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THE ROLE OF DIFFERENT STAKEHOLDERS IN IMPLEMENTING SUSTAINABLE CONSUMPTION AND PRODUCTION IN LITHUANIA

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Abstract

In recent years companies have become more interested in the implementation of sustainability principles in their business activities. However, despite the improvements in their practices, an increase in the amount of general consumption often exceeds the achieved progress. Thus, it is essential to consider that the relation between consumption and production should be evaluated systematically and technological approaches are not enough to realize the goal of sustainable consumption and production (SCP) without the assessment of human choices. Considering that various stakeholders are incorporated in the production and consumption system, it is necessary to explore the connections between them, company and consumers. On purpose to identify these relations, the survey applying a stratified sample with simple random sampling in the strata was conducted for the representatives of consumers and companies of Lithuania. First, a literature review of the initiatives related to sustainability of the main participants of the consumption and production system – companies and consumers as well as other stakeholders such as governments, non-governmental organizations, education and science institutions and the media is presented. Then, the results of surveys based on the literature review are highlighted. The interviewees agreed that the majority of the listed stakeholders' initiatives have favorable opportunities to promote the implementation of SCP in Lithuania and efficient progress can only be achieved if all of them closely collaborate. The summarized results are included in a new original model of SCP – the Sustainable and Responsible Company model, which could help enterprises to orient within the current situation in the production and consumption system as well as support further education and awareness of consumers.

Keywords: consumer, survey, sustainable consumption and production (SCP), stakeholder

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1. Introduction

1.1. Background of actor-network theory (ANT)

Sustainable Consumption and Production (SCP) was firstly included into the global policy agenda at the United Nations (UN) Conference on Environment and Development in Rio de Janeiro in 1992 (UN, 1992) where unsustainable consumption and production patterns were acknowledged as the main factors responsible for unsustainable world's development (UN, 1992a). On the basis of the classical definition of sustainable development (SD), the UN Commission on Sustainable Development described SCP as the consumption of products and services that are necessary to satisfy main needs and to ensure better quality of life, concurrently reducing consumption of natural resources, toxic emissions and wastes through all their life cycle with the aim to cause no threat for the demands of generations yet unborn (Welfens et al., 2010; Welford et al., 1998). 10 years later, during the World Summit on Sustainable Development (which took place in Johannesburg in 2002) transformations in SCP models were recognized as a fundamental goal on the way to SD, since without essential changes in the production and consumption system the global goal of SD could hardly be achieved (EC Directorate, 2004; Watson et al., 2010).

Despite the consumption being the most important factor for economic development (Abeliotis

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et al., 2010), it can affect the environment in many distinct ways. The present unsustainable style of consumption and production determines climate change, enlarged pollution and concentration of hazardous wastes, depletion of natural resources and decline in biological diversity; it also influences the growth of global migration and inequality in economic and social welfare between and within countries (Nash, 2009). Higher levels of consumption influence higher levels of production, which in turn require more energy and material as well as generate larger amounts of wastes (Kletzan et al., 2002). During the latter decades, initiatives in sustainable production have successfully concentrated on improving the resource efficiency in manufacturing systems. However, despite the improvements in environmental practices of separate producers, an increase in the amount of general consumption frequently exceeds this progress (the phenomenon known as *rebound* effect) (Staniškis and Stoškus, 2008; Stø et al., 2006).

After gaining independence in the beginning of 1990s and becoming the member state of European Union (EU) in 2004, Lithuania as well as the other Baltic States, has experienced significant changes in social, political and economic systems. The centrally planned Soviet economy was replaced by the free market and opened for global consumption choices and trade. Such changes have led to new patterns of consumption and production and, consequently, to new household environmental impacts and pressures on global resources and ecosystems (Brizga et al., 2014; Dagiliūtė and Juknys, 2009). SCP politics in Lithuania as well as in other Baltic States are still rather fragmented without an appropriate holistic viewpoint, while sustainable development strategies mostly emphasize economic development of the countries (Brizga et al., 2014). Although SCP actions in Lithuania started already in 1993 when the first projects of cleaner production were introduced, preventive SD measures are still not seen as a priority choice in enterprises with common *end-of-pipe* solutions and a lack of implementation of environmental management systems (EMS) (Staniškis et al., 2012). Moreover, it seems that SD concept in Lithuania is still more declarative within the political level without the sufficient perception of this terminology in the society (Dagiliūtė, 2008). In order to achieve progress towards SD, it is essential to radically change practices of consumption and production in the country, considering the fact that sustainable industry development is impossible without the integration of consumption aspects (Staniškis et al., 2012) and technological approaches are not enough to accomplish the goal of SD without the critical assessment of human choices (Dahl, 2012). Thus, on purpose to identify the most suitable direction of actions towards SCP, it is essential to jointly analyze the consumption and production, considering not only producers and consumers, but all the other interested groups in the SCP system as well (Gold et al., 2010), such as government, non-

governmental organizations (NGOs), education and science institutions as well as media.

First, the literature review of the actions and initiatives related to sustainability of the main participants of the SCP system – companies and consumers as well as other important stakeholders, namely governmental organizations, NGOs, education and science institutions as well as media – is presented in this paper. Then, considering the significance of collaboration between various stakeholders and the necessity to incorporate them in the production and consumption system, the results of surveys for Lithuanian consumers and representatives of companies based on the aforementioned literature review are highlighted. The aim of these surveys was to assess the opinion of consumers and companies as the main participants of the production and consumption system regarding the most relevant stakeholders and their most influential actions that could support the successful movement towards SCP. These results, exploring the connections between aforementioned stakeholders, company and consumers will be included into a new model of sustainable consumption and production in the company – the SURESCOM (SUstainable and RESponsible COMpany) model (Jonkutė and Staniškis, 2016).

2. Methodology

2.1. Companies' initiatives

Theorists and practitioners highlight the great importance of business for progress in SCP (Lüdeke-Freund, 2010). Companies can promote sustainability through the design, production and distribution of products and services (Michaelis, 2003) as well as through improvements in the efficacy of resource use, the application and development of new environmentally friendly technologies, materialization of recycled or used products and resources, and minimization of waste generation (Staniškis and Stoškus, 2008). However, the most important action that companies can make is to influence consumers' purchasing options by increasing the supply of sustainable goods in the market (Welford et al., 1998). Producers can also ensure the presentation of clear and correct information about the results of their sustainability practices, e.g. in the form of eco-labels and environmental product declarations (EPD) (Staniškis and Stoškus, 2008). Companies can also contribute to sustainability by changing their own consumption practices. Such actions can also influence the environmental awareness and consumption patterns of their employees (Michaelis, 2003) and hereby can have a direct impact on a broader society (Hutter et al., 2010).

Moreover, businesses play an essential role in creating more sustainable society by promoting their more socially and environmentally responsible

practices for their suppliers and even sub-suppliers (Kovács, 2008; Welford et al., 1998). Closer collaboration between different enterprises by advocating collective solutions for general problems, disseminating knowledge (Hartman et al., 1999) and sharing experiences, tools and innovations (Hutter et al., 2010) is very relevant, too.

As the progress of SD is certainly based on training and education (Welford et al., 1998), companies can benefit from their education potential by raising consumer awareness and providing information about social and environmental consequences of their consumption behavior as well as by promoting more sustainable choices (Nash, 2009; Stevens, 2010). The responsibility of companies regarding SCP can also spread out through various societal initiatives and public campaigns as well as through cooperation with different NGOs (Welford et al., 1998) and science organizations. Collaboration between companies and the media is also very relevant for communicating sustainability values, identity and social position (Michaelis, 2003).

Businesses have mostly assumed that their contribution to sustainability lies in improving eco-efficiency; however, sustainable consumption will require wider change (Michaelis, 2003), including new business models and reorganization as well as greater stakeholder engagement (Krantz, 2010). These new business models should ensure that sustainability is continuously integrated into existing business processes and should be focused on value creation (Hutter et al., 2010) building customer value and public benefits (Lüdeke-Freund, 2010).

