Overview of sustainability initiatives in European food retail sector

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OVERVIEW OF SUSTAINABILITY INITIATIVES IN EUROPEAN FOOD RETAIL SECTOR

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"… OUR RESPONSIBILITIES GO FAR BEYOND THE ACT OF SELLING GOODS ACROSS A COUNTER"

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1 INTRODUCTION

This study aims to provide a comprehensive overview of sustainability practices in food retailing sector. It builds mainly on literature review of available-to-date reports, evaluations and academic articles dedicated to retailer's work with sustainability issues. Additionally, pilot interviews with three Swedish retailers (ICA, COOP and one of discounter stores) have been conducted to obtain complementary information on their sustainability work in supply chain, and sustainable sourcing practices in particular.

Report is structured to reflect on overall sustainability trends among European food retailers, outline drivers and barriers to address sustainability issues in retailer's supply chain operations and provide classification of sustainability initiatives undertaken by EU retail organizations that could be classified as forerunners in environmental field. Proposed classification embraces wide range of initiatives targeted towards greening particular aspects of business activities in upstream and downstream supply chain, as well as in-shop. Furthermore, analysis of initiatives is undertaken to reflect on how widespread different sustainability activities among retail organizations. Eventually, drawing on examples of 'best practice' among European forerunners, recommendations for retailers and policy-makers are provided on how to further sustainability work in food supply chain.

2 SUSTAINABILITY TRENDS IN EUROPEAN RETAIL

Nowadays some of European retailers start implementing wide array of environmental initiatives to address sustainability issues in their supply chain. However, degree of these activities varies significantly across European countries and its retail organizations. One can distinguish between leading countries of Western and Northern Europe and laggings countries of South, Central and Eastern Europe.

Within leading countries there are also leaders – retailers and retailer chains that create and continuously enlarge the market of green products by investing in R&D, information provision, customer awareness raising and in extending their efforts along the supply chain. There also other retailers who rather follow the leaders in their environmental work and in creating the market of green products. The followers enter the market when it becomes a lucrative business and when customer base is secured to some extent. Their role is to increase competition on the market of green products both in terms of the choice of products and the price. The followers therefore fulfil an important function of creating volumes of sales of green products, as well as contribute to reaching out less environmentally and socially aware customers (Schmidt, Møller et al. 2008).

In countries that lag behind, e.g. South, Central and Eastern Europe, the market of green food products is relatively small. It mainly comprises of subsidiaries of large international or European chains that have entered these new markets, as well as traditional farmers' markets where ecological produce is sold by farmers and small specialised shops. Among Central and Eastern European countries, Czech Republic was the leader in buying organic products, even though organic products held only 0.35% of the total food consumption in the country (Gis 2008). Super- and hypermarkets, as well as pharmacies, accounted for a 67% share in sales of organic food in Czech Republic in 2006, while 28% belonged to specialised shops (Gis 2008).

Degree of advancement in sustainability work depends on the history of dealing with environmental issues in different countries. For example, Northern European countries are tackling more areas than Southern European

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countries, as the latter started their involvement into sustainability practices more recently (BIO Intelligence Service 2009). Additionally, priority areas are also country specific and depend on the national agenda, e.g. UK retailers are more engaged into carbon management (Forum for the Future 2009) than others, while in Germany more attention is dedicated to waste management activities (BIO Intelligence Service 2009).

Along with national history and country specific agenda in dealing with environmental issues which affect sustainability agenda in retail industry, there is also difference in the structure of retailers that sell green products. For example, in Scandinavia all major traditional retailer chains offer green products (a certain % of the total assortment) and they have 85% of the total turnover of green products (Wright and McCrea 2007). On the other hand in Germany and other European countries one can also find specialised shops and supermarkets that sell exclusively green products (Schmidt, Møller et al. 2008).

Types of environmental initiatives vary between retailers depending on what type of voluntary agreements it is party to. These agreements are usually implemented at the national level. For instance, British "Better Retailing Climate" and "Courtauld Commitment" address packaging and food waste issues). In Germany implementation of "Product Carbon Footprint" project (pilot stage) stimulates firms to calculate carbon footprint of different products. In France retailers are experimenting with environmental labelling of products (BIO Intelligence Service 2009).

Also, level of implementation of environmental initiatives could differ depending on the business concept held by retailer. For instance, specialist shops in Sweden and Germany sell only organic products and reveal high level of awareness about sustainability issues in their supply chains (Schmidt, Møller et al. 2008). Hypermarkets and supermarkets provide stable shares of green products in their assortments, and some of them even apply subsidy schemes for green products to lower their price for end-consumers. Discount stores generally appear to limit their sustainability work to compliance with minimum required regulatory standards and provide small share of green assortment, as the target audience of discount store is predominantly aware with the price issue rather than food sustainability (CSR Manager 2011). However, due to lower price of green assortment, discount stores might contribute to mainstreaming sustainable products among less environmentally-aware consumers (ETC/SCP 2010).

Important event towards promoting and systematization of sustainability work in retail industry has recently happened in 2009 with establishment of European Retail Round Table. The participation in forum in voluntary and it has adopted a 'road-map' approach which implies high level of collaboration among retailers, policy-makers, NGOs and consumers to improve the sustainability performance of supply chain. For instance, one of the issues addressed is energy efficiency. Energy targets for the retail sector at the EU level are put together and to be met until the year of 2020 (BIO Intelligence Service 2009). Additionally, on June 24, 2010, nineteen major retailers and seven retail organizations have signed up the Retail Environmental Sustainability Code. It focus on such key areas as resource efficiency, sustainable sourcing and transportation improvements, waste management and better communication with customers to encourage sustainable consumption practices (EuroCommerce and ERRT 2010).

Generally, environmental initiatives vary significantly among Europe and there are none of widely recognized patterns in addressing sustainability work by retail organizations. Implementation of environmental initiatives depends on national history of dealing with sustainability issues, country specific agenda and favourable regulatory environment, as well as how retailers perceive their market power to drive environmental initiatives (leaders vs. contributors) (Forum for the Future 2009).

3 DRIVERS AND BARRIERS FOR RETAILERS' ACTIONS TO GREEN FOOD SUPPLY CHAINS

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Retailers operate in a highly dynamic and competitive environment and face a number of challenges and risks associated with greening their supply chains. In order to understand forces towards/away sustainable food chain practices drivers and barriers that retailers experience in their daily activities need to be examined. Current body of literature provides a substantial list of drivers for retailers to enhance their environmental work along supply chain (SDC 2007; Smith 2008; Seuring and Muller 2008a; BIO Intelligence Service 2009; European Commission 2009; Forum for the Future 2009):

- *Corporate image and credibility* are important for better business performance especially in the current climate of increasing awareness in society about environmental and sustainability issues.
- *Preservation of the brand name* by offering eco-brands is a strong driver due to the growing green segment of consumers and the perception that ecological products are better for health compared to the ordinary goods.
- *Long-term economic savings* based on improvements in eco-efficiency (e.g. energy, fuel, water) might be a significant motivating factor in addressing environmental performance along supply chain.
- *Scientific alerts* on environmental impacts of food products rises awareness among retailers and consumers and help prioritise the 'hotspot' areas.
- *Environmentally conscious consumers* facilitate sustainability agenda among retailers by generating demands for greener products.
- *Regulatory environment* is also important in improving industry sustainability performance. Waste and energy regulations in Europe significantly contribute to wide proliferation of waste and energy management schemes among retailers. Expectations of carbon management regulations initiate actions to reduce GHG emissions by companies.
- *The opportunity to enter green markets* by offering green products. Increasing consumer value by offering healthier and more environmentally sound food creates a competitive business edge and meets demands of the growing number of green consumers.
- *Media support for sustainability* and risk of negative media exposure creates the case for addressing environmental issues along supply chain.
- *Availability of environmental technologies* leads to cost savings and positively contributes to environmental performance of retail industry.
- *Open business culture* implies trust and stronger relationships among actors along supply chain. This allows overcoming variety of organisational barriers and putting mutual effort in addressing sustainability what lead to number of synergies and therefore better results.

Following barriers hinder implementation of environmental initiatives by retailers:

- *Internalisation trends* (Seuring and Müller 2008b; Sandberg 2010) lead to more global and complex structure of food supply chains, which makes it more difficult to introduce and implement environmental changes on the global scale. On the other hand, it is also unclear whether global retailers have a business case to act locally.

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- *New popular store formats* - discounters, hypermarkets – may imply lower sustainable standards, e.g. poor input tracking, lower intrinsic quality, and long supply chains due to lower prices at discount outlets (ETC/SCP 2010). Hypermarkets, as they have lots of product lines, face more complexity in prioritising and managing sustainability issues (BIO Intelligence 2009).

- *Store size* has implications for incorporating sustainability agenda by retailers. Small shops "will have fewer store level opportunities, due to space restrictions and the potential difference in shopping behaviours that can result" (Forum for the Future 2009).

- *Influence of stakeholder interests*, e.g. shareholders, or *internal business priorities* of retailers (e.g. marketing goals and cost benefit issues) that are not always aligned with environmental priority areas (SDC 2007; ETC/SCP 2010).

- *Cultural background* can hamper greening supply chains. For instance, in France, "measures in the resource intensive product chain of dairy products might be more difficult to apply due to the sector's strong connection to the country's cultural identity" (Kanyarushoki, Fuchs et al. 2008).

- *Low environmental awareness* in society also slows the acceptance of environmental initiatives undertaken by retailers (SDC 2007; Smith 2008).

- *Lack of common approach and scientific evidence base* to identify priority areas of environmental improvements is found to be one of the barriers for retailers to initiate environmental work in supply chains (SDC 2008; ETC/SCP 2010).

- *High financial costs* associated with environmental certification and production of greener products has also been named as a barrier (Bergstrom, Soler et al. 2005; UNEP 2005).

During pilot interviews with Swedish retailers, among the factors that influence introduction of sustainability initiatives and sustainable sourcing in particular, business-case, consumer awareness and consumer uptake of eco-products where mentioned as the most important ones (CSR Manager 2011; Robertsson 2011; Smith 2011). In the study on use of environmental information by food purchasing companies in Sweden which also include overview of retail practices, Bergstrom (Bergstrom, Soler et al. 2005) has revealed that environmental considerations in purchasing decision-making are influenced by financial realities. Sustainable sourcing policies "are not specifically scientifically formulated or based on life cycle assessments. They do not take precedence over traditional economic aspects. Other criteria are valued more highly, for example price, on-time delivery and food quality" (Bergstrom, Soler et al. 2005: 315). Additionally, during the interviews lack of technical competence such as thorough knowledge of food manufacturing practices and product recipes was highlighted as one of the challenges to implement sustainability initiatives towards greening upstream supply chain (Robertsson 2011).

4 EXAMPLES OF 'BEST PRACTICES' AMONG EUROPEAN RETAILERS

A great variety of retailers' initiatives can be found in supply chains. It is therefore useful to systematise them by their position along supply chain: upstream from the retailer, in-house activities of retailers and downstream activities (ETC/SCP 2010).

4.1 UPSTREAM INITIATIVES

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Upstream initiatives target the environmental impacts of suppliers and products before they reach the store. They can include demand and/or collaboration with suppliers on reducing the environmental impacts of their activities and products; sourcing products with lower environmental impacts (e.g. local and organic) or editing out products with high environmental impacts.

4.1.1 GREENING SUPPLY CHAINS

In recent years European retailers started to be active in imposing food sustainability requirements upstream their supply chains (Forum for the Future 2008; BIO Intelligence Service 2009). The retail practices of greening supply chains can take various forms. These can include requirements and/or collaboration with supply companies to decrease associated environmental impacts; sourcing products with lower environmental profiles (e.g. local and organic) or phasing out products with high environmental impacts (Chkanikova and Mont 2010). Among the issues that have received widespread attention among retailers are food safety, animal welfare, local produce and ethical trading (human rights, social welfare and fair trade standards) (Jones, Comfort et al. 2005a).

General practice among EU forerunners is to develop private codes of conduct and evaluation procedures to ensure sustainability of products and suppliers manufacturing processes, e.g. **TESCO, MIGROS, REWE group, Carrefour, M&S, ASDA WalMart, ICA** and **COOP** in Sweden (Johnson 2004; BIO Intelligence Service 2009; ETC/SCP 2010; European Commission 2010; European Retail Round Table and EuroCommerce 2010). These codes are usually applied to the products claimed as 'green'. Being internally developed sustainability requirements vary from shop to shop and refer mainly to first-tier suppliers. However, some retailers as **Kesco** and **M&S** target to cover more business partners upstream the supply chain, e.g. contractors and subcontractors(StorebrandInvestments 2003).

