SUSTAINABLE CONSUMPTION IN THE AREA OF TRANSPORTATION

BRANZA GRATIELA

Constanta Maritime University, Romania

ABSTRACT

In the context in which sustainable development is one of the key objectives of the European Union, the need to develop and evolve towards more sustainable consumption and production patterns is a priority. Due to the fact that in the European Union and in the world the consumption sector related to food, housing and transport represents between 70% to 80% of all environmental impacts, promoting sustainable consumption is extremely important to limit negative environmental and social externalities as well as to provide markets for sustainable products. This paper captures some aspects regarding the definition of sustainable consumption and guidelines in the sphere of education for sustainable consumption. The paper also presents some good practice examples of sustainable consumption in the field of transportation and an efficient tool to measure consumer behaviour in the area of sustainable consumption in transportation – Greendex score.

Keywords: *sustainable, sustainable consumption, education, transportation, consumer, Greendex survey, sustainable behaviour*

1. INTRODUCTION

In 1994 the Oslo Symposium proposed a working definition of Sustainable Consumption as "the use of goods and services that respond to basic needs and bring a better quality of life, while minimising the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations". [9]

In the framework of the same symposium, Nick Robins and Sarah Roberts stated that "Sustainable consumption addresses the demand side, looking at how the goods and services required to meet basic needs and improve quality of life - such as food and health, shelter, clothing, leisure and mobility - can be delivered in ways that reduce the burden on the Earth's carrying capacity". [9] Carrying capacity is a concept related to sustainable development issues and represents the maximum number of individuals of a defined species that a given environment can support over the long term.

Dr. Emil Salim in his paper "The challenge of sustainable consumption as seen from the South" give another definition to this concept. According to his opinion, "Sustainable consumption implies that the consumption of current generations as well as future generations improves in quality. Such a concept of consumption requires the optimalization of consumption subject to maintaining services and quality of resources and the environment over time". [9]

Another interesting definition is that of Edwin G. Falkman, presented at Oslo Symposium in his paper entitled "Waste Management International. Sustainable Production and Consumption: A Business Perspective": "Sustainable production and consumption involves business, government, communities and households contributing to environmental quality through the efficient production and use of natural resources, the minimization of wastes, and the optimization of products and services".[9]

To understand this concept, we must focus on some essential aspects, such as: increasing life quality, improving resource efficiency, minimising waste, having in view the equity dimension. The biggest challenge for our society is how to improve life quality for current and future generations, while continuing to reduce environmental damage and to protect human health.

2. EDUCATION IN THE FIELD OF SUSTAINABLE CONSUMPTION

"Education is one of the most powerful tools for providing individuals with the appropriate skills and competencies to become sustainable consumers". [7]

UNESCO has designated 2005-2014 as the "Decade of Education for Sustainable Development". In this framework OECD will contribute by highlighting good practices in school curricula for sustainable development. Italy leads the Marrakech Task Force on Education for Sustainable Consumption, with the aim of producing lessons and exercises for sustainable consumption at all levels of education.

Many OECD countries are promoting sustainable consumption through developing and teaching curricula on subjects related to sustainable development. Other countries created education schemes included in sustainable consumption programmes. For example, Czech Republic is developing an "Action Plan for Education for Sustainable Consumption"; United Kingdom proposed "I Will if You Will" – an action plan for sustainable development in education and skills; Sweden initiated the sustainable consumption programme "Think Twice!". Moreover, UK and Italy are supporting the establishment of "sustainable schools".

Besides, countries promote the development of "eco-schools", which is an international programme founded in 1994 with its main purpose to involve young people in addressing sustainable development issues at

local level. In present, there are more than 14.000 participants in eco-schools network, mostly in Europe.

European Union is a good practice example in the field of education in sustainable consumption for its multi-country project entitled "Persuasive Power of Children Towards Energy Consumption". In this project students measured energy savings from different sources, participated in audits of school and household energy consumption.

3. GOOD PRACTICE EXAMPLES OF SUSTAINABLE CONSUMPTION IN TRANSPORT SECTOR

Transportation shows the highest growth of greenhouse gas emissions, affecting biodiversity, leading to substantial health effects and causing many road accidents. Due to these reasons, mobility has been a focus of sustainable consumption. [5]

It is useful to present some examples for sustainable consumption in the field of mobility, in order to reveal the elements that influence consumption and consumer behaviour, as: infrastructure, drivers, opportunities and policies.

One of the good practice examples is Odense, a danish city which developed a network of bike paths. The investments in infrastructure and the bicycle promotion campaign led to the increase of the percentage of bicycle use at 24% and so, to a remarkable level of biking. In this case, it was essential the policy developed in infrastructure and awareness of this.