2.2. Consumers' initiatives

Despite the improvement in results of environmental practices of many individual producers, an increase in amount of general consumption often exceeds the achieved progress, therefore consumers are the major factor for the implementation of more sustainable consumption patterns (Staniškis and Stoškus, 2008; Stevens, 2010; Stø et al., 2006). International survey data consistently show that the majority of consumers prefer not to purchase products that are socially or environmentally harmful (Hutter et al., 2010). Nevertheless, actual consumption behavior is changing slowly as consumers tend to resist changing their purchasing patterns and lifestyles due to a lack of understanding and associated costs and taxes (Welfens et al., 2010).

It is obvious that through their purchases and behavior practices consumers have the strongest external pressure on companies to accomplish sustainability issues (Kovács, 2008; O'Rourke, 2005). Hereby, consumers can help to create markets for sustainable products, stimulate enterprises to develop new efficient technologies as well as promote sustainability competitions between companies (Snoek et al., 2010). Moreover, consumers can play different roles in the market being not only buyers, but also protesters or witnesses of companies' reputation,

boycotting unsustainable enterprises (Iles, 2007; O'Rourke, 2005).

Consumers can also substantially contribute to sustainability implementation by changing their own everyday habits, such as reusing products and screening wastes, saving natural resources at home and workspace, as well as encouraging family members, colleagues and friends to support such behavior. It should also be noted that, under some circumstances, the most sustainable choice could be the radical decision not to consume at all, voluntarily buying significantly less products and, thus, reducing the amount of consumption (Stø et al., 2006).

2.3. Government's initiatives

Possibilities for changing consumer behaviour have been a central issue for policymakers since the early 1990s when sustainable consumption was firstly put on the political agenda (Stø et al., 2006). Although the majority of SCP initiatives are implemented by businesses or civil society, without the strong leadership from government, changes in the overall SCP system would be hardly obtained (Jackson, 2008; Zhao and Schroeder, 2010).

Governments can indirectly promote sustainable production by motivating consumers and encouraging sustainable consumption as well as they can directly invoke sustainable production through regulating and taxing companies by changing relative prices of stocks and flows and introducing incentives for technical change (Kletzan et al., 2002; Mont and Power, 2010).

SCP governmental strategies should combine soft tools, such as labelling and reporting, with hard tools, such as regulations and taxes (Stevens, 2010). Quotas for the use of resources and related penalties serve as a powerful tool for companies to improve their overall eco-efficiency (Geng et al., 2007). Other sustainable production tools aimed at market failures are complete product bans (Stevens, 2010). SCP is an area where minimum standards should be enforced, rather than just encouraging voluntary leadership. In this case, the regulatory and economic instruments for encouraging more sustainable consumption and production patterns should clearly cover product and production standards (Watson et al., 2010). Governments can influence relative levels of demand and promote the production of more sustainable goods by requiring producers to provide label information on the environmental and social characteristics of their products (Stevens, 2010). Aside, according to the EC SCP industrial policy action plan, eco-labelling should cover a wider range of products, marking them with respect to their environmental and energy efficiency (EC, 2007, 2008; Nash, 2009). Beyond individual products or services, governments may require or encourage producers to disclose the information on their overall social and environmental values and practices (Michaelis, 2003; Watson et al., 2010), e.g. by making corporate social responsibility (CSR) and sustainability reporting mandatory rather than

voluntary (Stevens, 2010). It is also very relevant to extend producer responsibility along the entire life cycle of products (Mont and Power, 2010).

Moreover, in their own procurement practices, governments have enormous power to influence producers and markets towards sustainability (Hartman et al., 1999; Stevens, 2010). Government subsidies for environmental upgrading, research and development, and infrastructure are another powerful economic instrument used to promote sustainable production (Watson et al., 2010). Governments may also need to create a system that rewards moral corporate behavior (Michaelis, 2003) as well as to offer concrete support to responsible consumers.

Governments can intervene in markets to address the failure of consumers to account for the environmental and social costs of their consumption (Hutter et al., 2010; Stevens, 2010), usually through taxes and subsidies, which clearly influence the final prices and raise or reduce the costs of consumer purchases thereby directly affecting consumption patterns and levels (Michaelis, 2003; Mont and Power, 2010). It is also very relevant for governments to justly distribute taxes between producers and consumers. Eco-taxes should incorporate the environmental and social costs of products and processes into final prices and filter through from producers to consumers, sharing these costs and the incentive for change throughout the value chain (Geng et al., 2007; Mont and Power, 2010). Effective sustainability strategies demand that governments fill information gaps of consumers through communications programmes, information campaigns (Le Blanc, 2010) and through mounting general education (Stevens, 2010). Governments can teach sustainable consumption habits as part of formal and informal education (Stevens, 2010) for all the ages of consumers.

However, it would be certainly difficult for governments to achieve SCP goals without strong business commitment and public participation. To reach this aim, a new and efficient form of governance should be implemented integrating all the stakeholders and promoting their cooperation (Staniškis and Stoškus, 2008), with the key role assigned to collaboration among government, mediating NGOs and private interests (Hartman et al., 1999) as well as education institutions and the media. Furthermore, an integrated policy covering all the principal sustainability aspects is also essential (Zhao and Schroeder, 2010).

2.4. NGOs' initiatives

NGOs, such as environmental and consumer organizations, public institutions, associations for the conservation of nature, human rights associations and third world action groups have a potential to act as the mediators between business and consumers (Snoek et al., 2010). Though NGOs are typically defined as the so-called secondary stakeholders, i.e. groups of people who are not essential for survival of an organization, practice demonstrates that they can exert significant pressure on companies and may cause a long-lasting negative impact on their reputation (Iles, 2007). NGOs can pressure companies to establish environmental policies and present annual public sustainability reports (Iles, 2007). Their response to SCP can also be materialized through various information campaigns, experience-sharing seminars, etc. for companies on purpose to raise their sustainability awareness (Snoek et al., 2010).

Public interest organizations are an important source of trusted information about consumption for citizens and decision makers (Barber, 2007). As companies have little incentive to disclose details about the impacts of their products or processes, NGOs play a critical role as information providers, analysts and verifiers. NGOs also seek to change and strengthen consumer awareness and demands for improved products (O'Rourke, 2005). As reliance on consumers alone is unlikely to generate production changes, efforts such as consumer campaigns and certification need to be complemented with strategies to make producers more visible and accountable along the entire life cycle (Iles, 2007). NGOs can organize information campaigns and brand attacks through media by providing reliable information to consumers about negative environmental and social impacts of their product choices and about improved alternatives (O'Rourke, 2005). Moreover, environmental and consumer activists can also catalyze the pressure of other industry participants. They can educate creditors, banks, investors and insurers to ask for the information about companies' sustainability practices as part of deciding whether to support these businesses (Iles, 2007).

2.5. Education and science institutions' initiatives

The lack of public understanding of the meaning of sustainable consumption may inhibit consumer receptiveness towards the necessity for change in consumption behavior (Kolandai-Matchett, 2009). Educators and education institutions have responsibility as well as resources for raising awareness and knowledge about consumption, production and sustainability (Barber, 2007). Therefore, it is essential to create an effective sustainable education system that would be oriented to people from different age and social groups (Staniškis and Stoškus, 2008). Public information campaigns and training for sustainable consumption can help consumers to choose environmentally friendly products in the market, instead of more polluting or energy consuming goods (Snoek et al., 2010; Stø et al., 2006).

Successful collaboration between universities and businesses could help business society to prepare adequately for addressing sustainability (Hartman et al., 1999). Education programmes for companies should blend periods of formal education with periods of practice (Geng et al., 2007) and include the most important SCP topics and tools. Better linkages and partnerships between academia and business can also

improve understanding of implementation issues related to sustainable innovation and facilitating better knowledge transfer. Academia also needs to build stronger linkages with government and the media to facilitate the flow of research, scientific analysis and information into the hands of environmental decision-makers (Hartman et al., 1999) and to raise consumer awareness about the impacts of their consumption choices and practices (Barber, 2007).