Among the most successful examples of sustainable sourcing initiatives is the case of M&S retailer. In 1999 it has launched a global sourcing strategy that covers variety of environmental and social issues. As part of initiative, **M&S** takes part in Ethical Trading Initiative (ETI) that is organized by business partners, trade unions and, NGOs and trade unions. The approach behind sustainable sourcing is developing, rather than controlling supplier practices. Implementation of Global Sourcing principles is a must for existing suppliers and considered as "entry" requirement for establishing new business relationships. Among sourcing issues addressed are employment, work safety, environmental protection, correct product labelling. Both internal **M&S** Global Sourcing Principles (GSP) and ETI Base Code are adopted as approaches to sustainable sourcing (second stage of compliance). If GSP are considered as first stage compliance, compliance with international standards of ETI Base Code are considered as more advanced practices (Johnson 2004).

The capacity building of **M&S** supplier base to effectively meet sustainability requirements includes creation of supplier benchmarking groups to address local problems and issues, as well as to share best practices. Such groups are formed in Egypt, Israel, Morocco, Indonesia etc. and have assigned local chairperson. To further disseminate successful practices and grow expertise, supplier conferences are organized together with publishing Global Sourcing Principles Implementation Manual (Johnson 2004).

Carrefour Quality Lines include various sustainability guidelines with which suppliers have to comply. For instance, in regard to waste guidelines, suppliers are expected to decrease packaging and increase packaging recyclable content by 10% and 75% correspondently until the year of 2013 (CSCP and UNEP DTIE 2009) Additionally, C**arrefour** is involved in helping its SME suppliers to improve sustainability performance. With this purpose the supplier auto-evaluation toolkit ("self-assessment on sustainable development") was developed by the Group. This tool is already applied to the French suppliers and implementation towards suppliers of private label products in other EU

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countries was planned in 2010 (European Retail Round Table and EuroCommerce 2009). In 2007 about 212 suppliers have used the self-evaluation tool. Different issues of sustainability are covered and supplier can get the points from 1 to 4 on each of criteria. However, the toolkit serves mainly for the pedagogical purpose by providing relevant instructions on how suppliers can improve their sustainability performance. To monitor weather supplier provide credible information during self-evaluation process, site visits and check ups are conducted by Carrefour, together with provision of advice for improvement (BIO Intelligence Service 2009).

TESCO's guidelines for suppliers are elaborated on the basis of BRC (British Retail Consortium) Consumer Product Standard (CSCP and UNEP DTIE 2009). The Consortium of British Retailers in UK has introduced harmonized BRC standard in 1996 to ensure food safety requirements in regard to own-brand manufactured products. The BRC audits are not conducted by retailer's themselves and managed by third-party certification bodies, with suppliers bearing associated certification costs (BRC Global Standards 2011). Additionally, **TESCO** has launched "Nurture Scheme" which is applied to 15,000 international agricultural suppliers and includes variety of criteria on energy efficiency, soil management, sustainable farming practices etc. Sustainable Technology fund of £100 million has been allocated to favour alternative energy (solar and wind) suppliers. SEDEX (Supplier Ethical Data Exchange) platform is used to evaluate and monitor supplier compliance with ethical standards (CSCP and UNEP DTIE 2009)

John Lewis Partnership (JLP) includes such British retailers as **Waitrose, John Lewis** and **Greenbee**. It has Responsible Sourcing Programme according to which suppliers are continuously monitored to meet environmental management standards, as well as required provisions on labour and working welfare. The supportive information on how to meet and exceed these standards is available. To ensure better understanding of ethical sourcing and Codes of Practice, Responsible Sourcing Workbook was recently introduced. Additionally, direct helpdesks and manuals are designed to assist suppliers with SEDEX (Supplier Ethical Data Exchange registration), as well as supplier events (seminars and workshops) are organised to contribute to knowledge and awareness rising. In 2007, in cooperation with Forum for the Future, the Sustainable Construction Framework was launched to ensure that sustainability principles are incorporated at planning, design, and operational issues of retailer's buildings (Forum for the Future 2008).

During the pilot interviews conducted, when talking about sustainable sourcing practices, respondent at **ICA** were mentioning adoption of Global Food Safety Initiative (GFSI) standard (Smith 2011). Currently eight out of ten own-brand suppliers at **ICA** are certified according to GFSI. Also, **ICA** suppliers of fruits and vegetables, as well as subcontractors, follow the Euro GAP (Global Agricultural Practice) protocol to ensure good agricultural practices. Both GFSI and GAP standard are examples of private governance mechanisms developed by international retail groups and aiming to enhance quality of food products to gain consumer trust (Burch and Lawrence 2005). Developed mainly with purpose to ensure compliance with food safety requirements, these standards nevertheless adhere to variety of sustainability concerns. For instance, Euro GAP standard addresses minimization of environmental impacts associated with farm operations, e.g. reduction in chemical usage, animal welfare, as well as covers such social aspects as farmers health and safety (Chkanikova and Kogg 2011).

Sainsbury's has introduced 'Farm Promise' scheme to support market transformation towards British sustainable & organic dairy sector. It covers associated conversion costs, guarantee post conversion contracts, ensure price premium for products meeting sustainability standards. Sainsbury's Dairy Development Group has four sustainability priorities: farm efficiency, animal welfare, rural care and industry collaboration improvements. The initiatives under this focus include support for herd management support and farm related CO2 emissions reduction. Also, 'Farm connection' scheme was established to deliver different trainings to address lack of IT skills among farmers engaged in British beef and lamb production (Forum for the Future 2008). This example of

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Sainsbury's dairy initiative demonstrate that retailer has recognized the importance of supporting suppliers in transition period, rather than just stocking shelves with available green produce.

TESCO and **WalMart** are parties to Supply Chain Leadership Collaboration that has been launched in 2007 by the Carbon Disclosure Project. It aims to bring retailers and suppliers together to indentify potentials for improvement/innovations to manage down carbon footprint (and Cadbury are parties to Collaboration). One of the objectives is also to contribute to standardized reporting procedures (Forum for the Future 2008).

To ensure that suppliers actually follow sustainability requirements in their daily operations, verification of compliance is required. This could be done by conducting own audits and check-ups against sustainability requirements and/ or requiring accreditation by third-party (Johnson 2004; Havinga 2006; BIO Intelligence Service 2009).

For instance, **M&S** together with requiring internal audits from direct suppliers, demand annual independent check up of 5% of manufacturing facilities. Third-party verification accounts for 20 due-diligence audits per year. In case of non-compliance evidences, penalty sanctions could be applied involving cease in trade or even order cancelling. However, due to diligence audits are applied with main aim to create "problem-solving forums", where retailers and suppliers discuss issues of how compliance could be achieved and surpassed. The idea behind is to inform suppliers about potential operational risks and facilitate learning process (Johnson 2004).

Some retailers have developed private quality assurance schemes (British **TESCO**, **Sainsbury, M&S, Somerfield** and Dutch **Albert Heijn**), asking suppliers to join the network and conducting unexpected check-ups at plants, farms and gardens to monitor guidelines (Havinga 2006; Yates 2008; ETC/SCP 2010).

Waitrose were committed to have 100% of fruits and vegetables, and horticulture supply certified according to LEAF (Linking Environment and Farmers) accreditation scheme by 2010 (Forum for the Future 2009).

COOP Scandinavia carry out the supplier audits as well as provide audit-related help for EU suppliers from Aranea and non-EU suppliers from IFOAM-accredited organisations (Frisk 2008). During interview with CSR manager from **COOP** Sweden, respondent has mentioned department within organization which is responsible for conducting supplier monitoring and audits (Robertsson 2011).

Respondent from **ICA** also referred to visiting and auditing suppliers in high-risk countries (Smith 2011). **ICA** has established regional sourcing offices in Asia to conduct verification of compliance actually on-site. System with third-party audits has been developed by **ICA** to verify that Swedish pork industry complies with animal welfare standards.

In case of **Morot & Annat's**, the store specialized in selling only organic food products in Sweden, retailer is working exclusively with KRAV scheme, that is third-party control agency dedicated to verifying compliance with organic standards from cultivation to delivery of food to end-customer (Chkanikova and Kogg 2011). Among other official third-party accreditation schemes used by food retailer's to ensure compliance with sustainability standards is aforementioned British Retail Consortium (BRC) Standard certification applied by most of retailer's in UK and the Netherlands (Havinga 2006).

4.1.2 LOCAL SOURCING INITIATIVES

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Local sourcing initiatives aim to reduce food travel distance and support local farmers and food producers. Many retailers focus on provision of local food supply when it is a feasible option.

By 2007 **ASDA** was committing to work with over 300 local suppliers and provide about 3500 local products in its assortment (Paulavets 2008). **ASDA** works towards cutting 3 million 'food miles' per year. Pilot food delivery scheme was tested in Cornwall were farmers were delivering products to stores directly, avoiding use of distribution centres. This contribute to minimization of negative transportation impacts on environment and provision of as fresh products as possible to the end consumers.

Some of **Morrison's** vegetables (carrots, cauliflower, broccoli) are 100% sourced locally when available in season. Other veggies as onions, mushrooms and potatoes are 90% derived from local farmers in UK when in season. Since 2007 **Morrison'**s is committed to ensure, that fresh pork available in all its stores is delivered from British producers (Paulavets 2008).

Sainsbury's (UK) sells locally delivered 100% of organic meet, poultry, fish, eggs and milk, as well as apples and tomatoes when available in season (Paulavets 2008).

TESCO (UK) is also active in promoting products from British farmers. The examples of locally sourced items are fresh chicken (90%), beef (95%), pork (92%), lamb (80%), as well as up to 100% of fresh milk and eggs. The privately developed labels apply to fresh meet and farmhouse cheese, informing consumers about product provenance. Also, Tesco is part of the Red Tractor labelling scheme according to which animal welfare, environmental, food safety and hygiene standards are properly maintained. Only UK farmers are eligible to join the scheme. Additionally, as **TESCO** supports local organic farmers of meat, milk and in-season fruits and vegetables, aiming to source up to 100% of these products locally (Paulavets 2008). Moreover, **TESCO** is committed to source locally on the international scale, ensuring access of farmers to supermarket supply chain and actively promoting local produce not only in UK but also in Thailand and Poland (Jones, Comfort et al. 2005b)

Waitrose (UK) source up to 100% of meat (beef, pork, venison, chicken, duck and geese) locally and ensure that 85% of bacon is delivered from British farmers. The company strategy focuses on localization rather globalization of supply, thus taking responsibility towards thriving agricultural sector in UK. Private labels are developed to mark local/regional food items (Paulavets 2008).

Somerfield (UK) has a well-established policy to locate local and regional supplier. According to Jones, Comfort et al. (2005a), the retailer sell more than 2,000 local lines and labels, namely beef, pork and meat products that are identified with farm of origin.

According to the study of 8 UK retailers (Yates 2008), supermarkets as **Somerfield, Co-op** and **Morrison's** had the highest share of in-season local products (80%, 76% and 71% correspondently). However, all surveyed supermarkets still offer imported products in their assortments even when the local produce was available.

Delhaize Group actively promotes sales of in-season fruits and vegetables. **Delhaize** Belgium and Alfa-Beta gives preference to work with regional producers (65% of suppliers are local) (European Retail Round Table and EuroCommerce 2009).

As result of shifting consumer's preferences towards high quality and locally produced food, **Unico-op** supermarket in Firenze (Italy) has introduced local sourcing initiative as part of corporate business strategy. Since 1999 it collaborates with Agency for Research and Innovation in Agriculture and Forestry (ARSIA) that is landing funds to

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promote sales of food items of local origin. Around 18,2% of product assortment in **Unico-op** Firenze is delivered locally from the Tuscany region (Paulavets 2008).

Swedish supermarkets **COOP** has held the campaign in collaboration with the Association of Swedish pork producers to promote sales of locally produced pork. The campaign's objective was to communicate to consumers about high quality of Swedish pork meat and production processes, thus influencing purchasing decisions to buy local meat produce (the messages used were: "Swedish pork meat is of best world quality", "Swedish pigs are good for Sweden" etc.). The campaign was conducted during the whole year of 2007 and was sponsored by Swedish farmers association (Paulavets 2008). **COOP** in Sweden has also started collaboration with LRF (Farmer's Association) since 2008 and established new regional organisation to track more local suppliers and ensure availability of their produce in all **COOP** supermarkets in Sweden (Frisk 2008). British Coop has increased the share in-season vegetables from 55% to 76% in 2007 (Yates 2008).

