

SUSTAINABLE FOOD CONSUMPTION – THE CASE OF THE CZECH REPUBLIC

Tomáš RATINGER^{1*}, Lenka HEBÁKOVÁ¹, Tomáš MICHÁLEK¹, Adam TOMKA²,
Ilona MRHÁLKOVÁ³, Olga ŠTIKOVÁ³

Address:

¹ Technology Centre of the Academy of Sciences of the Czech Republic, Prague

² Faculty of Tropical Agriculture, Czech University of Life Sciences, Prague

³ Institute of Agricultural Economics and Information, Prague

*Corresponding author; e-mail: ratinger@tc.cz

ABSTRACT

The sustainability challenges such as depletion of finite resources stem largely from an explosion in consumption. So far, most attention has been paid to socially efficient use of resources in production. However, the recent increase in demand for biomass and food followed by soaring food prices calls for reconsidering our approach and focusing on consumption too. This includes consuming less but mainly differently, and reducing and recycling wastes. Since food consumption is integrated with our life style it is important to understand socioeconomic and cultural contexts, the formal and informal institutions and government policy which form our food consumption behaviour. The paper refers to our ongoing research carried in the 7FP project PACITA on the technology assessment. We show main patterns and trends in food consumption and buying habits in the Czech Republic and initiatives promoting sustainable consumption in the country and in the selected EU member states. Possible reasons for so poor attention to sustainability of food consumption in the Czech Republic is discussed.

Keywords: sustainable consumption, food consumption, food waste, social practice, diffusion, institutions, food and sustainability policies

JEL: Q23, Q55, D1

INTRODUCTION

The sustainability challenges such as depletion of finite resources stem largely from an explosion in consumption. “Fundamental changes in the way societies consume and produce are indispensable for achieving global sustainable development,” states The Future We Want, the outcome document of the United Nations Conference on Sustainable Development, often called as “Rio+20”. Despite the fact that in some areas like energy consumers appreciated energy saving products and many governments launched effective programmes for sustainable consumption and production, most attention has been paid to socially efficient use of resources in production; and it holds for the agri-food system in particular. However, the recent increase in demand for biomass and food followed by soaring food prices, calls for reconsidering the approach and focusing on the consumption side too. While in many EU countries the need for more sustainable food consumption has been largely recognised and the public debate has spread among the stakeholders (e.g. Germany).

The objective of this paper is to investigate if Czech citizens/consumers are aware of sustainability problems globally and in their local contexts, if there are some signals of changing food consumption pattern toward a more sustainable one in the Czech Republic, and which actors promote such a change. First we introduce the conceptual framework followed by the

discussion of results of some inspiring research including two EU wide research studies on the subject: the third foresight exercise of SCAR (Standing Committee for Agricultural Research, European Commission) on sustainable food consumption and production and the STOA (Science and Technology Options Assessment) study on the role of technology in the future food security. Then we show main patterns and trends in food consumption and buying habits in the Czech Republic and initiatives promoting sustainable consumption in the country. Finally, we investigate possible reasons for rather poor policy debate and measures concerning the sustainability of food consumption in the Czech Republic.

Concept of sustainable consumption

The Oslo Symposium in 1994 proposed a working definition of sustainable consumption and production 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” (IISD, 1994).

The term “sustainable consumption and production” emphasises the role of consumption and consumers in achieving improvement of global sustainability. So far most attention has been paid to the regulation of the production sectors. Nevertheless,

gradually it has been still more recognised that changing attitude of consumers might yield much larger effects since consumer choice plays a leading role in orienting production. The concept of sustainable consumption includes three areas of changes

- Reducing consumption;
- Shifting consumption pattern to a more sustainable one;
- Reducing waste and recycling.