2.6. Media's initiatives

Although advertising and the mass media intentionally manipulate individual values, often in directions opposite to the requirements of sustainability, the same media have the potential to counteract destructive tendencies and to communicate sustainability values (Dahl, 2012). Therefore, it is essential to engage them in the promotion of sustainable consumption (Kolandai-Matchett, 2009).

A major appeal of the media as channels for communicating sustainability is their capability to inform and educate a large number of people within a short period (Kolandai-Matchett, 2009). Advertising and marketing are perhaps the most powerful tools that can be employed to create attractive visions of more sustainable futures and lifestyles, products and services as well as to engage and educate consumers on how to translate these visions into everyday practices (Mont and Power, 2010).

The press and the media have a significant indirect influence on all other stakeholders in the SCP system (Madsen and Ulhøi, 2001). While being a key to the aforementioned information campaigns and brand attacks (O'Rourke, 2005), the media have an exclusive role to publicize the information about unsustainable enterprises that indirectly determines companies' reputation and the demand for their products.

The problems in many SD areas are too complex for companies to deal with alone (Barber, 2007). Yet, the responsibility of SCP should not also be placed on an individual consumer (Stø et al., 2006). These problems cannot also be solved solely by government (Hartman et al., 1999). According to Jackson (2008), consumption comes naturally to humankind, so changes require a supportive social environment. Summarizing the comments in earlier publications (Barber, 2007; Hartman et al., 1999; Lüdeke-Freund, 2010; Michaelis, 2003; Shin et al., 2008; Staniškis and Stoškus, 2008; Stevens, 2010; Stø et al., 2006), efficient progress in the area of SCP can only be achieved if the members of such main interested groups as governments, business/industry, NGOs, education/academic institutions, the press/media and civil society closely collaborate to share knowledge, tools and innovative thinking. This collaboration could accelerate behavioral change towards more sustainable practices, increased competitiveness and a healthier environment (Barber, 2007). As various stakeholders are incorporated in the system of production and consumption, it is essential

to determine the connections between them, company and consumers. On purpose to identify the aforementioned relations, the results of the survey for representatives of consumers and companies in Lithuania based on previous literature analysis are presented further.

3. Material and methods

3.1. Sample sizes

In order to evaluate the potentially most influential SCP initiatives of various stakeholders, the empirical research in the form of the survey was conducted for the representatives of consumers and companies of Lithuania from May to December, 2012. Sample sizes of this research were evaluated by applying Cochran's formula for large populations (Cochran, 1977) with the confidence level of 95%, the estimated proportion of an attribute that is present in the population of 0.5 and the level of precision of 0.05 (Kasiulevičius et al., 2006).

According to the data of the Department of Statistics of Lithuania, the population of the country in 2012 was 2.76 *mln*. (inhabitants elder than 15 years were only counted) and the number of companies was 83624. Therefore, the estimated sample sizes were structured of 384 consumer and 196 enterprise respondents.

3.2. Sampling method

In order to guarantee representative results, a stratified sample with simple random sampling in the strata was used in the research (OECD, 2003). All the inhabitants of Lithuania were divided into 8 strata according to their gender (45.6% men and 54.4% women) considering the current age structure of the population. The separate strata were composed of the following age groups: 15-20 (8.1% of the population), 20-29 (17.6%), 30-39 (15.5%), 40-49 (17.7%), 50-59 (15.7), 60-69 (11.6%), 70-79 (9.3%) as well as 80 or older (4.5%) aged people (for more detailed information about consumers' survey please see Jonkutė (2015)). Similarly, all the enterprises in the country were separated into 8 strata according to the indicated number of employees, representing the groups of companies with less than 10 (78.3% of all the companies), 10-19 (9.4%), 20-49 (7%), 50-99 (3.3%), 100-149 (1%), 150-249 (0.5%), 250-499 (0.4%) as well as 500 or more (0.2%) employees. The samples for research were picked trying to represent the current gender and age proportions of Lithuanian inhabitants as well as the proportion of the quantity of employees in country's enterprises.

All the respondents were randomly chosen from the database of Institute of Environmental Engineering of Kaunas University of Technology, which includes various types of enterprises in different industries and people in different age groups that have participated in an extensive amount of various collaborative projects within 20 years.

3.3. Surveying method

On purpose to optimize research data collection, to combine advantages and compensate weaknesses of the different surveying patterns (De Leeuw, 2005; EC, 2004; Martelli, 2005), the mixed-mode survey was applied. It mainly consisted of 2 surveying methods, i.e. an online questionnaire form and a survey in .doc format distributed as an attachment on e-mail. Moreover, some part of the surveys was disseminated in the paper form to decrease the impact of bias emerging from the fact that part of all the population still have no opportunities and/or skills to use computer and the internet (Rosenbaum and Lidz, 2007; Schaefer and Dillman, 1998; Sills and Song, 2002).

3.4. The structure of the survey

The survey was composed of 2 question blocks. The first block which was based on the literature analysis and earlier research was intended to ascertain the opinion of the respondents about the most influential stakeholders regarding the promotion of SCP issues as well as the significance of their listed initiatives. The main goal of the second block – basic demographic/company information – was to make further comparisons and perform reasonable interpretations of survey results.

3.5. Scale types and internal consistency of the survey

The most common scale type in the questionnaire was a 5-point Likert-type scale. Respondents were invited to indicate their opinion by choosing one of 5 alternative answers from 'strongly disagree' to 'strongly agree' with corresponding values varying from 1 to 5. Whereas nominal and range scales were used in survey blocks representing basic demographic or company's information. The internal consistency of the scale was measured following the calculation of Cronbach's alpha coefficient (Bland and Altman, 1997). A very high consistency level of the scale was proved by the value of 0.950 of Cronbach's alpha coefficient (Robinot and Giannelloni, 2010; Tavakol and Dennick, 2011).

3.6. Presentation forms of the results

In order to simplify the results of the survey, all the answers of both respondents' groups were expressed in percentages distributed in 3 sections, namely 'disagree' (summarizing the answers from sections 'strongly disagree' and 'disagree'), 'neither agree, nor disagree' and 'agree' (the sum of the answers from sections 'agree' and 'strongly agree').

3.7. Data processing and methods of statistical analysis

The research data were processed by the means of mathematical statistical analysis; data processing

software package *SPSS 17.0* was employed. The significant differences between the answers of consumers' and companies' respondents were estimated applying the Pearson's chi-square test (χ^2) (McHugh, 2013) with the level of significance (p) of 0.05 (marked with [*] in the Fig. 2-7, respectively).

3.8. General definition of the samples and research limitations

Despite the struggle to correspond with the evaluated sample sizes and retain the distribution of respondents according to the aforementioned proportions of gender, age and quantity of employee, some discrepancies were inevitably defined. First, the compatible questionnaires allowed achieving sample sizes of 240 consumer and 154 enterprise respondents. The response rates were 36.6% and 34.2%, respectively. According to the research of Wikström (2010), where the response rate of 23% for the similar population of 215 respondents was deemed to be sufficient to define the trusted results, these rates seem to be sufficient to reflect a reliable tendency regarding the consumption and production system of Lithuania. Secondly, the significantly larger part of the study participants were women (74%), while the most active group of respondents was aged between 20 and 29 (30%). Furthermore, 35% of the interviewed companies had less than 10 employees.

4. Results and discussion

Considering the demand for systematic endeavor of producers and consumers including other stakeholder groups to seek SCP, determined during the literature analysis, the results of the surveys for the main participants of the production and consumption system, i.e. consumers and companies, disclosing the potential of particular stakeholders and their most significant SCP initiatives, are discussed in the following subsections.

Foremost, the respondents were asked to identify the most influential stakeholders that could support the successful movement towards SCP. According to the results obtained (Fig. 1), more than 70% of the consumer and company interviewees agree that almost all listed stakeholders have favorable opportunities to promote the implementation of SCP in the country.

In order to evaluate the significant difference between consumers and company respondents' answers, the Pearson's chi-square tests were performed. The results showed the statistically significant differences (p<0.05) regarding the importance of the potential of companies as well as education and science institutions, the media and suppliers. In all the aforementioned cases, consumer respondents were more positively minded.