To locate local suppliers, **ICA** has developed a system called "Smak på lokalt". It eases access of small local farmers and producers to 1400 of **ICA** stores. Locally produced products as cheese, meat, both raw and processed, as well as fruits and vegetables are available at **ICA'**s assortment (ExpertSystem 2011).

Axfood in Sweden is also actively looking for local suppliers (Axfood 2001).

4.1.3 EFFICIENT DISTRIBUTION SYSTEM

To address environmental impacts derived from product transportation following initiatives are generally used, e.g. optimizing transportation efficiency, switching towards less polluting transportation modes, reusing/decreasing transportation packaging etc (BIO Intelligence Service 2009). However, these activities are not yet implemented to a significant degree (BIO Intelligence 2009). Training in eco-driving is also among the measures to decrease environmental impact from transportation (CSCP and UNEP DTIE 2009)

Carrefour in France has saved 14,300 tonnes of carbon emissions through avoiding 43,800 trucks on roads as result of transportation optimisation measures in 2009 (ERRT and EuroCommerce 2010). These measures include improved efficiency in truck filling, delivery rounds and backhauling, as well as alternative modes of transportation. For instance, in 2009 **Carrefour** aimed to increase the river deliveries to 45% for imported French goods. The carbon emissions from warehouses to stores is carefully tracked (European Retail Round Table and EuroCommerce 2009).

In 2009 British **ASDA WalMart** have achieved good results in cutting fleet associated CO2 emissions by 40% compared to the year 2005. This was obtained within the frames of 'Fewer and Friendlier Road Miles' plan, which represents a combination of network and technological decisions (ERRT and EuroCommerce 2010). **ASDA**'s measures in transportation management include giving preferences for freight forwarding by train (friendlier miles initiative) and bio-diesel trucks (Paulavets 2008).

Delhaize Group in Belgium has implanted actions towards distribution system optimization, through combined store deliveries what allows to decrease empty backhauling and eventually resulted in 2 million kilometres travel reduction in 2007 (European Retail Round Table and EuroCommerce 2009). Additionally, truck delivery distances from distribution centres to stores were reduced to 167 million kilometres in 2009 (compared to 176 million kilometres in 2008). New design of trucks and incentives to promote eco-driving are also implemented to decrease transportation related CO2 emissions (ERRT and EuroCommerce 2010).

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Through collaborative effort of aligning distribution networks, retailers can achieve substantial efficiency improvements. For instance, over 500,000 'empty' miles were avoided through only one of such deliveries collaboration between Unilever and **TESCO**. The collaboration between companies obviously requires high level of trust and an effort to overcome the organizational barriers, but eventual result of environmental improvements through distribution synergies could be substantial (Forum for the Future 2008)

Migros shops can be supplied only by trucks and trains. The aim is to increase the share of deliveries made by trains. Central shops have direct access to the rail road. In Tessin, the supply is ensured mainly by train (BIO Intelligence Service 2009).

Monoprix uses trains and CNG (compressed natural gas) vehicles for the products distribution in Paris. Since 2007, 210,000 pallets of 120,000 tonnes are transported each year by rail (from distribution centres in Combs-la-Ville and Lieusaint to Parisian railway station Gare de Bercy). Then the goods are delivered by CNG powered trucks with installed anti-noise equipment directly to Parisian stores. The CNG **Monoprix** fleet is the largest in France among private CNG vehicles park used for distribution purposes. As result, about 10,000 trucks entering French capital are avoided each year. According to preliminary estimations, this new distribution system allows savings of 19 tonnes of NOx and 280 tonnes of CO2 annually. River transportation for large volume deliveries is used by Monoprix from the Port of Le Havre to warehouse facilities in Combs-la-Ville (Grenelle Environnement 2008).

TESCO uses company train called Tesco Express instead of lorries for products distribution. It also starts to introduce the park of electric vehicles (CSCP and UNEP DTIE 2009). It was the first British company to use battery-powered vans for home deliveries which are charged overnight and allows saving of 21 tonnes of CO2 per year, that is equal to reduction of 51,000 miles (BIO Intelligence Service 2009). Recently 795 new Iveco light vehicles were introduced to the Tesco's home delivery fleet what includes 25 gas powered vans (EcoDailys) running on compressed biomethane (CBM). This pilot project is testing the use of natural gas vehicles and in case of success it might substantially influence the **TESCO**'s future transportation policy (IGD 2011a)

Since 2008 **COOP Sweden** started to cooperate with GreenCargo to implement transportation shift from trucks to rails where trucks are put on special **COOP** trains. According to estimations made, the solution allows 10% of carbon savings that is equivalent to 8,000 of CO2.

In order to decrease noise pollution, **Albert Heijn** was implementing pilots with "whisper" delivery trucks in 2007. As feedback of such testing was very positive, it aimed to make all store deliveries by "whisper" type trucks by 2010. Avoiding deliveries during rush hours allows saving up to 60% of driving time and therefore reduction in amount of burned diesel and carbon emissions (European Retail Round Table and EuroCommerce 2009).

Sainsbury's is planning to use lorries that run on the methane gas produced from landfill waste. It also aims towards 20% of electric vans in its online delivery vehicles park (IGD 2011b).

Axfood, Sweden has introduced a financial bonus system for truck drivers if they reduce the use of diesel fuel during transportation (Domeij 2008).

Since 2007 British **TESCO** and **M&S** have initiated private food labelling to mark air freighted products. For instance, **M&S** marks around 150 different food items by aeroplane symbol and words 'air freighted' by the end of 2007 (initially covered only 20 items) (Paulavets 2008). Tesco also uses an airplane tag and plans to allow only 1% of air imported products in its assortment to grand sourcing support to developing countries (Paulavets 2008).

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Metro reuses transportation packaging for fruits and vegetables and gives preference towards recyclable packaging materials. Strong cooperation occurs between retailers and suppliers to decrease waste and minimize packaging. Reusable containers are used by **Metro** Group in Germany to deliver own brands, e.g. containers for flowers, boxes for fruits and vegetables, freezer boxes. Among the recent innovations are folding plastic crates for fruits and vegetables that are reusable and correspond to internationally agreed standards. The results of undertaken efforts is decrease of 11% of wastes (from 52 to 46.2 kilograms[1]) created per sales square meter between 2005 and 2007 (CSCP and UNEP DTIE 2009).

El Corte Ingles in Spain has replaced cardboard boxes with returnable packaging for its home deliveries. The 2008 target aimed to introduce this packaging solution in 90% of its stores (European Retail Round Table and EuroCommerce 2009).

The organic certification body Bio-Suisse (Switzerland) was exploring on opportunity to include the local sourcing principle and transportation criteria in existing eco-labelling procedures. As result, organic labels are now including the information on origin of raw materials used in the product, thus pointing out the issue of 'food miles' to consumers. The label itself would look differently depending on the provenance of raw materials (produced locally or imported from abroad). For instance, Bio Suisse Bud label is awarded to organic products manufactured in Switzerland, i.e. over 90% of raw materials produced within the country. Just Bio Bud label, without mentioning Suisse, marks that while product is organic over 10% of raw materials are sourced internationally (Paulavets 2008). Moreover, air forwarded products are not eligible for Bio Suisse certification. The preference is given to products transported by land or sea from nearby countries. Some fresh produce as fruits, vegetables, and herbs are restricted for Bud label awards, except from Mediterranean countries or if domestic supply can be proved as insufficient due to climate reason. Also, fruit juice and frozen food is not eligible for certification under Bud labels (Paulavets 2008).

4.1.4 ECO-DESIGN OF PRODUCTS

The majority of European retailers studied in the Bio Intelligence report (2009) work on eco-design of their own-brand product packaging. Reducing packaging size and weight is popular, as it is linked to economic savings associated with material efficiency and logistic optimization (BIO Intelligence Service 2009). However, some **Carrefour** supermarkets deploy available LCA reports to identify the areas along product supply chain where major environmental improvements are needed ('hot spots'). Based on this information, certain environmental considerations are integrated into different product specifications (BIO Intelligence Service 2009).

According to report on Retailer's Environmental Action Programme (ERRT and EuroCommerce 2010), **ASDA WalMart** has achieved the reduction of own brand packaging by 27%. Similarly, **Auchan** in France have saved about 8,900 tonnes of packaging materials in period from 2004 to 2009 (ERRT and EuroCommerce 2010).

Albert supermarket in Czech Republic (Ahold's subsidiary) is replacing PVCs in packaging with greener materials. In collaboration with Czech environmental organization Arnika, PVCs were substituted with polyethylene material in packaging for all fresh red meat under AH Quality brand (European Retail Round Table and EuroCommerce 2009).

[1] http://www.metrogroup.ro/servlet/PB/menu/1150470/index.html

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French **Carrefour** Group has worked with own brand packaging optimisation over last decade. The Group Packaging Standard was introduced in 2007 as guidelines of best packaging practices for suppliers. According to the Standard, single-material packaging is prioritised as its recycling is easier, as well as use of recycled and recyclable materials is favoured (like recycled PET) (BIO Intelligence Service 2009).

In the similar vein, **Kesco** in Finland provides eco-design guidelines for its suppliers related specifically to packaging minimization (Bio Intelligence 2009).

Unicoop shops in Firence and Tirreno, which are Italian Coop subsidiaries, have introduced an innovative system for detergents distribution in 2006. The reusable bottles are provided for customers to refill with different liquid detergent types by use of dispensers. This new refilling system of detergent distribution allows significant savings of energy and water as well as CO2 emissions reduction. Its implementation was also planned in other supermarkets in Piacenza, Parma and Mantova in 2008. Nowadays, the system is in place at 7 hypermarkets and 3 supermarkets of **Novacoop** (BIO Intelligence Service 2009).

Italian supermarket **CRAI** has introduced similar distribution system for dry food like rice, pasta, cereals, nuts, legumes, spices, sweets and coffee. The initiative was launched together with non-profit organization Planet Life Economy Foundation (which goal is incorporation of eco-friendly practices in business sector). The 'Eco Point' initiative aims to promote the sales of bulk products with minimal use of packaging. The consumer benefits of new distribution scheme by means of dispensers are: shopping only the amount necessary, financial saving in the range of 10% - 70% in comparison to packaged goods, environmental improvements. Moreover, Eco Point sections include pet food, washing detergents (laundry and dishwashing). The biodegradable bags in case of dry food and reusable containers for detergents are available for consumer use. According to estimations, in total 30 Eco Points established in supermarkets in Italy and Switzerland have resulted in 1 million of packaging prevention per year (CRAI 2009).

4.1.5 CHOICE EDITING

Choice editing comprises actions to ban from the shelves products with high environmental impacts (BIO Intelligence Service 2009). The summary of examples of choice editing activities is represented in Table 1.

According to BIO Intelligence Service report (2009), 10 of 13 surveyed food retailers have decided to edit out products with high environmental impact form their assortments (**REWE** Group, **Metro, Mercadona, Migros, M&S, Carrefour, Ahold, Asda, Kesco, Coop Italy**). Mercadona, for instance, put ban on PVCs in packaging (BIO Intelligence Service 2009).

Kesco banned sales of bluefin tuna as endangered species, so did **Carrefour** in Italy and Spain. However, in France Carrefour's policy in regard to this fish species is limited to reduction in sales (BIO Intelligence Service 2009). British **ASDA WalMart** has made the commitment to provide only sustainable fish in its stores assortment by the end of 2010 (ERRT and EuroCommerce 2010)

Purchase and sales of GMO-containing products are stopped by **M&S** since 1999, as well as COOP Scandinavia. Carrefour also prohibit GMOs in own brand products (UNEP 2005; Frisk 2008; BIO Intelligence Service 2009).

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Table 1 Choice editing activities

Areas of choice editing	Examples of retailers
Only sustainable fish	• **ASDA Walmart** is now on the track to ensure that 100% of fish is sustainably sourced by the end of 2010. • **Kesco (Finland)**, **Carrefour (Italy and Spain)** stopped sales of bluefin tuna • **COOP Sweden** ban on the fish from beam trawling • **Dansk Supermarked** - from 2012 all fish sold will be MSC certified • **Axfood (Sweden):** fish and shellfish on red list of WWF is edited out
Only healthy eating ingredients	• **M&S, Coop Sweden:** removal of artificial colours and flavourings
Only animal welfare products	• **M&S, COOP Sweden (COOP Konsum and Nara):** only free ranged eggs (no eggs from caged chickens)
No GMOs	• **M&S** • **COOP and Axfood** Sweden • **Carrefour** • **COOP Skandinavia**
No PVCs in packaging	• **Coop and Axfood Sweden**, • **Albert, Czech**: replace PVCs in packaging with greener materials • **Mercadona, COOP Denmark**: ban PVCs in packaging
No hazardous chemicals	• **M&S, Coop Sweden:** removal of artificial colours and flavourings
Only sustainable certified palm oil	• **Sainsbury's** and **Asda** are planning to phase out unsustainable palm oil in regard to own brand products

Source: Compiled from (UNEP 2005; Jones, Comfort et al. 2005a; Forum for the Future 2008; Frisk 2008; Paulavets 2008; BIO Intelligence Service 2009; ERRT and EuroCommerce 2010).

