy scale of local resources. Among the different action fields, the section of sustainable mobility research applied to "sensitive landscapes" of mountain parks, allows to start tests on as many synergic interventions as possible to be wished for development and defense.

In this scenery, the study case of an inter-modal System for conscious and assisted fruition of the National Park of Abruzzo, shown in this paper, researches and suggests a sustainable, network-tending, modular, open and flexible solution, able to combine at the same time products and services in the name of sustainability. Therefore the object is richer because it takes into consideration environmental requirements assuming, above all, an ethical value since it is part of a scenery of sustainable services requiring, representing, and in some way producing it.

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Chapter 7 The Ecolizer, introducing ecodesign

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1 Introduction

In a way to make ecodesign more accessible to the designer, the OVAM (the Public Waste Agency of Flanders) developed the Ecolizer, a modern tool that is quick and easily consulted during the design process.

2 How to implement ecodesign

Waste prevention has been an important task for the OVAM for a long time. Meanwhile companies are challenged to create more value with less impact due to scarcity of resources and energy. Ecodesign, by prevention of waste and reduction of the environmental impact, could be the way of doing so at the source when a product is designed. A few aspects make ecodesign not well known with designers and not educated in design schools. 'Eco' is mainly associated with environmental and not with economical advantages. Ecodesign also has the image of outdated, classic products in environmental friendly materials. The Ecolizer was therefore also conceived as a presentation of ecodesign and to improve its image.

In a questionnaire, done by the OVAM, designers expressed their interest in ecodesign and other ways of approaching the design task but also the lack of time to invest in ecodesign education. This is a threshold for implementing intensive ecodesign methods. Most of the time economic, technical, aesthetic and human criteria define the design of a product. Ecodesign adds environmental criteria to that list. These criteria derived from the assessment of bottlenecks during the lifecycle of the product. Each product has a certain environmental impact. Reducing this impact has benefits for the environment but also creates opportunities for innovation. Certain hidden parameters of the product are revealed earlier so adaptation to the product can still be applied without great costs.

The tool was developed for designers or product producing companies as an introduction to ecodesign, life cycle thinking and how to assess the most environmental impacts of their products. The idea for the Ecolizer derived from the fact that despite the availability of a lot of academic information and software on ecodesign, Flemish designers or companies rarely apply it.

There are several methods available for ecodesign. One can use advanced and complex methods that demand a lot of expertise from the user or methods that use single indicator methodology. Most known and used of the latter is the Eco-indicator of the 'Eco-indicator '99 Method' of Pré and VROM. This indicator summarises the environmental impact of materials and processes in one figure. The indicators are a simple but yet reliable source for a quick review and to integrate ecodesign in a quick manner in the design process. The method seemed ideal to be used by designers who usually don't have a background on environmental issues or ecodesign.

3 The Ecolizer

The 200 indicators of the existing 'Eco indicator 99 method' were updated and extended to 400 indicators. The challenge was to come up with a tool that was accessible and easy to use while designing. Flexibility was also required so the outdated indicators could be replaced with new ones or new materials and processes could be added. The Ecolizer has a fan like design with cards and a holder in recycled aluminium. To raise the use while designing, the software option was not chosen, but this may be an option in the future. The layout of the original tables was altered so each material now has the relevant production, tooling and waste management indicators on one card. With the fan like design with cards, the Ecolizer gets part of this academic background closer to the designers to integrate environmental criteria in innovative products.

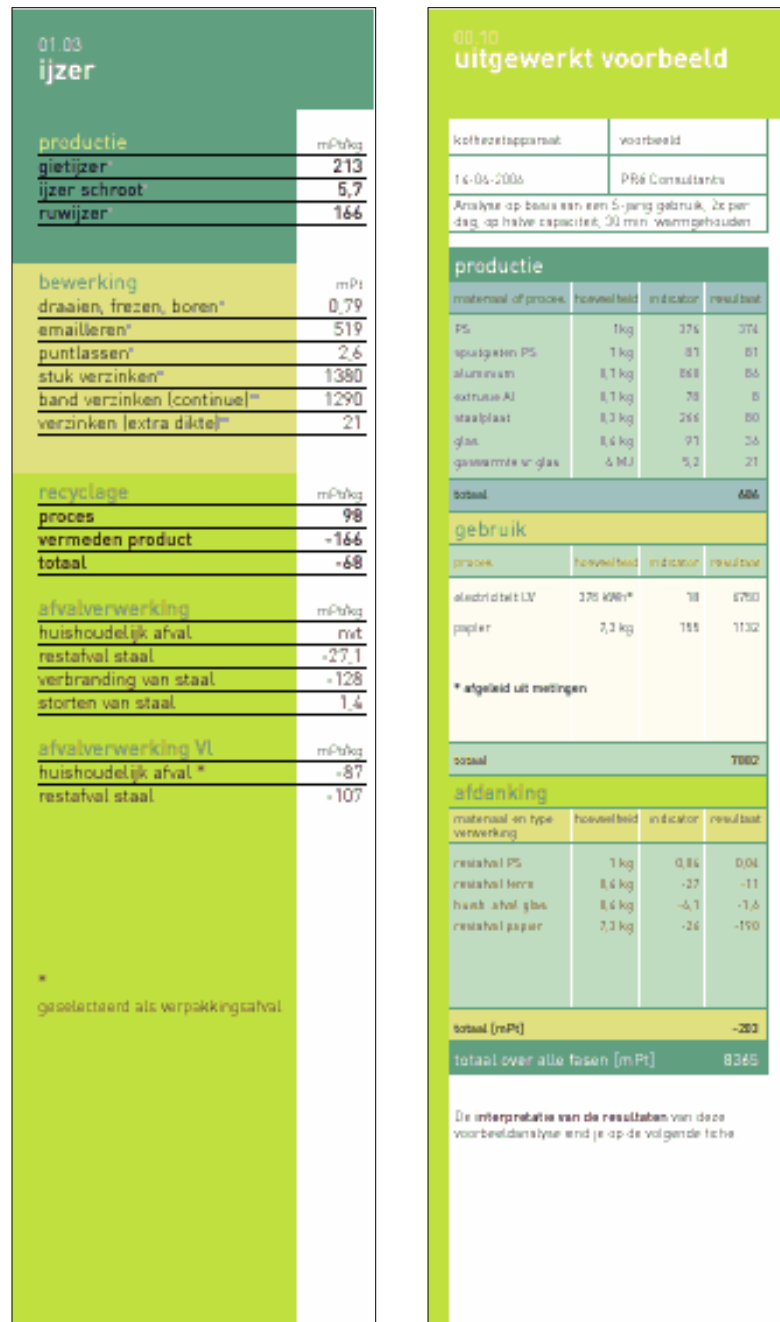


Figure 1: Ecolizer cards lay-out



Figure 2: The Ecolizer

The Ecolizer now features 400 indicators based on European and Flemish data. It is written in Dutch, but will be translated. The Ecolizer is free for the Flemish designers and companies and was presented in several workshops organised by the OVAM. In 2008 indicators for bioplastics will be added. The OVAM believes products designed with ecodesign in mind reach a higher innovation level and are an example of fusion of environmental criteria and innovative product design.

4 More information

Website (in Dutch): www.ecodesign.ovam.be

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