The majority of the interviewed consumers (88%, the summarized percentage of the respondents that 'agree' and 'strongly agree') referred that the most responsible group for the implementation of more

sustainable living was industrial and service enterprises, and only one percent less (87%) evaluated the impact of the suggested network composed of collective actions to seek SCP of all the named stakeholders. Marginally less influential seemed to be the media as well as education and science (86% each) and governmental institutions (85%). These results only partly supported the findings of other researchers proposing that the majority of respondents considered government to be the most responsible for sustainability and solutions of environmental problems followed by industrial and service organisations (Akenji and Bengtsson, 2009; Dagiliūtė, 2008; Liobikienė et al., 2014; Miller, 2001). Further were aligned consumer opportunities to stimulate SCP (77%) as well as the sustainability potential of NGOs (72%) and suppliers (70%). Although Dagiliūtė (2008) has also ascertained a relatively low responsibility attributed to NGOs, this rating was more than 3 times lower; meanwhile, the rating of the media was even almost 8.5 times lower than the analogous percentage evaluations in this research. The aforementioned implications allow us to propose that there is an increase in society's trust regarding the influence of these organizations on the process of education and information dissemination during the latter years, concurrently indicating an increase in the significance of the media and NGOs to promote SCP in Lithuania. It is interesting to notice that consumers also tend to underestimate their own possibilities to promote SCP in Liobikienė et al. (2014) and other earlier research studies on consumer behaviour. This finding was explained by the assumption that consumers were inclined to rely more on the potential of other stakeholders, e.g. governmental institutions (Francis and Davis, 2015).

The comparison of previously discussed results and the answers of enterprises in the current study demonstrated that the representatives of companies in most of the cases had more doubts towards the chances of the listed stakeholders. The biggest part of company respondents (80%) assumed that government, which was evaluated by consumers as fifth under importance, had the largest possibilities to influence and shape sustainable behaviour. Similarly, to consumers, the second most important (78%) participant for companies was also the cooperative network of all the stakeholders, and only one percent less (77%) evaluated their own – industrial and service enterprises' – potential, which seemed most significant for consumers. These implications correspond to the results of Miller's (2001) research on various business experts and the overview of Mont and Plepys (2008) that demonstrated government to be mostly responsible for sustainability followed by industrial enterprises. Similar results regarding the importance of government were also obtained in a survey for Lithuanian enterprises in the research of World Bank (2005) and findings of Čepinskis et al. (2001), Ho et al. (2010) as well as Madsen and Ulhøi (2001), while Michaelis (2003) highlighted the need for active cooperation between government, business and consumers.

According to the company respondents, education and science institutions (73%), customers/consumers (70%), the media (68%) as well as NGOs (62%) were evaluated as marginally less influential stakeholders. The aforementioned outcomes partly conform to the results of earlier research of Čepinskis et al. (2001), Ho et al. (2010), Madsen and Ulhøi (2001) as well as Mont and Plepys (2008); however, the findings in a situation analysis report of Piligrimienė (2009) did not support the importance of NGOs as the key stakeholder regarding sustainability issues in Lithuania.

The results of the survey investigating the importance of specific possible actions and initiatives on the way to sustainability in Lithuania undertaken by the most influential stakeholders – companies, consumers, government, NGOs, education and science institutions as well as the media – will be presented further.
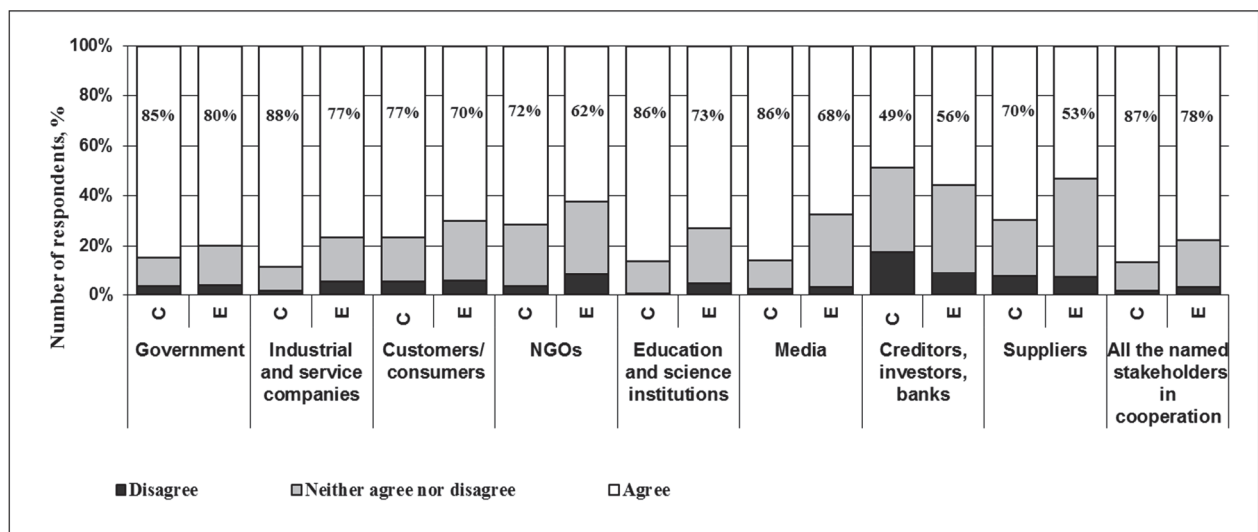

Fig. 1. Consumers' (C) and enterprises' (E) answers regarding the importance of different stakeholders

4.1.1. Companies' initiatives

A statistically significant difference (p<0.05) between the answers of consumer and enterprise respondents according to the Chi-square tests was identified in the ratings of more than half of the listed companies' initiatives. In all these cases, consumers were rather more strongly positively minded towards these actions than the representatives of enterprises. The reason for this evaluation could be a common stereotype that all incentives towards sustainability require large investments of finances, time and human resources.

The investigation of the consumers' position regarding the possible companies' initiatives (Fig. 2) that could help to move towards SCP showed the most efficient measures to include proper waste handling (92% supportive respondents), development of innovative, progressive technologies and socially responsible behavior on purpose to achieve more efficient consumption of resources (89%), as well as presentation of transparent and comparable information about characteristics and impacts of products and services (86%). Despite the aforementioned significant differences, the opinion of the companies about the efficacy of their own actions on the way to SD of the country was almost the same as the results discussed earlier, rating the tendencies of consumer beliefs. Similarly to consumers, the representatives of enterprises strongly believed in the potential of such actions as proper waste handling (88%), development of innovative technologies and socially responsible behavior (88%), as well as an increase in the supply of more environmentally friendly goods in the market (82%).

These findings partly confirm the results of the international conference for SCP, underlining the significance of awareness raising among consumers, companies' staff and suppliers as well as development of innovations, CSR and presentation of transparent information (Staniškis and Stoškus, 2008). The initiative to develop new technologies and practices was also emphasized by Michaelis (2003) as well as Mont and Plepys (2008); meanwhile, the results of BSR/GlobalScan (2009) survey indicated the importance of the aforementioned actions as well as the potential of new business models and engagement of various stakeholders.