Swedish **COOP** applies product policy which defines what type of food can be sold in its stores. In case of availability of environmentally-friendly alternative of good quality and reasonable price, the conventional alternative is abandoned. This principle is applied to bananas in **COOP** *Konsum* and *Nära*, as well as to in season beetroots and yellow pees. Caged chicken's eggs are phased out and substituted with eggs from free ranged chickens in **COOP** *Konsum* and *Nära.* The decision not to sell white veal, goose lever and eel has been also made by COOP in Sweden (Frisk 2008). The policy to preserve marine resources is also adopted by Swedish **COOP**. Beam trawled fish is prohibited as well as endangered species, and sale's targets for sustainably sourced fish are established (Forum for the Future 2008).

With purpose of promoting healthy eating **M&S** implements ingredient choice editing by restricting artificial flavourings and colours in food products. To ensure ethical treatment of animals, only free range eggs are available since 1997. Although, these practices are not unique in the retail industry, **M&S** is among obvious leaders in sustainability field (Forum for the Future 2008)(Jones, Comfort et al. 2005a).

Sainsbury's was the first retail in UK that has started to sell products with certified palm oil in its content in May 2008 (Forum for the Future 2008). **Sainsbury's** and A**SDA** aim towards editing out unsustainably sourced palm oil in it its own-brand products (Forum for the Future 2008).

4.1.6 IMPROVING ENVIRONMENTAL QUALITIES OF FOOD.

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Measures to improve environmental qualities of food relate to retailers initiatives to provide organic products, reduce pesticide use, as well as make sustainable fish and Fair Trade products available in their assortment (BIO Intelligence Service 2009; European Commission 2010). Some retailers have created their own green labels of private brand products. One of the associated difficulties perceived by retailers in regard to green product is their higher price compared to conventional products and lower economy of scale. This is explained by more expensive production processes and certification related costs(BIO Intelligence Service 2009).

Retailers as **M&S, Waitrose, ASDA, TESCO, Carrefour, FCD** French Retail Federation, are committed to increase sales of organic products (Yates 2008; BIO Intelligence Service 2009; European Retail Round Table and EuroCommerce 2010).

For instance, French Retail Federation **FCD** has reported the increase of more than 20% in sales of organic products in 2009, what exceeded the 15% commitment made. Altogether **FCD** hypermarkets and supermarkets have sold about 45% of all organic food products sales in France, compared to 40% in 2008. An increase of 50% - 70% in sales of organic products has occurred in some stores belonging to FCD Group (ERRT and EuroCommerce 2010).

The amount of organic and LEAF-certified products offered at **Waitrose** shops has grown from 19% to 23%. Share of organic assortment has increased from 16% to 20% in **TESCO**, and from 10% to 18% in **ASDA** shops in 2007 (Yates 2008).

REWE Group together with independent Austrian environmental organization 'Global 2000' have managed to decrease the pesticide use in supply chain by a quarter (Fruitnet 2010).

According to Retailer's Environmental Action Programme report (ERRT and EuroCommerce 2010), **Carrefour** in is one of the leading retailers in France when it comes to sustainability, with high share of sales in organic and fair-trade categories, and widest range of sustainable fish products (26 references). Average cost of organic products in **Carrefour** supermarkets is 25% less compared to specialist stores. The turnover of fair-trade products (textile is not included) in 2010 makes up EURO 70 millions (ERRT and EuroCommerce 2010). Stable growth in sales of own eco-brands is observed, as well as first volumes of sustainable certified palm oil products are put on the shelves. The commitment is made to use only RSPO certified palm oil in own manufactured brands by 2015 (ERRT and EuroCommerce 2010) .

Co-operative Group in UK is one of the leaders in launching 'Fair trade' ranges of products, which include tea, coffee, chocolate, cakes, fruit, fruit juices and wine, accounting for 20% of the market of 'Fair trade' products in UK (Jones, Comfort et al. 2005a)

Somerfield has launched the range of 'Fair Trade' products in 2003 in order to secure that small scale producers are paid a fair return. The range includes tea, coffee, chocolate, bananas and pineapples (Jones, Comfort et al. 2005b)

According to study of British retailers, when it comes to fair-trade fruits, their shares of assortment are highest at **Sainsbury's** (10%), following by **Co-op** and **Morrison's** (6% each), **TESCO** (3,5%) and **Somerfield** (2%) (Yates 2008).

According to data from Swedish Statistics Bureau (SCB), the share of organic products in total food sales accounts for 3,4 % in 2008, that is a 0,8% increase compared to the 2007 and 1,6% compared to 2004 (Wallman and Wikstedt 2010). The most impressive growth has occurred in sales of organic fish, e.g. from 0,3% to 3,0% (Wallman and Wikstedt 2010). In general, the sales of organic products have has risen significantly more compared to increase in share of organic products in retail assortment, what reflects consumer preferences of green products.

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Swedish retailer's **ICA** and **COOP** has expressed the commitment to provide its customers with wide range of eco-products. Among these are retail private eco-brands, e.g. 'I love eco' (ICA) and Änglamark (COOP) (Robertsson 2011; Smith 2011). During the last year ICA has launched about thirty products under own organic label, and five private label Fair-trade products where launched in 2009. The line of organic products includes about 680 products in Sweden, and nearly 280 and 50 products in Norway and Baltic states correspondently. The total range of Fair-trade products accounts for 90 products in Sweden, more than 30 products in Baltic countries and nearly 30 products in Norway (ICA 2011).

4.2 IN-SHOP

4.2.1 GREEN DESIGN OF BUILDINGS AND FACILITIES

Green procurement practices for buildings are at an experimental stage for most retailers. In general, measures to green the stores include installation of technical hardware such as heat pumps, solar panels and wind turbines to save energy or generate own green electricity (BIO Intelligence Service 2009; European Retail Round Table and EuroCommerce 2009; European Retail Round Table and EuroCommerce 2010). According to BIO Intelligence report, none of the retailers studied had systematic environmental requirements for new buildings or renovations (BIO Intelligence Service 2009).

With commitment to reduce carbon footprint by half by 2020, **TESCO** plans to install wide range of available renewable energy technologies, e.g. PV panels, wind and biomass turbines, combined heat and power plants (CPH) and ground source heat pumps[2] (CSCP and UNEP DTIE 2009).

In 2008 **REWE** Group was also planning to double the amount of solar electricity generated across the Group by placing PV panels at the roofs of warehouse facilities, both planned to be built in Baden-Württemberg and Cologne, and existing ones in the Czech Republic (Fruitnet 2010)

The first supermarket that produced solar energy in France was **Super U** in Thouars**.** Opened in 2007, it generated 100,000 kWt of electricity by means of 2,000 square meters of PV panels installed at the store's roof (Grenelle Environnement 2008).

ICA Sweden has installed solar panels at its ICA Maxi store at Västerås, which covers an area of 300 square meters. According to the estimations the solar electricity that can be generated on site accounts for 25-50 megawatt hours per year. The project evaluation was planned at the end of 2009, with consideration of further expansion to 1 million square meter of solar panels at available roof space (European Retail Round Table and EuroCommerce 2009).

M&S has collaborated with BRE (Building Research Establishment) to improve store related eco-specifications. As result, the developed standards were applied during construction process of three **M&S** supermarkets. The associated environmental improvements are reductions in energy use by 25% and CO2 emissions by 50% annually.

[2] http://www.tescocorporate.com/plc/corporate_responsibility/local_communities/our_stores/ and http://www.igd.com/CIR.asp?menuid=153&cirid=2775

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Two more M&S eco-shops are in the pipeline. Around 60% of innovative eco-technologies utilized in these green shops are planned to be installed into other existing M&S supermarkets (BIO Intelligence Service 2009).

Carrefour has not until recently pointed much attention to green design activities. Currently new practices in this respect have been introduced by large French retailer. This includes testing of sustainable materials during construction of new stores, as well as integration of stores into surrounding landscapes is considered. The special environmental guidelines for store facilities construction, refurbishment and operations were published by **Carrefour**. So far the comprehensive environmental practices have been implemented in two stores in France and Italy[3] (CSCP and UNEP DTIE 2009). For instance, two-floor French store (at Saint Quentin en Yvelines, Ile-de-France) has been designed to minimize the land use, while creation of green roof contributed to improvements in thermal and acoustic insulation, slowing down water runoff and better fitting into urban environment (Grenelle Environnement 2008).

4.2.2 IMPROVING ENERGY EFFICIENCY

Improving energy efficiency is a common area of activities for European food retailers due to associated cost savings and legislation requirements in place (BIO Intelligence Service 2009). Most common activities include installation of energy efficient bulbs, move detection systems for lighting, hinged doors for refrigerated space and heat recovery systems in cold production facilities. Initiatives related to sourcing renewable energy and outlined in section 6.1.7 are mainly implemented at the pilot stage (BIO Intelligence Service 2009).

Albert Heijn, Ahold's subsidiary in Netherlands, has introduced different energy saving technologies and succeeded to cut energy consumption by 15-20% per every meter of refrigerated space compared to conventional shops (ERRT and EuroCommerce 2010). Among the innovative solutions are Light Emitting Diodes (LED), motion sensors that switch on/off the lights automatically, as well as systems adjusting light intensity to various daytime needs. The energy usage is constantly monitored and tracked. Pilots were implemented to reuse heat produced by refrigeration units for store's heating purposes (BIO Intelligence Service 2009).

In the end of 2009, **ASDA Wal-Mart** has achieved target to reduce carbon emissions by 20% in existing shops compared to the year 2005, that is three years earlier than was originally planned (ERRT and EuroCommerce 2010). The strategy was two-fold and deployed both technical measures (motion sensors, voltage converters, state-of-the-art boiler system) and employees engagement into 'energy saving' behaviour. New building techniques are considered as giving preferences to natural lighting and ventilation (ERRT and EuroCommerce 2010).

Carrefour has decreased energy consumption in its shops by 16% since 2004, and the goal 2020 is to achieve a reduction of 30% in comparison to 2004 (ERRT and EuroCommerce 2010). Higher standards are adopted for refrigeration and air-conditioning management to prevent GHGs leakage that accounts for 44% of associated emissions. Additionally, experiments to use the alternative fluids are carried out.

Delhaize Belgium ensures that all electricity used is derived from renewable energy sources. 'Alp Energie' supplies it with green energy from hydro-electric power station located at the Rhone river in France. This makes retailer the largest consumer of green energy in the country and ninth biggest user in Europe. As result of switching to

[3] http://www.carrefour.com/docroot/groupe/C4com/Commerce%20responsable/Publications/CarrefourLeaflet2006GB.pdf

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renewable electricity, CO2 emissions have been decreased by 114,000 tons in 2007 (BIO Intelligence Service 2009). In addition, Delhaize Belgium invests into solar energy production on site. Around 25,000 square meters of tubular PV panels were installed, with electricity production capacity of 1,78 GWh (ERRT and EuroCommerce 2010).

Energy-saving plan with over 20 associated measures was created by **Mercadona**, with aim to implement it in all new and refurbished shops (ERRT and EuroCommerce 2010). In 2010 about 24% of Mercadona stores comply with new energy-saving standards. Intensive efforts were put to install heat exchangers, and by year 2009 around 62% of shops were heated with waste heat recovered from air-conditioning units. That is beyond the original target of 45% (ERRT and EuroCommerce 2010).

Metro has planned to equip all its Cash &Carry shops worldwide with sliding freezer doors with purpose to decrease energy consumption by 15% (CSCP and UNEP DTIE 2009). **Metro** also source green electricity from 250 German locations and produce some on site by means of solar installations (CSCP and UNEP DTIE 2009). Innovative technological solutions of heat recovery are implemented in Metro's shops since 2006. Around 26 stores in Italy, Germany and Poland use wasted heat from cooling units in heating appliances, e.g. air-conditioning or production of warm water. The possibility of this technological application is under exploration in other new or refurbished shops with careful consideration of its economic feasibility (BIO Intelligence Service 2009). The **Metro** Group also exploits ISO 14040 and 14044 standards to measure its carbon footprint. On the basis of this information variety of initiatives to reduce energy consumption and associated climate impact are considered and implemented. The group is dedicated to conduct employee training programs to improve in-store energy efficiency (CSCP and UNEP DTIE 2009).