However, such changes are not easy to achieve: most of them are not possible without changes in production, infrastructure and social contexts. To address it some authors (e.g. **Mont, 2002**) propose concept of sustainable product-service system (SPSS) in which consumers buy utilisation of products (mobility) instead of products (cars). Such a system is also termed as functional economy (**Stahel, 1997**). According to **Mont (2002)**, the advantage of adopting product service approach enables to seek consumption options which contribute to environmental protection without reducing consumer welfare. **Mylan (2014)** appreciate conceptual contribution of SPSS mainly for linking production and consumption together, but she is critical to the rather narrow scope of the corresponding research (e.g. **Mont, 2002, Tukker et al. 2004**) concentrating on the issues of design and management of systems while leaving the consumption side underdeveloped. **Mylan (2014)** proposes to adopt the social practices approach from the sociology of consumption (**Warde, 2005**). The basic idea is that people use and consume many resources and products while they engage in routine activities. **Warde (2005)**, for instance, stresses that: "People mostly consume without registering or reflecting on what they are doing because they are, from their point of view, actually doing things like driving, eating, or playing." Practices usually entail number of element like material, cultural aspects, norms, habits and skills. Practices are dynamic, they reproduce and change. Thus **Warde, (2005)** and **Mylan (2014)** argue that patterns of consumption cannot be changed only by educating or persuading individuals to make different decisions, but that the nature of the practices themselves must be changed. In her research, **Mylan (2014)** contrasted the success of the lighting transition and so far the failure in introducing low temperature washing. She argues that the former was prone to changes since consumers were looking for diversity of lighting, but also that constituent elements of social practices (lighting use) were only loosely coupled among themselves while the spread of low temperature washing was blocked by tight coupling between constituent elements: Contemporary understandings of clean clothes (meaning) are deeply linked to the use of automatic washing machines, synthetic detergents (material) and temperature (maximum for a type of cloth).

Toward sustainable consumption of food

The issue of sustainable food consumption and production is largely recognised. At the EU level it is an integral part of the Europe 2020 Strategy; more explicitly it appears in The Roadmap to a Resource-Efficient

Europe highlighting the food sector as priority area for taking action - calling for: "...incentives for healthier and more sustainable production and consumption of food and to halve the disposal of edible food waste in the EU by 2020."

The third foresight exercise of SCAR (**Freibauer et al. 2011**) focused on the transition towards an agricultural and food system in a resource-constrained world in which sustainable consumption was deemed as a critical factor of change. The underlying assumption of the sufficiency scenario (narrative) is that resource constraints will not allow for sufficient technological innovations and productivity growth to maintain sufficient food production for feeding rapidly growing population. Necessarily, food consumption must change and this change ought to happen in the most developed part of the world. The report recognises that changes toward sustainable food consumption are not easy to achieve that it will require new interactions between producers, retailers and consumers (perhaps including research), however without any concrete suggestion how it might happen.

Reducing food consumption as a principle is difficult because there are large groups of people for which it is desirable to increase the intake of nutrients (**Mont, 2002**). In the developed countries, reducing food consumption is often associated with health concerns/health recommendations (see for example **Duchin, 2005**).

From the sustainability perspective, the most policy and research attention concentrates on shifts toward more sustainable food products and on food losses. The former includes issues like reducing meat consumption or increasing the consumption of locally produced food and organic products.

There is rather general agreement of scholars (e.g. **Pimentel and Pimentel, 2003, Duchin, 2005, Tukker et al, 2011**, etc.) that meat consumption is less sustainable than plant consumption due to several factors: producing 1 kg of animal protein requires about 100 times more water than producing 1 kg of grain protein; the requirement for land is more than 20% higher in meat based diet than for the vegetarian based diet, and consequently also more fossil energy is necessary for producing, processing and delivering meat and meat products.

The issue of the negative environmental impact of meat consumption has been communicated in Europe mainly in its west part for more than a decade. **Dagevos and Voordouw (2013)** found comparing the surveys of 2009 and 2011 that there were already slight shifts in consumer behaviour toward reducing meat consumption (in terms of frequency of eating meat) in the Netherlands. They also clustered consumers on socioeconomic variables in five categories; actually the clusters were mainly differentiated by the actual level of meat consumption and environmental concerns. Due to this fact, the clusters can be more or less ordered with conscious flexitarians (those who eat less meat and are flexible in their diet) on one end and meat-lovers on the other end. Conscious flexitarians are highly educated

people and predominantly women, while meat lovers confirm the stereotype of meat eating as masculine phenomenon.

The arguments behind the claim for eating locally are, on one hand, saving energy and reducing GHG emissions of transport and on the other hand, moderating specialisation induced by trade and stopping import of resources (like water) from countries which are short of them. The results on the balance between GHG emissions due to transport, particularly air-freight, and those released from domestic agriculture are ambiguous and perhaps rather favouring imports from developing countries (Garside et al, 2007). More serious issue is export of [virtual] water associated with production of fresh fruits and vegetables [FFV] from countries where water is scarce. Orr and Chapagain (2006) calculated that export of green beans and flowers from Kenya to the UK represents export of 107 million m³ of virtual water annually. According to Garside et al. (2007) and FAO (2012) the problem might amplified with continuing climate change and consequently similar measures might be introduced like in the case of GHG emissions. In spite of the issue of GHG emissions and virtual water export, the trade of agricultural products (globalisation) has undoubtedly contributed to the lowering diversity of agricultural production (particularly of planted crops) in exporting as well as importing country/region with a serious impact on environment in terms of declining soil fertility, high pollution, loss of biodiversity and less diverse landscape. Since the 1900s, some 75 % of plant genetic diversity has been lost as farmers worldwide have left their multiple local varieties and landraces for genetically uniform, high-yielding varieties (FAO, 1999). Similar situation can be observed at the local/national level (Clothier et al. 2008).