4.1.2. Consumers' initiatives

In the assessment of their own possibilities to initiate more sustainable living, consumer interviewees strongly agreed with almost all the listed actions (Fig. 3). The most perspective initiatives appeared to be reuse of products and waste screening (92%), savings of natural resources at home and workspace (89%) and an increase in the demand for less harmful products and services in the market (86%).
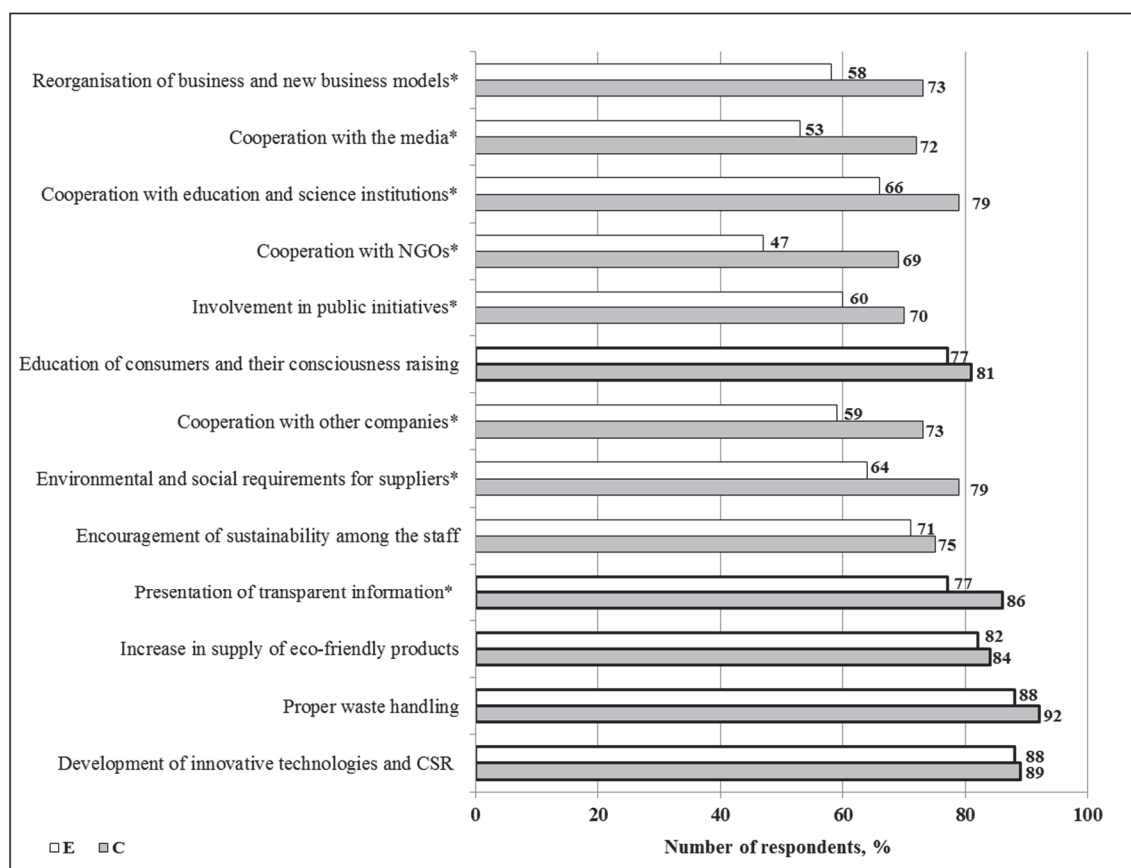

Fig. 2. Supportive consumers' (C) and enterprises' (E) answers regarding SCP initiatives of companies, χ^2: * – p<0.05
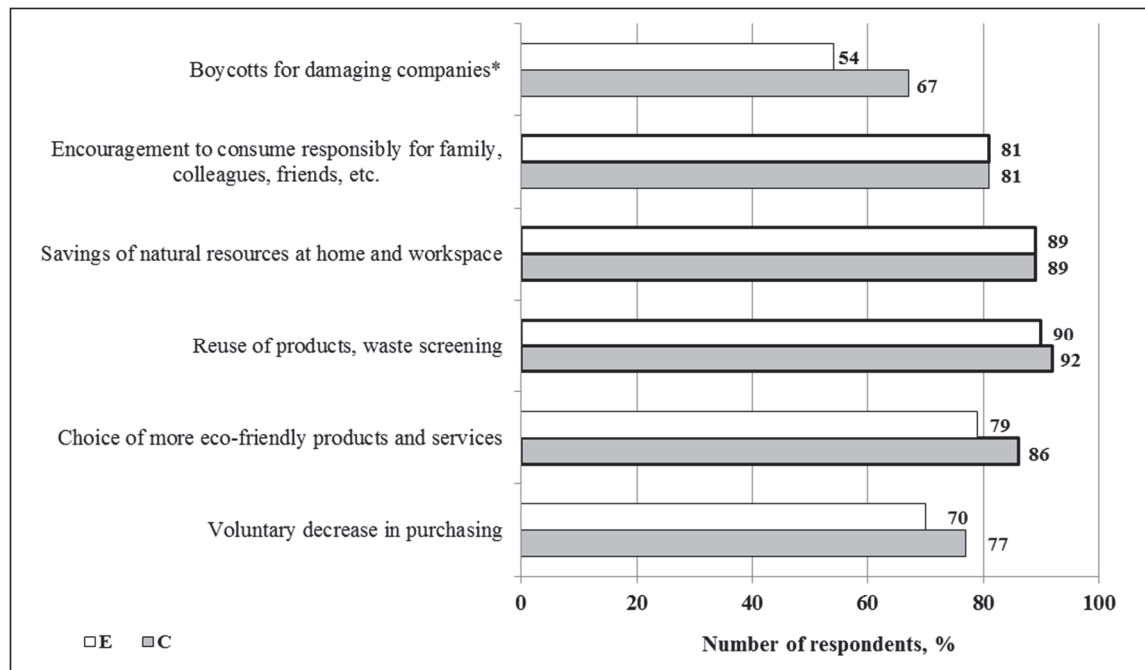
Fig. 3. Supportive consumers' (C) and enterprises' (E) answers regarding SCP initiatives of consumers, χ^2: * – p<0.05

Similarly, the position of the respondents from enterprises was also confirmed by the results of chi-square tests that could not identify a statistically significant difference between the respondents' answers in most cases. According to company representatives, the most efficient consumer actions to achieve the aim of SCP were reuse of products and waste screening (90%) as well as savings of natural resources at home and workspace (89%). These initiatives were also emphasized by Staniškis and Stoškus (2008).

4.1.3. Government's initiatives

According to both consumers' and enterprises' answers, all the listed actions of the government can have appreciable benefit in seeking SCP (Fig. 4). A statistically significant difference (p<0.05) between the answers of consumer and enterprise representatives according to the Pearson's chi-square tests was identified in the ratings of almost half of government's initiatives. As in the earlier investigation into companies' initiatives, in this case, consumers were also more favorable regarding stakeholder possibilities to help in promotion of SCP.

The most important initiatives of the government, according to all the interviewed consumers, were requirements for producers to propose comprehensive information about the composition of products and impacts of services (85%). Slightly less significant (83%) seemed to be the extension of producers' responsibility in the entire life cycle of products, complete bans for certain harmful products, the extension of eco-labelling initiative, minimal mandatory requirements for harmful products/services, financial encouragement of sustainability-aware consumers, government

subsidies and tax deductions for companies as well as motivation for change in public opinion through the media. Similar results were also obtained in Zaccaï's (2008) study showing a relatively fair number of consumer respondents proposing that producers should be taxed and penalized regarding the causation of environmental problems and that mandatory standards should be applied for their products; meanwhile, Michaelis (2003) stressed the importance of economic incentives for producers and consumers. Coincident findings were also observed by Akenji and Bengtsson (2009), EC (2007), Mont and Plepys (2008) as well as Staniškis and Stoškus (2008), emphasising the potential of bans on harmful products and environmental penalties, mandatory requirements and standards, awareness raising campaigns, education and eco-labelling, whereas Dagiliūtė and Juknys (2009) indicated environmental education, information and eco-labelling as well.

The analysis of the viewpoint of company representatives in the evaluation of analogous government actions demonstrated that these respondents highlighted the importance of mandatory requirements for harmful products and services (83%). Slightly less significant initiatives for companies seemed to be the extension of their responsibility in the life cycle of products (75%), financial encouragement of sustainability-aware consumers (74%); and the requirements to present information about products and services (73%).

4.1.4. NGOs' initiatives

The analysis of the results of the consumers' answers about the most significant NGOs' actions to catalyze the growth of sustainability in the country indicated the relevance of an increase in consumer

consciousness about the environmental impacts of their purchases through education in TV and radio commercials, informative reports in the press, information campaigns, etc. (82%), the dissemination of trusted information about environmentally friendly companies and their products/services in order to increase the demand for them (81%) and promotion to develop a reliable labelling system that could help to

increase consumers' confidence regarding new products (81%).