REWE Group has re-equipped the deepfreeze units in some stores with new system of speed-controlled compressors that consumes 20% less electricity compared to conventional freezers. At some shops hinged doors are installed for refrigerated space with pre-packaged meat products. This allows saving up to half energy used by refrigeration equipment and improving temperature performance (BIO Intelligence Service 2009).

TESCO has committed to decrease energy consumption by half compared to the year 2000. In order to achieve this goal around £86 million were spent for energy-saving technology (CSCP and UNEP DTIE 2009).

4.2.3 IMPROVING WATER EFFICIENCY

In general, water management is not considered as the major area of concern by retailers (BIO Intelligence Service 2009; EuropeanComission 2010).

Often undertaken measures include monitoring and reduction of in-store water usage, e.g. **ASDA Wal-Mart, Delhaize Group, Carrefour, COOP Italy, Tesco, Carrefour, Migros, Kesko, Mercadona, El Corte Ingles** (BIO Intelligence Service 2009; CSCP and UNEP DTIE 2009). To reduce the amount of water usage in own facilities, retailers install tap water dimmers and urinal control systems. For instance, **TESCO** has figured out that staff toilets are the major area of water consumption in-stores. To decrease the associated water consumption, urinal control units and automatically switching taps were installed, what costs about £500,000. Moreover, **TESCO** has spent

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around £800,000 for installation of rainwater harvesting system. As result of applied water-saving measures, water usage was decreased by 29%[4] in period of 2000-2005 (CSCP and UNEP DTIE 2009).

M&S currently works on the Water Action Plan in collaboration with WWF to address the issues of embedded water in product supply chains (ERRT and EuroCommerce 2010).

4.2.4 IMPROVING WASTE MANAGEMENT

Waste sorting in stores and warehouse facilitates is a common area of activities for European food retailers due to requirements set by EU waste legislation (BIO Intelligence Service 2009). Some retailers take further actions to reduce volumes of in-store generated wastes and engage in waste treatment activities to produce biogas (ERRT and EuroCommerce 2010).

In 2007 **Carrefour** has recycled about 449,172 tons of waste through a range of sorting and recycling initiatives (CSCP and UNEP DTIE 2009).

By 2009 **Mercadona** achieved 100% recovery rate for all plastic and cardboard generated in-store (ERRT and EuroCommerce 2010)

According to **ASDA**'s recycling plan, 65% of waste generated in-store should be diverted from landfill. By 2008, two **ASDA**'s stores were supposed to increase this standard up to 93%. The eventual target of 2010 is to send zero waste to landfill (BIO Intelligence Service 2009). So far over 75% of wastes were diverted through recycling and re-use measure, and one third of all stores already achieve a zero waste target (ERRT and EuroCommerce 2010). More than 90% of waste from construction has been also diverted from landfill (ERRT and EuroCommerce 2010).

TESCO prevents 75% of waste going to landfill facilities, although the commitment of 80% was made in period of 2006-2009 (CSCP and UNEP DTIE 2009).

Innovative methanization solution to fermentable wastes has been implemented by 15 **Auchan** stores in the Northern France. The pilot project is run in collaboration with Vanheede, an Auchan's partner, and 2,000 tonnes of wastes are treated in innovative way per year. As result, 75% of generated energy (equal to annual energy use of 3,200 households) were diverted to Belgian network and 25% utilized on site (ERRT and EuroCommerce 2010). The biogas produced by methanization process is used by the electricity generation motor, while digested sludge is utilized as natural fertilizer. However, the deployment of methanization method in other stores depends on the presence of associated infrastructure which is still not widely presented in France (ERRT and EuroCommerce 2010).

Metro has generated 475,000 tonnes of waste, 19,7% of which were non-recyclable (CSCP and UNEP DTIE 2009). About 26,000 tonnes of food waste were disposed at the biogas facilities (CSCP and UNEP DTIE 2009). Biodiesel is produced from some organic waste like cooking oil (Tuncer 2009).

As the issue of plastic shopping bags has been widely advertised in variety of media sources, customers are becoming highly aware of it. As result, majority of retailers offer different alternatives, e.g. paper, biodegradable and reusable bags. German retailer groups as **Metro** and **REWE** do not offer plastic bags for free as regulated by the

[4] http://www.tescocorporate.com

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national legislation. Some shops do not provide disposable bags anymore (**M&S, Delhaize, Carrefour, Migros**) (BIO Intelligence Service 2009; ERRT and EuroCommerce 2010).

To decrease usage of the plastic bags, the reusable alternatives are offered in the Carrefour shops. As result of this measure, the amount of throwaway bags has been reduced by half in period of 2004-2007[5] (CSCP and UNEP DTIE 2009). The Group is constantly committed to raising customers' awareness and promoting reuse of carrier bags. **Carrefour** has edited out disposable bags in French hypermarkets and in all store formats in Poland and Belgium (European Retail Round Table and EuroCommerce 2009).

Delhaize Group has restricted usage of disposable carrier bags in the Belgian supermarkets. Together with promotion of reusable bags, this initiative yielded 17% decrease in the number of throwaway bags per supermarket transaction in 2006-2007 (European Retail Round Table and EuroCommerce 2009).

4.2.5 ENVIRONMENTAL PROCUREMENT FOR INTERNAL USE

Some retailers as **M&S** and **Kesco** have policies for green procurement of products for their internal use, e.g. paper, IT equipment, cleaning products (BIO Intelligence Service 2009). Some retailers are also aiming to reduce consumption of internally used products. For instance, **Carrefour** working towards decreasing the weight of paper catalogues and saved 21,000 tonnes of paper in 2009 (ERRT and EuroCommerce 2010).

However, environmental procurement practices are mainly implemented at the Group level and administrative offices, but not at the stores itself (BIO Intelligence Service 2009; EuropeanComission 2010).

4.2.6 ENVIRONMENTAL TRAINING OF EMPLOYEES

Some retailers also train their employees in sustainability issues with main focus being on reduction of energy consumption. Additionally, some retailers held courses in eco-driving and educate employees about eco-labels and environmental impacts of products, so that associated information can be communicated downstream to consumers. Some retailers as Sainsbury have introduced award schemes for employees to acknowledge and encourage their positive actions towards sustainability (Forum for the Future 2008; BIO Intelligence Service 2009).

Ahold conducts driver trainings to decrease fuel consumption during transportation (Tuncer 2009).

Coop, Sweden collaborates with KRAV certification body to conduct employees training in its shops (all COOP shops have obtained KRAV certification in 2008). It also run Energy hunt (Energijakten) project, educating all employees via internet platform, and carry out eco-driving courses for truck drivers (Frisk 2008).

Coop Forum in Haggvik, the store with focus on sustainability issues, requires all its employees to undertake basic courses in ecology and environmental aspects(Cooperatives Europe Act 2011).

Spanish **El Corte Inglés** issued energy-saving guidelines for its employees that can be accessed via intranet or corporate information system. The education courses are particularly targeted towards clerks and maintenance

[5] http://www.carrefour.com/cdc/responsible-commerce/our-commitment-to-the-environment/reducing-stores-impact/?com.carrefour.cdc.print.page.content=true

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personnel, as well as managing directors and executive officers (European Retail Round Table and EuroCommerce 2009).

Casino has conducted a number of training to ensure that its employees are aware of sustainability issues and organic products available at the store's assortment. The idea behind is that employees at the store level are in direct communication with consumers and therefore represent an important channel to raise consumer awareness on environmental issues (HEC and UNEP 2004).

Metro has held "Energy-saving week" to raise employees awareness on energy efficiency issue (CSCP and UNEP DTIE 2009).

Sainsbury's engages its employees to work with local communities on variety of CSR issues as charity fund raising etc. (Forum for the Future 2008).

Personal commitment of managers and employees to buy green products and live sustainable lifestyles, e.g. leading by example, is really important to business success in promoting sustainability. **WalMart** employees are engaged into "Personal Sustainability Practices" scheme, where each of staff members is dedicated to one or more lifestyle goals as losing weight, recycling and energy savings (Forum for the Future 2008)

Some retailers have introduced award schemes for employees to acknowledge and encourage their positive actions towards sustainability. For instance, **Sainsbury's** annually held "Local Heroes Award" to celebrate substantial achievements made by staff members. The winners get opportunity to go overseas to visit Fair Trade suppliers (Forum for the Future 2008).

4.2.7 DECREASING ENVIRONMENTAL IMPACTS FROM STAFF COMMUTING AND BUSINESS TRAVEL

ICA in Sweden has started to take active steps in addressing business travel impacts. It introduced an offset scheme for every flight undertaken for work purpose that invests into carbon neutralisation projects (European Retail Round Table and EuroCommerce 2009). With this purpose, ICA collaborates with Tricorona, carbon offsetting company, to identify potential investment projects. For instance, the financial support was granted to the wind turbine in the North of China that contributes to carbon emissions reduction of 98,000 tonnes annually (ERRT and EuroCommerce 2010).

Co-op Food in UK is engaged in activities of offsetting business related flights. Additionally, in 2009 the Green Travel web-site was established with purpose to encourage more sustainable employees commuting to Manchester head office by using more environmentally friendly transportation modes (Co-operative Group 2009).

4.3 DOWNSTREAM

4.3.1 INFORMATION PROVISION ON ENVIRONMENTAL IMPACTS OF PRODUCTS

As retailers are getting more advanced in framing environmental policies and strategies, so does communication about related issues becomes more important (BIO Intelligence Service 2009). Retailers communicate sustainability information through their web-sites, printed catalogues, and booklets. Some shops start developing special 'markers' to rank products environmental performance and to help consumers in their decision making (BIO

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Intelligence Service 2009; ERRT and EuroCommerce 2010). Sometimes sustainability information is also complemented with information on healthy living (CSCP and UNEP DTIE 2009).

ICA Maxi locates information boards at the shop entrance, where available green products are displayed together with guidelines of waste sorting and other type of environmental issues (Schmidt, Møller et al. 2008).

SuperBrugsen store in the Nørrebro area of Copenhagen is located in the neighbourhood of people with high level of environmental consciousness. Therefore food retailer opts to display wider array of environmental and ethical issues compared to its other shops (Schmidt, Møller et al. 2008).

Sainsbury's is a good example of retailer that provide wide scope of information on seasonal food products, which are highlighted in the online purchasing section and promoted with Jamie Oliver's videos (Yates 2008).

Since 2008 **Auchan** has introduced specific marking system to highlight green products in the food assortment. Marker consists of a series of sustainability pictograms depicting information on water and energy efficiency, packaging, nature preservation, local sourcing and fair trade issues (ERRT and EuroCommerce 2010).

ASDA WalMart works on developing Sustainable Product Index. This Index is based on life-cycle information (regarding packaging issues, resource use, social impacts on indigenous population etc.) and used to rank products on sustainability scale. The idea behind is that customers will eventually be able to compare products and make informed purchasing decisions based on this environmental ranking system (ERRT and EuroCommerce 2010).

M&S put the farmer's name and the country of origin on the food labels. It helps raising customer's interests and loyalty, assuring that product is fresh, from a known supplier and safe to consume (HEC and UNEP 2004).

REWE Group plans to improve information transparency in regard to the amount of pesticide residues contained in fresh food products[6] (Fruitnet 2010).

ICA Sweden undertakes efforts to estimate carbon footprint in regard to 200-300 of products. The aim however is not to label own brand products, but rather build knowledge (e.g. in which parts of supply chain the bulk of emissions are created) and communicate this information to consumers (Paulavets 2008).

ICA Sweden (part of the Ahold Group) is currently very active in promoting healthy and sustainable lifestyles. With this purpose, special website[7] were created to educate customers about environmental consequences of wasting food (ERRT and EuroCommerce 2010). As highlighted by retailer, around 10% of purchased food is wasted in Swedish households. Waste prevention initiatives cover variety of challenges, from addressing hunger issues and combating climate change [8] (CSCP and UNEP DTIE 2009).

Ahold provide a range of healthy living products in its assortment with particular focus on children healthy eating (CSCP and UNEP DTIE 2009).

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[6] http://www.fruitnet.com/content.aspx?ttid=14&cid=3889

[7] http://www.ica.se/klimat/

[8] http://ahold.flamedigital.com/files/5748.pdf

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Metro runs "Good for you"("Gut für Dich") campaign to promote healthy nutrition through purchasing of healthy products (CSCP and UNEP DTIE 2009).

The Co-operative Food in UK use message "Choose green dot products, the healthier option" to communicate about sustainability and health related issues, as well as provide dietary and healthy eating tips (for instance, through collection of healthy recipes) (The Cooperative Food 2010).