About one-third of the food produced for human consumption is lost or wasted every year, amounting to about 1.3 billion tonnes annually (Gustavsson et al., 2011). Parfitt et al. (2010) distinguishes between food losses and food wastes, arguing that the former relates to early stages of the food supply chain (FSC) and refers to a system which needs investment in infrastructure. In contrast, the term food waste is applied to later stages of the FSC, and generally relates to behaviour of food suppliers and consumers. The both aspects of food losses were addressed by the Technology Assessment study "Technology options for feeding 10 billion people" commissioned by STOA and carried out by European Technology Assessment Group (ETAG). In both cases (in the postharvest phase and at consumption level) the losses are linked to the perishability of products. The reasons why food is lost before it reaches shelf (retail) are 1) lack of proper facilities and equipment, 2) lack of knowledge and 3) poor discipline. These reasons are associated with poverty, low level of education and poor institutional framework (Mayers et al. 2013). In contrast, most food is wasted in developed countries with equipped kitchens. Priefer et al (2013) in the accord with Ventour (2008) identified four main reasons for food being wasted in households: 'left on the plate', 'passed its date', 'looked, smelt or tasted bad', 'went

mouldy' and 'left over from cooking'. According to survey results of Gusia (2012) main reason for food being wasted in households are: 'too long in fridge', 'wrong storage' and 'cooked too much'. These investigations indicate that, in spite of being well educated, people in the developed countries either lack knowledge how to preserve food, or they do not care or that their life style simply prevent them to manage food in a proper way. Priefer et al. (2013) proposes 14 policy options how to reduce food waste of which 3 aim at the policy itself (setting targets, collecting data and coordinating with food safety policy), 6 at providing a range of alternatives for consumers to safe food by improving the food system (labelling, delivering products at right time, opening alternative supply channels, supporting food redistributive programmes and consumer aided networks) and finally three option for stimulating a change of behaviour (educating consumers, introducing economic incentives and fees on waste).

ANALYTICAL FRAMEWORK

In order to investigate if Czech consumers exhibit tendencies for changing their food consumption pattern toward a more sustainable one, and to which extent the other actors/stakeholders assist them, we established an analytical framework which core rests in the extended concept of SPSS as discussed in Mylan (2014). The change of practices is then understood as a transaction between consumers and society which is affected by various stakeholders (Figure 1). Producers and retailers are principal stakeholder offering consumption alternatives (product-services), do promotional activities and provide shopping space. Consumption is further affected by income and other economic factors – thus economic agents, various civil society groups (e.g. environmental NGO) and policies either directly or indirectly targeted at consumer behaviour. Social practices are constituted in the socio-cultural environment. Economic factors, producers' and retailers' product-service activities and policies are integrated in of the socio-cultural environment, thus co-forming social (consumption/use) practices (Figure 1).

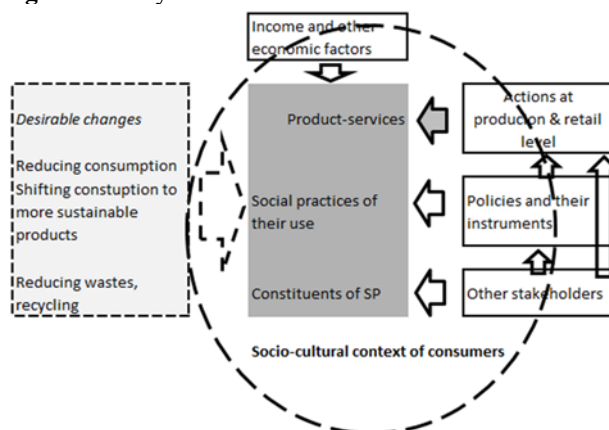
The "desirable changes" are assumed to be exogenous in our concept while we focus our research on the propensity of households to change practices and the debate on policy and civil society actions in the Czech Republic. The desirable changes are in fact objectives of global development resulting from world summits and/or the EU strategies. The exogeneity of "desirable changes" is a strong assumption which ought to be relaxed in future research.