Although the Pearson's chi-square test analyses showed that there were evidently significant differences between consumers' and enterprises' opinion regarding the importance of NGOs' initiatives (Fig. 5), the tendency for similar opinion of companies and consumers was observed.
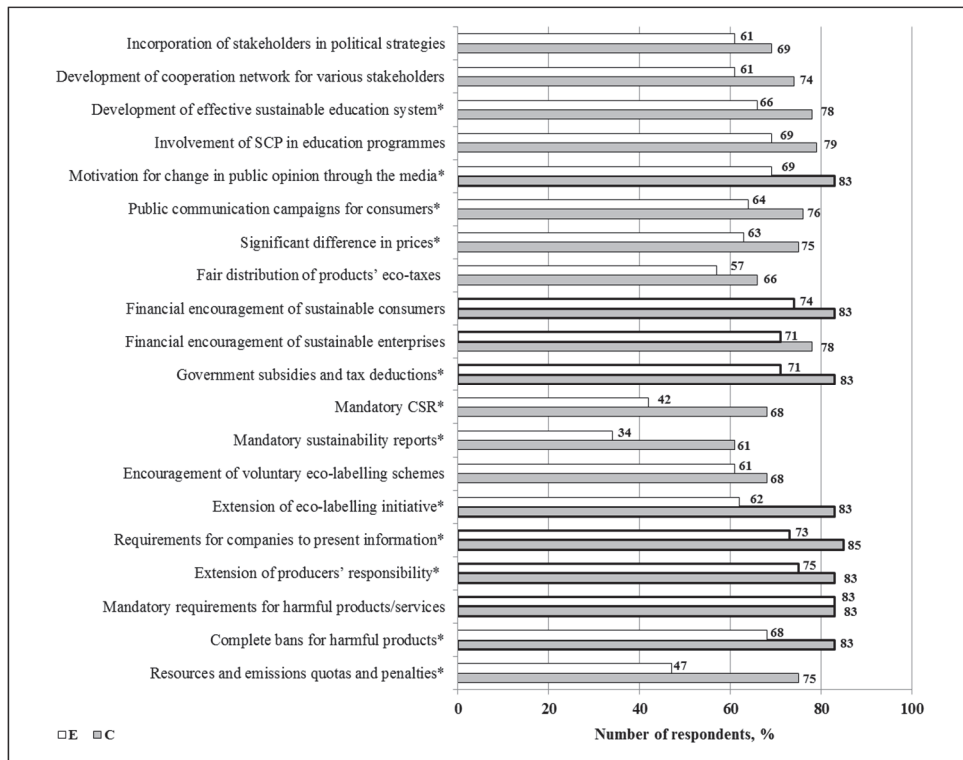

Fig. 4. Supportive consumers' (C) and enterprises' (E) answers regarding SCP initiatives of consumers, χ^2: * – p<0.05

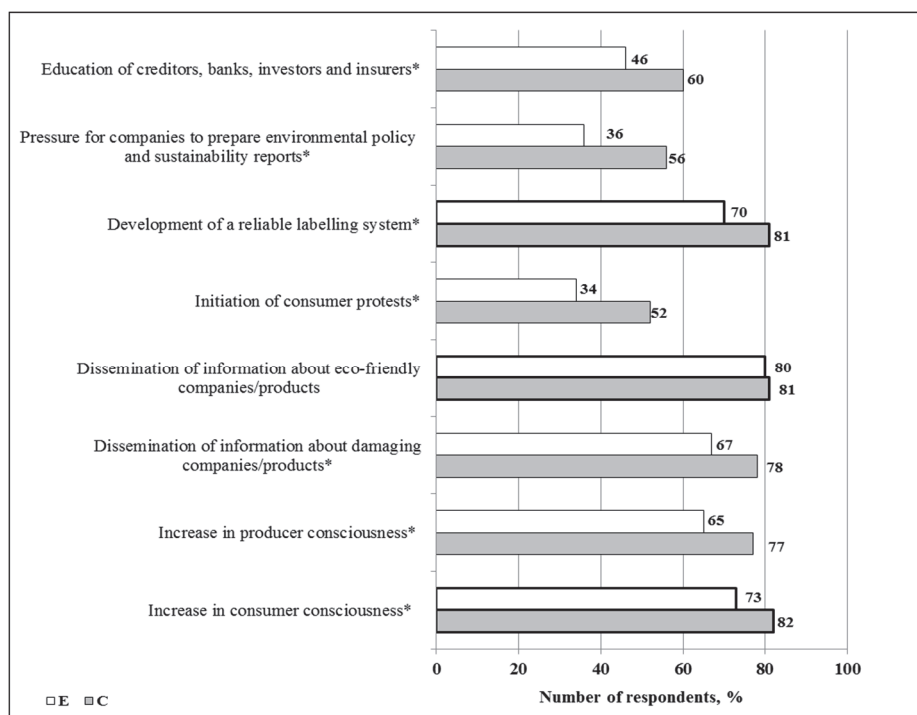**Fig. 5.** Supportive consumers' (C) and enterprises' (E) answers regarding SCP initiatives of consumers, χ^2: * – p<0.05

According to them, the most significant actions of NGOs were the dissemination of information about environmentally friendly producers and their products/services (80%), increase in consumer consciousness (73%) as well as development of a reliable labelling system for products/services (70%). The importance of NGOs to change consumer behavior and raise their awareness was also stressed by Iles (2007), Mont and Plepys (2008) as well as Staniškis and Stoškus (2008).

4.1.5. Education and science institutions' initiatives

Consumer respondents also strongly approved of the potential of education and science institutions to promote SCP, especially highlighting the cooperation with the media in order to provide scientifically confirmed and reliable information (88%) as well as integration of sustainable development subjects in school curricula (85%) and the help of scientific organizations to implement various innovations in companies (85%). These results also correspond with the findings of Staniškis and Stoškus (2008).

The companies' opinions regarding the importance of activities of education and science institutions were also marginally different in most cases with the similar evaluation tendency as noticed in consumers' answers (Fig. 6). This similarity was partly proved by the Pearson's chi-square tests that identified a statistically significant difference between respondents' answers towards a few initiatives. Thus, the integration of SD subjects in school curricula (86%) as well as help of scientific organizations to

implement various innovations in companies (79%) were identified as the most efficient activities. The importance of scientific knowledge and assistance was also determined in Trencher's et al. (2014) survey.

4.1.6. Media's initiatives

The assessment of consumers' answers regarding all the listed initiatives of the media showed almost equal positive ratings (Fig. 7). The publication of environmentally and socially sustainable products, advocating better alternatives in the market (88%) as well as encouragement of consumer consciousness regarding the impacts of products/services and consumption patterns they choose employing various research broadcasts and recommendations in press publications, webpages, social media, etc. (85%) were identified as the most efficient initiatives.