The **Co-operative Food** and **Sainsbury's** in the UK engage consumers in an open dialogue to incorporate consumer's concerns into environmental strategies (Forum for the Future 2008). As results, Co-operative Food's Ethical policy is substantially influenced by the customer views and concerns: the retailer prioritises on the issues related to environment, ethical trading and animal welfare. However, there are areas of retailer's initiatives that are not guided directly by consumer preferences, e.g. GHG emissions reduction. During dialogue with customers, only 4% of respondents referred to climate impact as priority area of environmental concern, what highlighted the need to accelerate education activities in regard to communicating food climate change impact (Forum for the Future 2008).

Similarly, **COOP** Sweden has created the interactive internet platform where consumers can raise questions, provide feedbacks and discuss issues regarding sustainability. Such internet-based communication has resulted in introduction of green stickers in all COOP stores to increase visibility of green products to consumer and making them easier to find (Frisk 2008).

4.3.2 AVAILABILITY OF PRODUCTS WITH ENVIRONMENTAL LABELS

Nowadays, together with using official third-party certification schemes, retailers actively develop private eco-brand products (European Commission 2010; European Retail Round Table and EuroCommerce 2010; Organic Monitor 2010).

C**arrefour** offers over 900 of sustainably farmed and fair-trade products, among which is internally developed eco-brand of Carrefour Agir (Grenelle Environnement 2008).

Ahold has developed own responsible coffee label "Utz Kapeh". The retailer has implemented step-by-step improvements in sustainability performance of own corporate coffee brand on the basis of EuroGAP standard (HEC and UNEP 2004).

Wide range of eco-products is offered by **Migros**. Food retail offer 9 private eco-brands under the "Engagement" label, which makes up significant share of total brand sales (UNEP 2005).

Casino retail in France has initiated since 2006 own environmental labelling of food product to communicate on its climate impact from packaging, waste and transportation. The initiative is run in collaboration with Bio Intelligence Service consultants and French Agency for Environment and Energy Control ADEME. By the end of 2008, about 3 000 products were supposed to be labelled according to new scheme (Paulavets 2008).

Kaufland is labelling sustainable fish with own Kaufland logo, aiming to raise environmental awareness and encourage more green choices to be made by consumers (ERRT and EuroCommerce 2010)

In order to decrease the carbon footprint by half by 2020, in 2007 **TESCO** decided to label 70,000 of food products to provide consumers with information on carbon emissions from product life-cycle stages, e.g. manufacturing,

packaging and transportation. However, due to high implementation costs and complexity of the task, the amount of products to label has been eventually reduced. Tesco is collaborating with Carbon Trust organisation to evaluate the carbon impact of 30 own-brand products including tomatoes, potatoes and orange juice. The retailer also works with Oxford University and invests £5 millions into research and development of carbon footprint methodology. Tesco hopes that this labelling initiative will help customers to compare products based on carbon footprint information and make greener choices. **TESCO** believes into support of other supermarkets to make carbon footprint a widely accepted standard across the industry (Paulavets 2008).

In Sweden, retailer's private brands accounts for 21,3% of sales in flour and bakery products, 23,4% of sales in fresh and processed meat products, and 15,8% of sales in fresh and processed fish products (Aragrande, Segré et al. 2005). Among these are retail private eco-brands, e.g. 'I love eco' (**ICA**) and Änglamark (**COOP**). During pilot interviews with aforementioned shops, respondents have mainly associated private eco-brands as means to build brand image, gain customer confidence and provide cheaper alternatives of green products (CSR Manager 2011; Robertsson 2011; Smith 2011).

In Sweden, environmental labelling is applied not only in regard to green products, but also to the shops itself (Nordic Swan and KRAV certification). For instance, all **COOP** supermarkets in Sweden are certified according to the KRAV standard since 2008. The information on awarded eco-label is often displayed at the entrances to welcome shopping in environmentally responsible retailer (Robertsson 2011).

4.3.3 ADVERTISING AND MARKETING

Some retailers have launched advertising and marketing campaigns to promote sales of green products (BIO Intelligence Service 2009). However, targeting moderation and prevention of over-consumption is a very rare occasion (Jones, Comfort et al. 2009). Campaigns to raise environmental awareness are usually carried out during other favourable events and their frequency is from 2 to 6 campaigns during the year (BIO Intelligence Service 2009)

Kaufland promotes sustainable fishing via internet adverts and "TIP der Woche" customer magazine. With 19 million of copies weekly, it reaches almost half of the households in Germany (ERRT and EuroCommerce 2010).

Monoprix adds radio adverts on environmental issues in shops every 30 minutes (UNEP 2005).

Ahold's Dutch subsidiary **Albert Heijn** was active in promoting wide range of biological produce since the end of 90's. It systematically carries campaigns of "Biological Weeks". Several times during the year biological products are offered at the lower prices and advertised in-store to attract consumer's attention (CSCP and UNEP DTIE 2009).

COOP Scandinavia grants support for sustainable farming practices by running introduction events in ecological agriculture and testing campaigns (Schmidt, Møller et al. 2008).

Carrefour is dedicated to holding various environmental awareness raising events. These are usually attached to EU Week for Renewable Energy or World Environmental Day. During such events fair trade and organic issue are highlighted (CSCP and UNEP DTIE 2009). Since 2008, Carrefour is the partner of EU Commission's campaign called "Sustainable Energy Europe". Carrefour displays information on energy saving issues and promotes use of energy saving equipment in 6 EU member-states (ERRT and EuroCommerce 2010).

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It becomes a well established tradition among Danish retailers to carry environmental campaigns during specific calendar weeks (e.g. week 9 is dedicated to Fair Trade, week 31 – to ecology, and week 41 – to promotions of products labelled under EU Flower or Scandinavian Swan scheme). Such alignment of events allows better long-term planning of retailer's activities dedicated to marketing and advertisement of sustainable goods (Schmidt, Møller et al. 2008).

M&S is holding campaigns together with National Federation of Women's Institute and WWF among employees and customers to contribute to understanding and reduction of carbon footprint impact (European Retail Round Table and EuroCommerce 2009). Additionally, M&S has launched "Meet the Farmer" campaign. During summer customers are invited to meet up with farmers and taste variety of fresh products at agricultural shows as well as at bigger M&S stores. As result, customers get to know more about farming skills and production methods (HEC and UNEP 2004).

'Make a Difference' days are organised by **Sainsbury's** to engage shoppers into dialogue on variety of environmental issues as Fair Trade, energy efficiency etc. (Forum for the Future 2008).

ASDA and **Sainsbury's** ran "Bag for life" campaigns. With this purpose ASDA has created special website[9] and Sainsbury's were distributing reusable bags for free although only for one day on 27th of April 2007 (Yates 2008).

Sometimes, with the purpose to increase green sales, "buy 3 - pay for 2" or "Buy One Get One Free" offers are available in the shops. While aiming to mainstream eco products, these campaigns are nonetheless contributing to growth in consumption and potential generation of more food waste. Obviously, purchasing of green products should be linked to sufficiency rather than wastefulness mentality. However, campaigns of responsible marketing efforts to moderate and prevent over-consumption are very rarely implemented among food retailers (Jones, Comfort et al. 2009).

For instance, **REMA** in Denmark imposed ban on 'buy 3 – pay for 2' advertising (REMA1000 2010).

In 2004, **Carrefour** has launched "Consuming Better" campaign. It consists of press ads and wide range of information available on billboards and at company's web-site, with specific focus on best quality/price ratio and more pleasant and convenient shopping experiences. In regard to sustainability, following motto was used: "Stop consuming more to consume better". However, this campaign didn't cause any substantial changes in retailer's marketing strategy and was blamed by NGOs and consumer associations as inconsistent and provocative. Most of measures were limited to simple education and information provision, whereas main focus to lower product pricing have caused even higher level of suspicion in inconsistency of motto with retailer's real strategy (UNEP 2005).

4.3.4 TOOLS TO ENGAGE CONSUMERS IN SUSTAINABLE BEHAVIOUR

Various activities are undertaken by retailers to encourage consumers to buy ecological products. However, few retailers provide sustainable behaviour tips for consumers (BIO Intelligence Service 2009).

[9] www.asda-bagforlife.co.uk

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For example, to make consumers' environmental contribution visible, **COOP** Sweden marks purchased green items on its receipts (Frisk 2008), Additionally, it has invented annual eco-receipts which highlight amount of green sales made per year and associated benefits for environment. For instance, eco-sales made from 1994 to 2007 have resulted in reduction of insecticide and artificial fertilizers application by 122,000 kg and 9 200 000 kg correspondently[10]. To encourage consumers buy green products, **COOP** Sweden also offers double bonus points for buying organic items (Linell 2005).

TESCO has invented 'Action CO2 calculator' (BIO Intelligence Service 2009) and also developed 'Green Club card Points' to reward consumers with green choices. The awarded points can be however used to obtain free air miles, what is conflicting with retailer's objective to encourage more sustainable lifestyles (Forum for the Future 2008).

COOP Denmark has issued a cooking book with eco-recipes that can be purchased in its shops together with green products. The objective is to increase visibility of wider range of ecological products and to promote sustainable behaviour by demonstrating how the entire meal can be cooked with use of only green products (Schmidt, Møller et al. 2008).

TESCO and **Somerfield** provide incentives to encourage bags re-use by offering Club Cards points. For bringing back 5 bags, Somerfield awarded customers with free 'bag for life' (Yates 2008).

Retailers can organize product assortment to increase visibility of available sustainable alternatives, through arrangement of specific green corners, placing green items at the aisle's ends, introducing special attention markets and pop shelf displays (BIO Intelligence Service 2009). For instance, **COOP** Sweden has introduced green stickers in all its stores to increase visibility of green products to consumer and making them easier to find (Frisk 2008). Recently, in August 2010, **Carrefour** in France introduced the new marketing concept - Carrefour planet - in two pilot stores. The idea behind is to create comfortable, friendly and festive environment of discovery for consumers with organic products represented in a separate area (Organic Monitor 2010).

4.3.5 FINANCIAL INCENTIVES FOR GREEN PRODUCTS

One of the most challenging issues nowadays is the higher production costs of green products compared to the ordinary ones (UNEP 2005; BIO Intelligence Service 2009) and consumers' low willingness to pay extra price for eco brands (European Commission 2009). Especially now, during economic recess, the tension between these two issues has increased. Some retailers seek the possibilities to overcome this problem and apply special pricing policies to increase sales of green products.

Dutch **Ahold** and **Coop** Sweden provide price reduction for organic products (Linell 2005; UNEP 2005), while French **Auchan** has special pricing schemes for Fair Trade products (UNEP 2005).

Carrefour provides own eco-brand products for different budget categories (European Retail Round Table and EuroCommerce 2010).

Danish **Netto** has a slogan 'Everybody should have the right to ecology', offering environmental assortment for lower price on a regular basis (Gis 2008).

[10] http://www.mynewsdesk.com/se/pressroom/coop/pressrelease/view/148212

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To promote green sales, **SuperBrugsen** in Denmark provides consumers with discounts to test green products (Schmidt, Møller et al. 2008).

Danish discounter shop **Netto** differs from other stores of the same format by permanently including ecological and Fair Trade assortment. These products are offered at the lower price compared to conventional shops, under the slogan "Everybody should have the right to ecology" ("Alle skal ha' råd til økologi"). While assortment of eco-products is wider than in other Nordic discounters, it is still limited compared to leading food retailers (Gis 2008).

Some retailers like **Sainsbury's** have clearly expressed the intention not to subsidise these product categories due to high level of expenses (UNEP 2005).

4.3.6 ADDRESSING IMPACTS OF CONSUMER TRANSPORTATION TO STORES

Consumer transportation to and from shops represents one of the areas of environmental concern (Yates 2008). Some retailers already provide on-line shopping and in connection to this educate consumers on the harmful environmental impacts of driving cars, e.g. **Sainsbury's, Tesco, Carrefour** (Yates 2008; ERRT and EuroCommerce 2010). Some stores address the issue of convenient shop locations and improved public transportation access to reduce environmental impacts of consumer transportation to stores (BIO Intelligence Service 2009).

Sainsbury's online shopping system include highlights for local and seasonal food helping customers to choose better environmental options (Yates 2008).

Carrefour educates customers in regard to transportation behaviour, promoting alternative types of fuels and improving public transportation access to its stores (CSCP and UNEP DTIE 2009).