A similar example is „VELIB" (free bike) – a programme launched in France in 2007, that placed 20.000 bicycles at more than 1000 stations around Paris in the attempt to reduce car traffic and pollution. [7]

Another good practice example is „ZEUS", the acronym for „Zero and Low Emission Vehicles in Urban Society". This project arised from the collaboration between 8 cities: London, Stockholm, Helsinki, Copenhagen, Bremen, Luxembourg, Athens and Palermo. The principal aim of every project partner was to obtain positive ecological effects in the transport sector through „green purchasing" (alternatively fuelled cars) by public agencies and the development of a rudimentary refuelling infrastructure. „ZEUS" case indicates that a strategy that focuses mainly on technological improvements can contribute significantly to the reduction of greenhouse gases.

An interesting project that stressed the role of a change in infrastructure and the rising of awareness for sustainable behaviour is „The Sustainable Transport Modes Strategy in San Sebastian". It started in 1990 and its major purpose was to promote more sustainable methods of transport and to win back public space. The results of this project were significant, as „the number of passengers using public transport has increased by 10%, cycling accounted for over 1% in the modal breakdown of the city and 120,000 square meters space could be won back from the motorized traffic". [5]

From the examples given below, we can conclude that the goals of sustainable consumption measures in the area of mobility can be [5]:

1. Reducing the demand for mobility or limiting its growth by diminishing the distances between home, work place, schools, recreational areas etc.;
2. Influencing the modal split by reducing the areas accesible to cars, by lowering the availability of parking and by promoting environmentally friendly transportation such as biking and public transportation;
3. Increasing the occupancy (load factor) aiming to reduce the number of cars on the road;
4. Influencing the technology choice by encouraging the choice of environmentally friendly or energy efficient cars or providing for renewable fuels.

The majority of the examples indicate that soft policies, like awareness campaigns and active participation of the residents are essential for success.

4. "GREENDEX" – INSTRUMENT OF QUANTITATIVE MEASURING OF CONSUMER BEHAVIOUR IN THE AREA OF SUSTAINABLE CONSUMPTION

Greendex is a survey initiated and realised by National Geographic Society and research consultancy GlobalScan in 2008, 2009, 2010 and 2012. The first Greendex survey studied 14 countries around the world in order to analyse the obstacles and opportunities that people cope with in becoming sustainable consumers. The results showed that consumers in developed countries have a greater impact on the environment than others and they can make more sustainable choices.

"Each respondent earned a score reflecting the environmental impact of his or her consumption patterns within each and four corresponding sub-indices were created. Consumers were then assigned an overall Greendex score out of 100, based on their performance within the four sub-indices."[6]

The results of Greendex Survey 2012 showed that India ranks first and USA last in sustainable behaviour. The sample has comprised 17.000 consumers in 17 countries and the survey's organiser focused on measuring the number of environmentally friendly people in the world in 65 areas relating to housing, transportation, food and consumer goods.

According to the survey, Indians had the most sustainable behaviour with a Greendex score of 58,9; followed by China at 57,8 and Brazil at 55,5. USA ranked last in the Greendex with 44,7% and France ranked last in Europe. [2]

Table 1. Greendex scores by country in the period 2008-2012

Country	2008	2009	2010	2012
India	58.0	59.5	62.6	58.9
China	55.2	56.7	57.3	57.8
Brazil	58.6	57.3	58.0	55.5
Hungary	51.7	53.3	54.1	54.4
South Korea	-	54.6	52.8	54.4
Mexico	52.7	53.8	54.8	53.9
Argentina	-	54.7	54.2	53.6
Russia	51.1	52.0	54.2	53.1

Germany	48.1	51.1	50.0	51.5
Spain	48.0	51.4	50.4	51.2
Sweden	-	51.1	50.7	49.7
Britain	48.2	49.4	49.6	49.4
Australia	47.8	50.5	50.3	49.2
France	46.5	49.5	48.9	49.0
Japan	47.4	49.3	49.7	48.5
Canada	46.3	47.5	47.9	47.9
America	42.4	43.7	45.0	44.7

Source: [6]

Data presented in table 1 point the fact that consumers in countries like India, China, Brazil, Mexico tend to be more concerned about important environmental aspects, such as: air pollution, climate change, water pollution, species loss, shortages of fresh water – all these factors affecting the quality of life in the world. In opposition to this approach, the American, French and British consumers are more concern about the economy and the cost of energy and fuel.