Although the major part of the results of Pearson's chi-square tests showed a statistically significant difference between the opinion of consumers and companies, a similar tendency was determined in company representatives' answers. In this instance, the publication of sustainable products (82%), encouragement of consumer consciousness through research broadcasts and recommendations in the press (79%) as well as through advertisements in the media (77%) were accepted as the most influential initiatives. The potential to encourage consumer consciousness was also proposed in the studies of Cancila et al. (2010) and Čepinskis et al. (2001) as well as in the findings of Staniškis and Stoškus (2008).
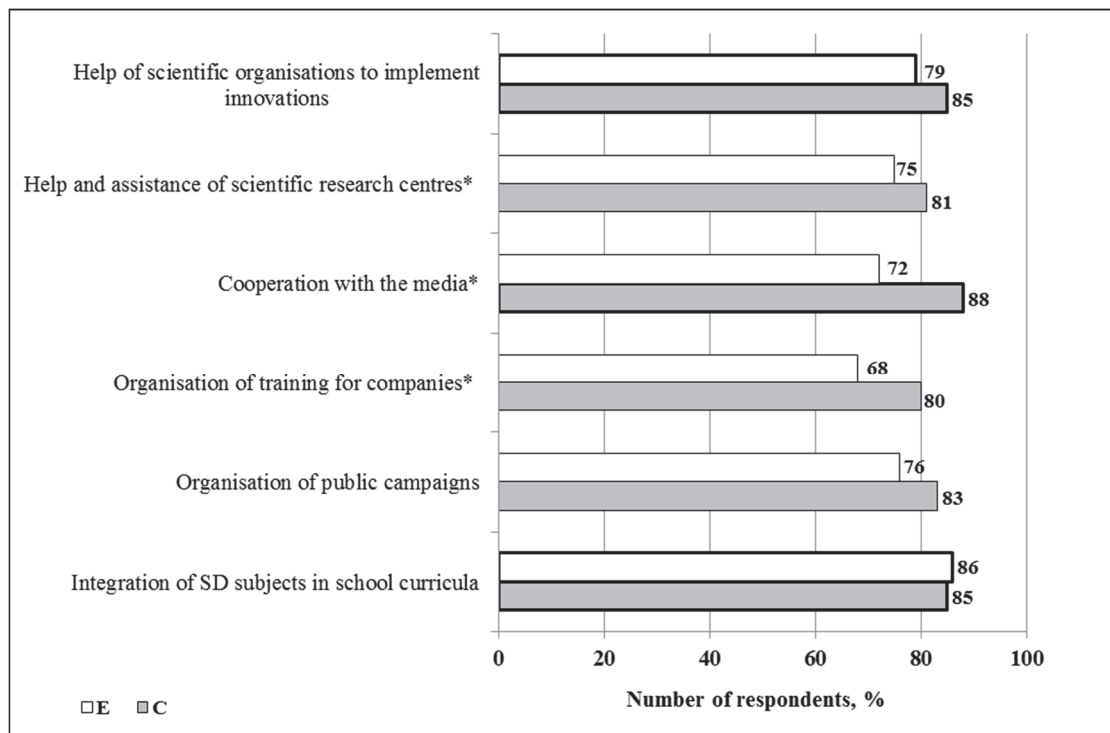

Fig. 6. Supportive consumers' (C) and enterprises' (E) answers regarding SCP initiatives of consumers, χ^2: * – p<0.05
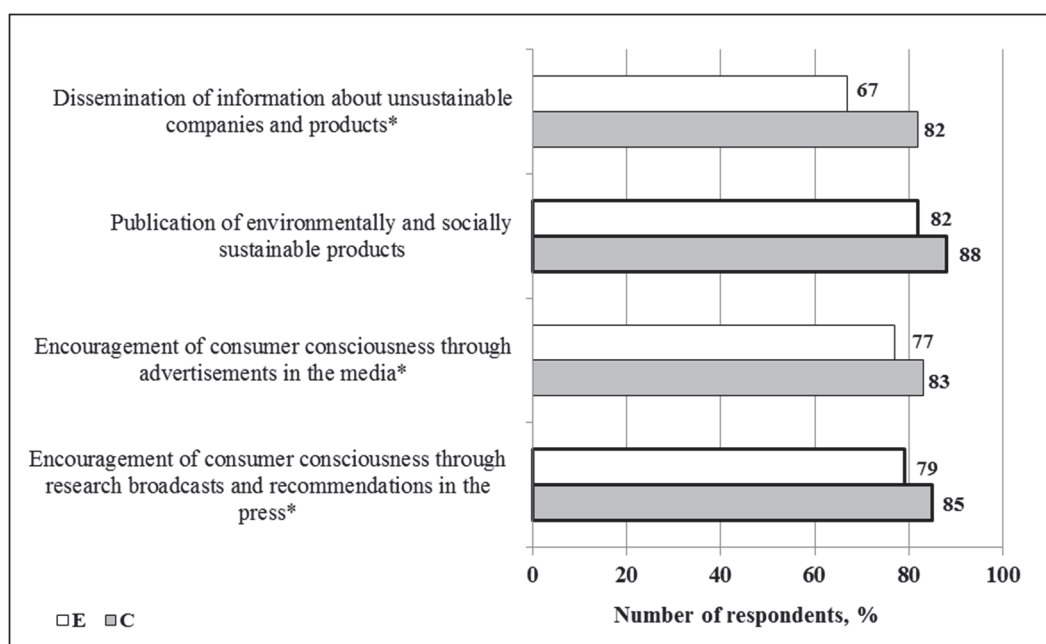
Fig. 7. Supportive consumers' (C) and enterprises' (E) answers regarding SCP initiatives of consumers, χ^2: * – p<0.05

## 5. Application of results and the SURESCOM model

Considering the fact that consumers and companies are the most important participants in the SCP system, their opinion regarding SCP should be of equal value. Therefore, the results of the surveys for consumers and companies that represented the possibilities of particular stakeholders to promote SCP in Lithuania were summarized on purpose to reasonably include the highest rated initiatives of the most important stakeholders into the new model of sustainable consumption and production in the company, the SURESCOM (SUstainable and RESponsible COMpany) model (Fig. 8) (Jonkutė and Staniškis, 2016), representing the most significant information flows between company, consumers and other main stakeholders (Fig. 9).

The basis of the aforementioned model is a classical closed-loop cycle scheme for an integrated management system which proposes a plan how to consistently integrate SCP principles in organisation's practices. The model integrates a set of widely-accepted SD measures and tools that can be adjusted to 3 major areas of company's activities, namely manufacturing processes, products/services as well as communication with stakeholders. The application of engineering (resource efficiency and cleaner production (RE & CP), industrial ecology (IE), life cycle assessment (LCA) and eco-design), management (ISO 9001, ISO 14001/ EMS, OHSAS 18001, ISO 26000, etc.) and communication (sustainability reporting, eco-labelling, environmental product declarations (EPD), various stakeholder engagement initiatives altogether with a survey for company's customers/clientele) tools can help to control the characteristics of company's industrial processes, products and services as well as to engage various stakeholders. This model suggests a complex structure that consists of a number of links not only in the own manufacturing cycle, but also between company, consumers/customers and other different groups of stakeholders. These connections are presented as the flows of materials, energy and information, circulating in the system and overpassing its boundaries. According to the industrial ecology concept, this model can help to reduce energy and material use together with waste output, increase consumer acceptance while eliminating the undesirable *rebound* effect.

In the general consumption and production system of the model, consumers/customers were for the first time included not as passive participants, but as active members of the system that can significantly influence producers through the feedback mechanism. Manufacturers not only generate the niche of more environmentally friendly products and services in the market, but also educate consumer society enhancing the demand for such goods. While consumers become more environmentally conscious day after day, they can in turn influence producers to develop their business in a sustainable way requesting more sustainable products and services that satisfy their demands.