5 LANDSCAPE OF SUSTAINABILITY INITIATIVES: HOW WIDESPREAD ARE ENVIRONMENTAL ACTIVITIES AMONG EUROPEAN RETAILERS?

The retailer practices, which examples are outlined in detail in Section 4 of this report, vary according to level of their implementation among European retailers. Figure 1 summarizes various types of sustainability initiatives along supply chain and reflects on how widespread these activities are among European forerunners, most of which are party to European Retail Roundtable. Classification of environmental initiatives according to level of their implementation is built on the literature findings and our empirical insights of working with retailers. Most implements environmental strategies are highlighted in green, while middle and least implemented in yellow and red correspondently.

5.1 MOST PROLIFERATED

The most common areas of upstream activities are logistics optimisation, eco-design of products' packaging, and provision of organic food and sustainable fish.

Current food transportation system relies on "large HGVs [heavy goods vehicles] travelling long distances between suppliers and shops via centralised distribution centres. …This system enables very efficient loading of vehicles, which reduces the impact per tone of food" (CIAA 2008).

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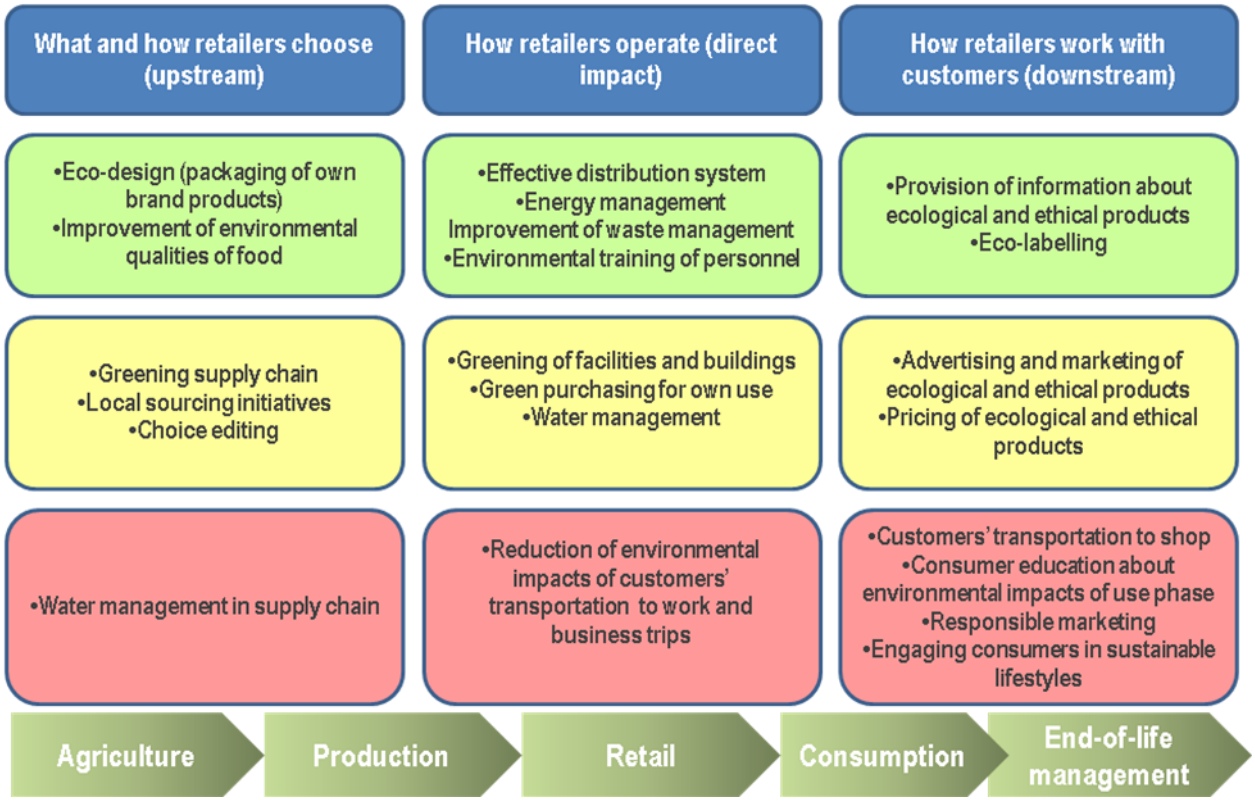

Figure 1 Environmental strategies of European retailers characterized as forerunners in sustainability work

Source: Compiled from (Forum for the Future 2008; Yates 2008; BIO Intelligence Service 2009; Forum for the Future 2009; European Commission 2010; European Retail Round Table and EuroCommerce 2010).

Most efforts to improve eco-design of packaging focus on reducing packaging weight and size (material efficiency) and are most often used for own brands. Only minority of retailers undertake more proactive measures, e.g. replace PVCs in packaging with more environmentally sound materials.

In terms of organic food supply, majority of the studied supermarkets have a separate section with organic food products. However, the share of organic food in total food sales is still very small. For example, in Nordic countries that lead organic markets in Europe, organic products represent just over 7% of total food sales in Denmark, 3,4% in Sweden, and just above 1% in Norway (Organic Monitor 2010). In Czech republic that is the leader in buying organic products among other Central and Eastern European countries, the percentage of organic sales makes up only 0,35% of total food sales (Gis 2008). Some studies conclude that many food retailers include organic produce in their assortments to demonstrate that they are keeping up with overall trends and consumer demands, without committing to changing consumption patterns, with exceptions of Migros in Switzerland and Monoprix in French inner-city (UNEP 2005). When it comes to provision of sustainable fish, retailers' actions also differ considerably. Some retailers impose total bans on certain species or fishing methods, others decrease volume of sales of vulnerable species, while yet another group of retailers has committed themselves to ensure 100% of sustainably sourced fish supply, e.g. MSC certified.

Besides upstream activities, many European retailers are active in reducing direct emissions from in-house activities. The most proliferated activities in store are energy efficiency measures leading to potential cost savings,

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with special focus on lighting and refrigerant management[11] (European Commission 2010). Waste reduction strategies at the store level are driven mainly by regulation requirements. Centralised recycling infrastructure in country usually enables good results (Forum for the Future 2009). Among other activities, environmental training of employees is quite widespread among retailers. However, these activities are often unsystematic and apply mostly to specific job positions. Training on environmental labels and product's environmental impacts is also rare, but is run at Kesco and Ahold (BIO Intelligence Service 2009).

Information provision on the environmental impacts of products is among most proliferated initiative. Some retailers are taking prominent steps to engage consumers in more sustainable consumption by structuring information in the form of behaviour tips. For example, COOP Denmark has issued a cooking book with ecological recipes (Schmidt, Møller et al. 2008).

Concerning availability of products with environmental labels, there is a trend among retailers to move away from official eco-labels and develop own ecological brands (UNEP 2005; Organic Monitor 2010). Recently, two advanced EU retailers, Co-op Switzerland and Albert Hejn Netherlands, have argued at the Food Sustainability Summit that their privately developed eco brands have "greater resonance with consumer demand for sustainability", if compared to third party certification (Organic Monitor 2010). Co-op Switzerland has developed 8 ethical brands that are currently generating up to 7% of the total revenues. The approach is believed to be instrumental in bringing Swiss consumers to spend the largest amount of money for fair trade products in the EU. Albert Heijn in Netherlands has developed private eco brand called 'Pure and Honest' (AH Puur & Eerlijk), sales of which has increased by 20% since its launch in summer 2009 (Organic Monitor 2010).

To summarise, while there is a clear trend of incorporating environmental considerations in retailers' work and there is a showcase of best practices, majority of upstream, in-shop and downstream initiatives are dedicated to quick win, cost neutral solutions that are either driven by potential cost savings (logistics improvement, decreasing material intensity for packaging, energy efficiency, refrigerant management) and regulatory environment (waste reduction), or that are the most visible to the environmentally conscious public (plastic bags initiatives). All of these issues are important to address, but they do not always address the main environmental hotspots of the supply chain.

5.2 MIDDLE PROLIFERATED

Moderately proliferated are activities on greening supply chains, where retailers exercise their influence over manufactures of own brand products (BIO Intelligence Service 2009; ETC/SCP 2010). So far, retailers do not seem to experience much power over producers of other national or international brands (BIO Intelligence Service 2009; Forum for the Future 2009) due to the high bargaining power of big national producers and transnational corporations, and lack of established standards for supplier's sustainability reporting. However, the trend of developing high value food brands by retailers might have important implications for enhancing the markets of green products. If sustainable premium retailer brands will be placed on the shelves, it would create pressure for other suppliers to keep up.

[11] Up to 25% of energy use is attributed to refrigeration, refrigerant gas leakages are responsible for 18-30% of carbon footprint in Forum for the Future (2009). Sustainability trends in European retail. London, Forum for the Future: 42.

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Most of retailers apply private codes of conduct to assess supplier's environmental performance. These codes are mainly voluntary. Only few retailers implement systematic approaches to sustainable sourcing. Mercadona currently implements the program of having all suppliers certified according to ISO 14001 (BIO Intelligence Service 2009). Unilever, being first in retail industry, aims to apply the Brand Imprint evaluation tool to its major brands (Forum for the Future 2008). Tesco's 'Nurture Schemes' applies worldwide to 15,000 agricultural suppliers. An important milestone in promoting and standardising greening supply chains took place in June 2010, when 19 major retailers and 7 retail organisations have signed up the Retail Environmental Sustainability Code (European Commission 2010). Although it is a voluntary tool, so far limited to sourcing only specific product categories, it is an important step towards environmental responsibility in food supply chains.

So far, only few retailers have recognised the importance of supporting suppliers in transition period that is associated with additional investments and variety of risks. Sainsbury's 'Farm connection' scheme delivers different trainings to address lack of IT skills among farmers engaged in British beef and lamb production (Forum for the Future 2008). John Lewis Partnership (includes UK's Waitrose, John Lewis and Greenbee) also has strong connection with suppliers through provision of information and advice services (manuals and helpdesks) to comply with sustainability requirements (Forum for the Future 2008). Supply Chain Leadership Collaboration has been launched by the Carbon Disclosure Project bringing together retailers and suppliers to indentify possibilities for reducing carbon footprint (Forum for the Future 2008). Building suppliers' capacity by retailers is necessary and can take form of financial investments, information provision and trust building, all to ensure greening of supply chains and creation of markets of green and ethical products.

The BIO intelligence Survey (2009) classified choice editing of products as a middle proliferated activity. However, while variety of bans have been implemented, our own observations revealed that choice-editing still has low profile with regards to the number of product groups or areas of environmental concern it covers. Basically, most of retailers aim to source 100% of local fruits and vegetables when available in season, phase out certain vulnerable species of fish, implement ban on GMOs and PVCs in packaging. Choice-editing initiatives can thus be described as unsystematic. While bluefin tuna is edited out by Carrefour in Italy and Spain, in French shops it is still available (although amount of sales is reduced). Some of activities are very innovative and still 'in planning' phase, e.g. sourcing only sustainably certified palm oil by Sainsbury's, ASDA and Unilever (Forum for the Future 2008). According to the Forum for the Future (2009) retailers have not yet fully realised the sustainability potential of choice-editing and still "distancing themselves from the concept" (Forum for the Future 2009).

Local sourcing initiatives are classified as middle proliferated among retailers. Shortening 'food miles' saves money and the environment (GHG, noise and congestion reduction), supports local farmers, ensures development of national agricultural sector and provides consumers with extra fresh food. Although, scaling down from global to local food supply chains is a favourable trend, making it easier for retailers to track and manage environmental issues, the overall concept should not be oversimplified. The validity of measuring sustainability solely on the basis of kilometres travelled is doubtful and misleading (DEFRA 2005; CIAA 2008). Recent research revealed little evidence for the general rule that local sourcing leads to lowering the environmental impacts of food chains (DEFRA 2005; CIAA 2008). Link between transportation and environmental issues is very complex, including a variety of trade-offs to consider: mode of transport, transportation efficiency, agricultural and manufacturing efficiencies, etc. (CIAA 2008).

Among the in-shop activities, green design of buildings has recently gained more attention. However, most of practices are at the experimental/pilot stage of development. According to BIO Intelligence Service Study (2009), none of retailers have introduced systematic approaches to green construction/refurbishment practices. However,

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M&S have started working towards systematisation of environmental specifications for buildings. In collaboration with Building Research Establishment it has developed standards to improve in-shop environmental performance and has so far implemented it in 3 stores. Initiatives also vary in terms of their scope; they range from simple installation of already available renewable technologies to more integrated approaches, with consideration of environmental issues at the very initial stage of store design and building.