Greendex survey's results show that South Koreans, Germans, Spanish and Chinese registered the biggest increases in 2012 than in 2010 regarding environmentally sustainable consumer behaviour. In contrast, India, Brazil and Russia recorded decreases of their Greendex scores since 2010.

4.1. Greendex – Transportation sub-index

The survey's results showed that the biggest increase of transportation sub-index score was recorded by French and the largest decreases were registered by Indians and Argentineans (see table 2).

Table 2. Transportation sub-index scores by consumers in each country in 2010 and 2012

Consumers	**2010**	**2012**
Chinese	68.8	69.0
Hungarians	67.2	68.1
Indians	70.1	67.3
Brazilians	66.4	67.1
Russians	67.6	66.4
Japanese	65.6	65.9
South Koreans	63.6	64.5
Argentineans	66.9	64.1
British	63.4	62.7
Swedes	62.2	62.4
Mexicans	64.3	62.2
Spanish	61.1	62.1
Germans	60.8	61.9
French	57.3	58.9
Australians	56.9	58.2
Canadians	57.4	57.8
Americans	53.7	54.9

Source: [6]

As it is shown in table 2, Chinese and Hungarians occupied the first two places, with the highest transportation sub-index scores in 2012. The last two places were taken by Canadians and Americans with the lowest scores.

The results of Greendex survey 2012 stressed that "the possession of cars or trucks remains much more common among consumers in industrialized economies than those in rapidly developing countries".[6]

In data analysis results that:

- in Argentina and Mexico there is an increasing number of consumers who say they drive alone regularly;
- Australians, French, Germans and Spanish consumers report that they don't drive with no passengers;
- Chinese, Mexican and Indian consumers say that they choose to live close to their usual destinations to minimize the impact of their personal transportation on the environment;
- the frequency of use public transportation is low in most countries. Chinese consumers prefer to walk or ride a bicycle to their usual destination, while Australian, French, Canadian , American consumers use personal cars much more than public transportation.[6]

5. CONCLUSIONS

Promoting sustainable consumption is extremely important to limit negative environmental and social externalities, especially in transportation, which is responsible for most damage to the environment.

In its Communication „Roadmap to a Resource Efficient Europe" European Commission has settled as milestone the following: „by 2020 overall efficiency in the transport sector will deliver greater value with optimal use of resources like raw materials, energy, and land, and reduced impacts on climate change, air pollution, noise, health, accidents, biodiversity and ecosystem degradation. Transport will use less and cleaner energy, better exploit a modern infrastructure and reduce its negative impact on the environment and key natural assets like water, land and ecosystems. There will be on average a 1% yearly reduction, beginning in 2012, in transport GHG emissions".

Education is a vital instrument which can lead to the accomplishments of these goals, as many countries all over the world have developed and promoted „eco-schools" and curricula on subjects related to sustainable development.

Moreover, awareness campaigns and active participation of the residents are essential for success regarding sustainable consumption in the area of transportation. For example, the community can influence the modal split by reducing the areas accesible to cars, by lowering the availability of parking and by promoting environmentally friendly transportation such as biking and public transportation.

Everybody wants to live a more environmentally friendly lifestyle, as Greendex survey show, measuring the impact of the average consumer in each country studied with this main purpose. Besides, each of us can place on the Greendex scale by visiting national geographic. com/greendex and by taking an abbreviated survey.

6. REFERENCES

[1] COMISIA COMUNITATILOR EUROPENE, *COM(2008)397 final, Comunicare cu privire la Planul de actiune privind consumul si productia durabile si politica industriala durabila*, Bruxelles, 2008
[2] CHADHA, M., *Greendex survey 2012: India ranks first, USA last in sustainable behaviour*, www.cleantechnica.com
[3] EUROPEAN COMMISSION, *Roadmap to a Resource Efficient Europe*, COM(2011)571 final, Brussels, 2011
[4] EUROPEAN COMMISSION, *Making sustainable consumption and production a reality*, Publications Office of the European Union, Luxembourg, 2010
[5] HERTWICH, E., KATZMAYR, M., *Examples of Sustainable Consumption: Review, Classification and Analysis*, International Institute for Applied Systems Analysis, Austria, 2004
[6] NATIONAL GEOGRAPHIC SOCIETY, GLOBESCAN, *Greendex 2012: Consumer Choice and the Environment*, Highlights Report, 2012, www. nationalgeographic.com
[7] OECD, *Promoting Sustainable Consumption. Good practices in OECD countries*, 2008, www.oecd.org
[8] WORLD ECONOMIC FORUM, *Sustainability for Tomorrow's Consumer. The Business Case for Sustainability*, 2009, www.weforum.org
[9] www.iisd.org