The suggested model ensures the appropriate systematic relation between consumption and production. These measures incorporate the feedback of customers as well as the decision power of other main company's stakeholders and guarantee the promotion of SCP through more sustainable design, production and distribution of products and services as well as other company's activities, simultaneously stimulating the demand for more sustainable products/services and encouraging not only consumers, but also the other participants of the overall SCP system to make better choices.
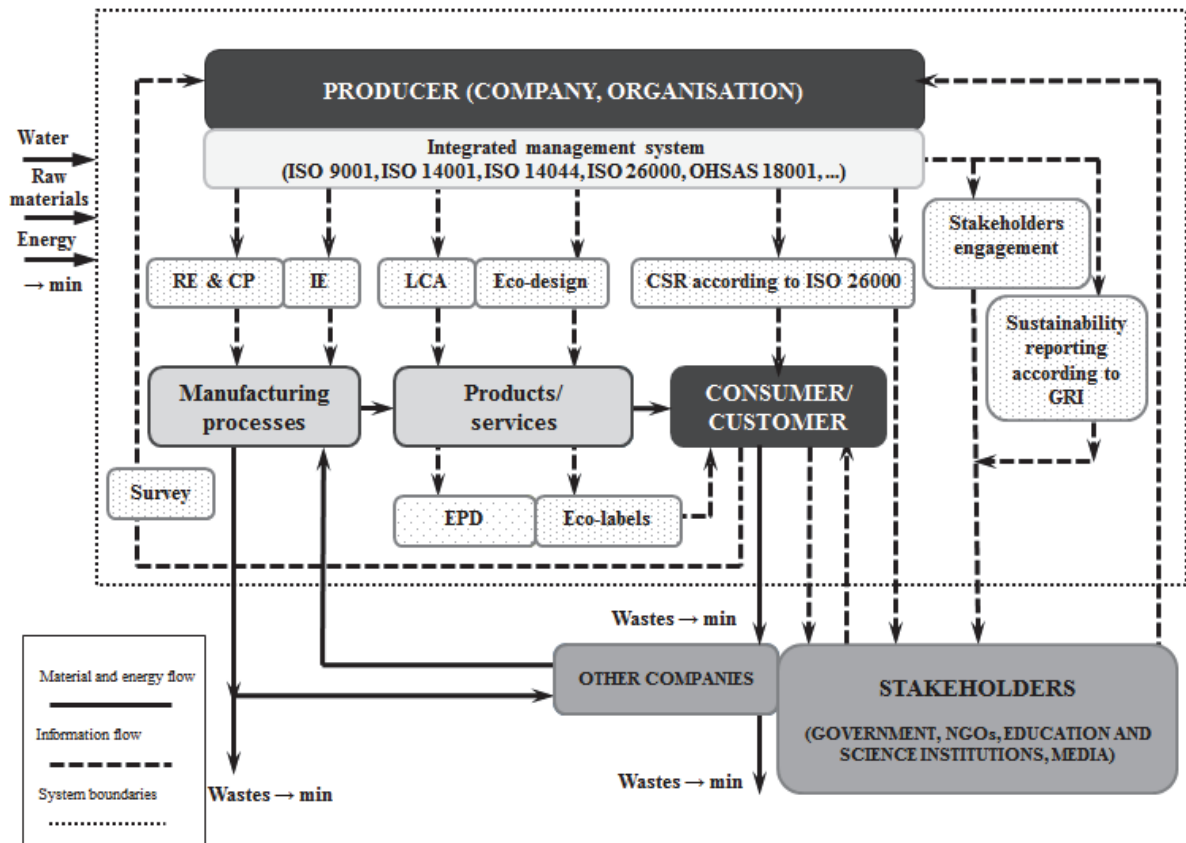
Fig. 8. The SURESCOM model (Jonkutė and Staniškis, 2016)
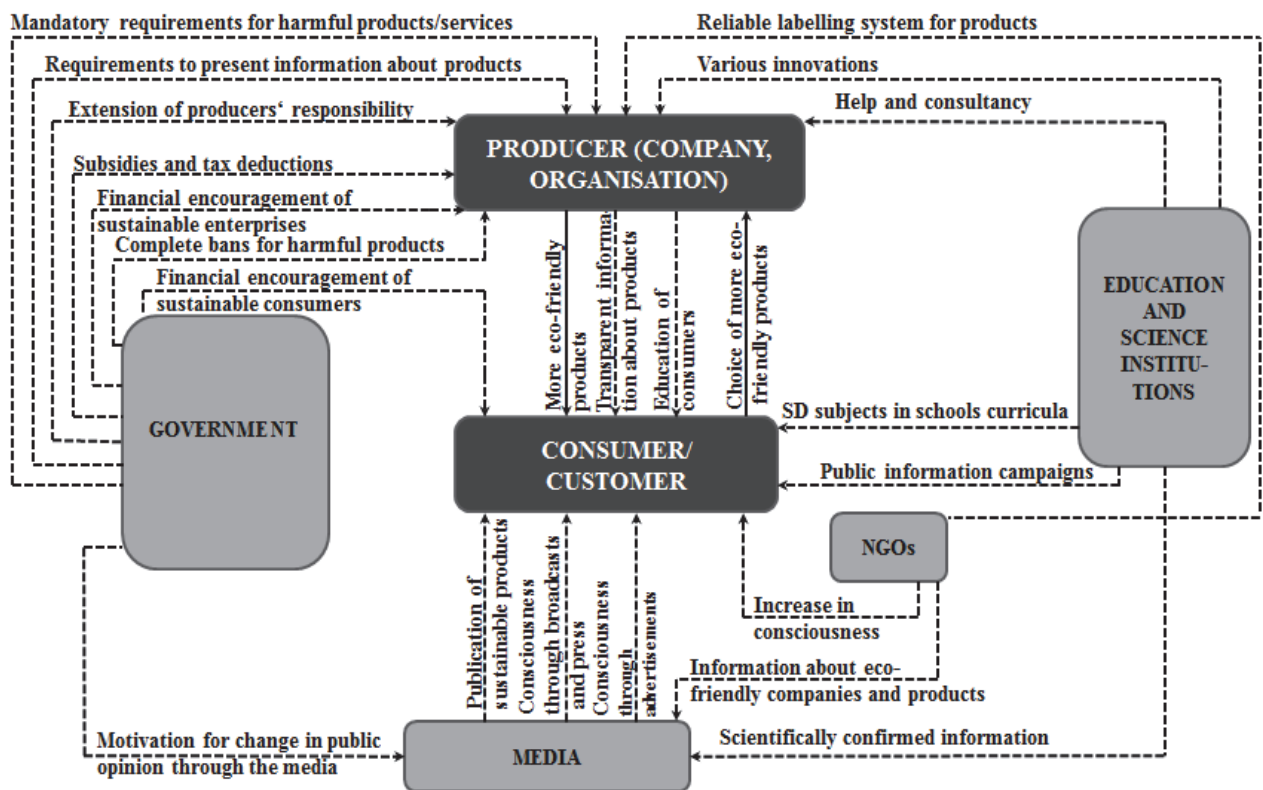
Fig. 9. The most significant initiatives as information flows between company, consumers and other main stakeholders in the SURESCOM model

In summary of the results obtained, it may be credible that the goals of SCP could be achieved fast and efficiently if all the most important stakeholders, i.e. companies and consumers, government, NGOs, education and science institutions as well as the media that were identified during this research, would seek them together. Companies would implement innovative technologies, appropriately handle wastes generated because of their activities, increase the supply of environmentally friendly goods and present transparent, comprehensive information about them as well as educate consumers that in turn would apply sustainable everyday behavior through savings of natural resources, reuse of products, waste screening as well as choices of more environmentally friendly products and services.

Meanwhile, a suitable political system would control the actions of companies and consumers by determination of mandatory requirements for products or even complete bans for the most harmful of them, requirements for companies to present comprehensive information about products/services and extension of their responsibility in the entire life cycle of products as well as awarding with government subsidies and tax deductions, financially encouraging both sustainable consumers and enterprises and motivating changes in public opinion through the media. NGOs, as mediating stakeholders, would realize their potential through an increase in consumer consciousness in various methods, dissemination of information about environmentally friendly companies and their products as well as the development of a reliable labelling system for products/services that could help to decrease consumer distrust regarding the information that companies propose.

Education and science institutions would promote the integration of SD subjects in school curricula, organize public campaigns on sustainable consumption and together with the media provide scientifically confirmed information while helping companies to apply and implement various innovations as well as providing them with further assistance. And finally, the media that have exceptional opportunities not only to reach wide groups of consumers, but also to make significant indirect influence on all other participants of the SCP system would promote consumer consciousness through advertisements in the media, research broadcasts and recommendations in the periodical press, and also publicize environmentally and socially sustainable products.

6. Conclusions

In summary of the results of the surveys for respondents that represent both consumers from individual households and representatives from companies of various business sectors, it is obvious that the interviewees agreed that the majority of the listed stakeholders' initiatives based on the literature analysis had favorable opportunities to promote the implementation of SCP in Lithuania. This implication confirms that efficient progress in the area of SCP can only be achieved if members of all these interested groups closely collaborate and the responsibility for sustainability achievements should not be placed on companies and consumers alone.

The findings discussed above support the demand to include not only the essential participant, i.e. the consumer, but also other most significant stakeholders, such as government, NGOs, education and science institutions as well as the media and their first rated initiatives into the new original model of sustainable consumption and production in the company, SURESCOM.

Considering the fact that consumers are becoming more intelligent regarding sustainability issues, the model could help companies to orient within the current situation in the production and consumption system as well as could support further sustainability education and awareness of consumers. The implications of this research could also be relevant for other developing countries.

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