Procurement of environmentally sound products for internal use usually includes green products already available on the market and that bear environmental label. Environmental policy of some retailers includes green procurement practices in store and therefore the work is more systematised, e.g. in M&S and Kesko. More often, however, green procurement is used for centralised purchases (at Group level) or by separate administrative departments, but not in the stores itself. One of the common in-house green procurement initiatives is sourcing electricity from the renewable supplies ('green' tariff electricity) and it is employed by ASDA, Carrefour, COOP Italy, Delhaize, METRO, Mercadona, M&S, Kesko, REWE Group, and TESCO (BIO Intelligence Service 2009; European Retail Round Table and EuroCommerce 2010). This might be explained by concerns for increasing energy prices, expectation of forthcoming regulations on carbon management, and the visibility of the issue for consumers and NGOs.

Water efficiency is not considered as an area of major concern by retailers.

Among moderately implemented downstream practices is the organisation of special events to promote green products by retailers. On average, number of activities varies from 2 to 6 times per year (BIO Intelligence Service 2009) and sometimes coincides with events run by other actors. There is definitely a potential for improvement to make these events more regular. Campaigns to reduce the consumption volumes are also rare (UNEP 2005). A very interesting campaign called 'meet the farmer' is organised by M&S: during the summer, consumers can personally get to know the farmers of food products available at the M&S shops and get to know about agricultural practices. In this way consumers can create stronger links with nature, the visibility of their actions and impacts along supply chain can be increased, and trust between actors in supply chain can be built.

Retailers are on the list of top advertisers in countries, such as Germany, France and Switzerland (UNEP 2005), and undertake active measures to market more sustainable products and lifestyles. Successful campaigns have been run to reduce the amount of plastic bags, one of the most visible issues for environmentally aware consumers and NGOs. In general, marketing strategies focus on addressing cost-effective and easy measures (UNEP 2005), while moderation and prevention of over-consumption is a very rare occasion (Jones, Comfort et al. 2009).

Consumers want to green live, but how much they want to pay is still a very important issue, especially nowadays in the period of economic recession. According to the recent Mintel's report (2009), enthusiasm for sustainability among consumers has been affected by the financial constraints in the current period of 'tighter economy'. Also, according to the European Commission (2009), product's price appears to be a somewhat more important factor in purchasing than environmental impacts of products: 89% of respondents said that price was important when deciding what product to buy. Thus, financial incentives by retailers are of high importance for greening the market. Today, this activity is classified as middle proliferated. The barrier is that production of organic and Fair Trade products usually has high price premium. Costs for organics are 13-30% higher compared to regular food, while prices for Fair Trade items are sometimes twice as high as for usual products (UNEP 2005). And although some retailers seek the possibilities to overcome this problem, others, e.g. Sainsbury, have clearly expressed the intention not to subsidise these product categories due to high level of expenses.

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5.3 LEAST PROLIFERATED

Few activities have been undertaken so far to identify the major areas of potential improvements for food products. Some retailers, e.g. Carrefour in France and Unilever, have developed evaluation toolkits based on life cycle thinking, but such instruments serve mainly pedagogical purposes and are used for own brands (Forum for the Future 2008; BIO Intelligence Service 2009; European Retail Round Table and EuroCommerce 2009), due to significant financial and time costs, lack of agreed methodology, high level of complexity and uncertainty (DEFRA 2005; SDC 2007; ETC/SCP 2010). Retailers have expressed clear need for more information and support with prioritising among environmental impacts and products (SDC 2007; ETC/SCP 2010). The challenge is thus to develop commonly recognised guidelines to support decision-making on the focus areas of product's environmental improvements (ETC/SCP 2010). European Food SCP Roundtable, established in 2009, has considered actions towards development of a standardised framework (EFSCPRT 2009).

Availability of products with official eco-labels in the retailer's food assortment is low. The reason is that official eco-labelling procedure is perceived as very costly. Additionally, official eco-labels have low level of uptake by consumers, in terms of readiness to review and use information during purchasing. Moreover, approaches to eco-labelling are sometimes characterised as misleading. For instance, if only one impact category is assessed as in the case of carbon footprint (Jordan, Wurzel et al. 2003; BIO Intelligence Service 2009). Another reason might be the lack of development towards more standardised approaches in eco-labelling (not developed and thus not represented). While over 500 different sustainability labels exist in the global food industry nowadays (Organic Monitor 2010), official EU eco-label does not yet cover the category of food products. However, lack of official eco-labels does not necessarily represent a bottleneck to sustainability practices; the popularity of privately developed eco brands among retailers creates the case for 'sustainability competition', facilitating other suppliers to keep up and develop greener products.

Water management in supply chain is considered as too indirect and remote field to deal with, and is almost never addressed by retailers (BIO Intelligence Service 2009; Forum for the Future 2009). However, water issue is of major concern in the food industry, with 40% of fresh water consumed by agriculture in Europe (NGF 2010). The lack of knowledge on how to approach and manage the issue of embedded water is also one of the hindering factors for developing environmental initiatives in this field (Forum for the Future 2009). So far, only few retailers have committed to identifying hotspots of embedded water (European Commission 2010). M&S currently works on the water action plan in collaboration with WWF, addressing the entire food supply chain (European Retail Round Table and EuroCommerce 2010). Additionally, climate adaptation initiatives are almost never addressed by retailers (Forum for the Future 2009).

According to a UK study, consumer transportation to store has generated the amount of GHG emissions equal to commercial food transportation (Yates 2008). However, few initiatives have been undertaken by retailers to address this issue (BIO Intelligence Service 2009). Big change is foreseen with technological advancement in the areas of e-commerce combined with optimisation of home deliveries and deployment of green vehicles (SDC 2007), although the level of environmental impacts from on-line shopping is still unclear (Cullinane 2009). Some retailers have already started to introduce on-line shopping and taken lead in educating consumers on environmental impacts of driving cars (Yates 2008; CSCP and UNEP DTIE 2009). Initiatives to decrease environmental impacts from staff commuting and business travel are also rarely addressed by retailers.

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Taking into account that emissions from food consumption are higher than from food manufacturing (18% versus 11%), due to energy use for storage and preparation of food by households (CIAA 2008), the importance of education on the use phase of food products is important (e.g. preservation and cooking tips, and waste reduction). So far, these issues are rarely addressed by retailers, exception is Ahold France (European Retail Round Table and EuroCommerce 2010).

Few retailers engage sustainable behaviour tools to alter consumption practices or provide sustainable behaviour tips for consumers (BIO Intelligence Service 2009). Responsible marketing campaigns to prevent over-consumption are also a rare (Jones 2009).

6 CONCLUSIONS AND POLICY IMPLICATIONS

Retailers may play a significant role in greening markets of products and services and in promoting more sustainable lifestyles of consumers. The reality however is far from what theoretically could be possible. This study demonstrates that there are few large European retailers that have started to systematically work with sustainability issues. Although they have a significant market share, there are many more medium and small-size retailers who do not see sustainability work in supply chain as an important activity.

The analysis of the European retail forerunners reveals that major efforts focus on addressing direct environmental impacts by improving efficiency of internal operations, including energy and water efficiency measures, logistics and waste management activities. These efforts are mainly driven by potential cost savings or regulatory requirements in place. The indirect emissions upstream and downstream in the supply chain are addressed to a much less degree than direct emissions, although they often represent a more profound environmental threat and consequent challenge of addressing them.

Although this study identified many interesting initiatives undertaken by retailers along supply chain, which undoubtedly contribute to the development of green markets, there are still many issues that hinder retail sector from becoming truly sustainable and that need to be addressed in the near future:

1. *Unclear definition of retail responsibilities in achieving SCP (sustainable consumption and production practices)*. For now, SCP policies in place lack of coherence and integration on international and national levels, with the role of retailers not clearly outlined (ETC/SCP 2010). The challenge, therefore, is to facilitate creation of commonly recognized approach with clear definition of retailer's sector responsibilities towards achieving SCP. There are clear opportunities for governmental interventions to support retailers in addressing sustainability issues along supply chain. Governments could play a leadership role by creating clear vision for food sustainability system, developing action plans and building evidence base on the environmental impacts of food (SDC 2007).

2. *Lack of common approach to prioritize on areas of environmental improvements.* So far, setting priority for sustainability action of retailers is not a straightforward process. Priority areas are not solely based on scientific knowledge, but also affected by business goals (cost and quality issues, in-time delivery etc.) and stakeholder's expectations (ETC/SCP 2010; Bergstrom, Soler *et al*. 2005). To help retailers with improving the sustainability performance of supply chain in the face of often contradicting priorities, an open dialogue among retailers, policy makers, NGOs and consumers is needed. Higher level of collaboration among retailers themselves is also desired to agree on the common sustainability approaches to supply chain management, to share best practices and discuss challenges.

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3. *More collaboration among retailers is required on international/regional levels*. Recently, European Retail Roundtable was established in 2009, aiming to facilitate retailers' actions towards sustainable production and consumption. The membership in the European Roundtable is voluntary and open to all interested stakeholders, which ensures incorporation of the 'roadmap' approach, where interests of all actors are taken into consideration. Establishment of corresponding initiatives at more local levels might be of value as well - for instance, organization of Nordic Retail Roundtable. This could allow better consideration of contextual background, e.g. already advanced practices, specifics of business and cultural environment etc. In regions like Scandinavia, where retailing sector is already proactive in addressing sustainability issues and consumers are highly aware about environment, more advanced visions and targets could be set to move forward.

4. *Lack of harmonization of standards*. Among one of the challenges that retailer's face in ensuring sustainability in supply chain is the issue of harmonisation of standards. Commonly agreed standards increase transparency, allow benchmarking of environmental practices between actors along supply chain and verifying compliance with sustainability requirements. Nowadays, harmonization trend is starting to take place among international and national retail organizations, e.g. GFSI (Global Food Safety Initiative), BRC (British Retail Consortium) standard, Euro GAP (Global Agricultural practices). These schemes are examples of private governance mechanisms developed by retail groups and aiming to enhance food quality and sustainability, as well as to gain consumer trust. However, internally developed standards might aim at more ambitious sustainability performance than baseline industry standards, which are usually lower as they aim to ensure wide acceptance among stakeholders (Smith 2008). Moreover, sometimes official standardisation (official eco-labelling, ISO 14001 etc.) is perceived by retailers as costly and restrictive (BIO Intelligence Service 2009).

5. Higher price for green products. One of the most challenging issues nowadays is also the higher production costs of green products compared to the ordinary ones (UNEP 2005; BIO Intelligence Service 2009) and consumers' low willingness to pay extra price for eco brands (European Commission 2009). Especially now, during economic recess, the tension between these two issues has increased. To resolve the situation, few retailers subsidise production of green products but most of retailers perceive it as an undesirable activity. Governments could undertake an active role in providing financial incentives to support transformation of food sector towards higher level of sustainability.

Following issues, which are for now rarely addressed by retailers, should receive more attention if true sustainability in food supply chain is desired to be achieved:

- *Capacity development among suppliers* by retailers is necessary in the form of financial support, information provision and trust building, rather than just stocking shelves with already available green products. Strategies to engage suppliers into sustainable behaviour are required to ensure transformation to markets of green and ethical products.

- *More strategic and long-term thinking* is required among retailers, including issues of embedded water and climate adaptation initiatives etc. (Forum for the Future 2009). Furthermore, collaboration with NGOs to address these problems could contribute to better understanding of environmental issues and shaping better responses to the problems.

- *Commitment to responsible marketing effort*. Some retailers, in order to mainstream green products, promote 'buy 3 – pay for 1' offers. However, such marketing activities promote over-consumption and potentially higher level of food waste generated (Jones, Comfort et al. 2009). Obviously, purchasing of green products should be

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linked to sufficiency rather than wastefulness mentality. So far little activities on preventing over-consumption have been mapped.

- *Easy and engaging message to motivate sustainable consumption*. Promotion activities are still lacking easy and engaging messages to motivate consumers to alter their behaviour (European Commission 2010; Bio Intelligence Service 2009). Close collaboration with consumers is required to incorporate societal concerns into marketing strategies, thus increasing chances for successful adoption of sustainability practices. At the same time, mutual dialogue with customers would help to identify areas where level of environmental awareness is low and further education activities need to be implemented.

- *Choice-editing measures to phase out unsustainable products.* While it represents a very useful instrument in proliferating sustainability practices, it still has low level of uptake among retailers. Certain difficulties are associated with phasing out different products groups, as it potentially could clash with the interests of some producers and consumers (SDC 2007)

- *Focus on actions with higher sustainability outcomes.* When analysing the retailers' initiatives in green marketing and improving sustainability of food supply chains, distinction should be made between the proliferation and the actual sustainability outcomes of retailers' activities. Some actions when applied might yield more successful results than others; for instance, financial incentives and choice-editing could potentially engage more consumers into behaviour change than provision of environmental information and eco-labelling (BIO Intelligence Service 2009).

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