The presented study is predominantly desk research, no specific survey was conducted among consumers and producers except a couple of interviews with stakeholders including representatives of producers and retailers, public administration and NGOs.

In the next sections, we will try to put together a picture of sustainability of the Czech food consumption from sources which are primarily collected for other purposes; these include statistical data on food

consumption over last forty years (CzSO, 2013), results of the survey on environmental awareness (CVVM, 2013) and shopping monitor surveying opinions of customers on their way of purchasing food and drug-store goods (Incoma GfK, 2014).

Figure 1 Analytical framework



Source: own illustration

RESULTS

Perception of environmental issues by Czech households

The Centre for Investigation of Public Opinions (CVVM - Centrum pro výzkum veřejného mínění) of the Institute of Sociology of the Czech Academy of Sciences carries out regularly a survey on environmental awareness and behaviour of households since 2002. The survey includes sections on households' awareness of global environmental problems, satisfaction with the state of local environment, satisfaction with policies and households' own environmental behaviour. Representatives of households reply to a set of questions in each section on the five point Lickert scale.

The surveys show that Czech households are aware of the global environmental problems and most of them rank them high: more than 80% of respondents consider problems like increasing wastes, drinking water pollution, shortage of drinking water, deforestation, depletion of resources of raw materials, declining biodiversity and degradation of agricultural land as serious. In contrast, Czech households are less sensitive to the issues of GMO and nuclear energy (only about half of surveyed households consider them as serious). Interestingly, global warming lost on the importance, those who considered global warming as serious dropped from 75% in 2002 to 61% in 2013.

The households regard the state of their local environment as satisfactory in most aspects in large percentage (over 50% in terms access to the nature, quality of drinking water, cleanliness of the surrounding nature, cleanliness of air, cleanliness of surface water). Environmental attributes linked to transport are regarded as dissatisfactory. Roughly 60% of respondents consider information on the state of the environment as insufficient.

The interest in information about the ways how to contribute to the improvement of the environment is relatively high – around 70% of household are interested. The respondents of the current survey (spring 2014) also indicated that the availability of information improved over the last 5 years.

Concerning environmental behaviour the households are asked about six activities (Table 1), which can be divided into two groups i) of high participation and ii) low participation. Those of high participation are sorting and recycling common and dangerous waste and reducing consumption of water and energy. We can say that households have been educated and stimulated for recycling paper and glass for decades (already during the communist period). From this point of view, recycling these materials (and now also plastics) has become a norm which most people obey, particularly if there is infrastructure – public bins. It seems that this practice has spread also to dangerous waste like batteries, electronics, chemicals again also due to improved infrastructure. In line with Mylan (2104), obviously there is likely only loose coupling among constituents of waste practice. This probably not true in the case of mobility and therefore it is difficult for households to reduce use of cars. We can speculate that using cars relates to social status, but also it enables members of household to do activities which otherwise will be accessible only with difficulties or will be costly in terms of time. For purchasing sustainable product, we guess, households lack information; even in the case that they buy them because they save their energy bills or because they offer broader or better utilization, but households are not aware of their environmental impacts. Finally, organic products do not seem to enjoy large popularity, partly because of high price and partly because of insufficient trust that their consumption changes anything.

Food consumption trends

The Czech diet changed in some respects (Table 2) over the last sixty years; in particular meat consumption experienced remarkable development with a gradual increase culminating in the late 1980s and a rather substantial decline since 1990. The most pronounced decline can be observed for beef, from 29 kg in 1980 to only 8 kg in 2012, which figure is only a half of the beef consumption in the post-war years. In contrast, poultry meat consumption increased 10 times over the period 1950-2012. The decline of meat consumption is a positive phenomenon from the point of view of sustainability, but the substitution between beef and poultry refers likely to health concern and price reasons. The current consumption of 77 kg of meat per year is still about 10 times higher than the recommended minimum level for assuring sufficient intake of proteins during the emergency situations/crises – most of the proteins will be covered by milk products, since these are important to cover necessary intake of calcium (Stikova et al., 2013).

The consumption of cereals declined initially as the diet moved toward meat, since 1970 it has been rather stable. The consumption of dairy products was

stable over the whole period. As it is apparent from Table 2, the diet has become healthier since political changes, because also the consumption of butter declined and was replaced by vegetal fats. It confirms Štiková et al. (2009), emphasizing positive trends in consumption of fruits, vegetables (including potatoes) and legumes. The estimated food waste of 70 kg per capita per year (UNCzech, 2013) roughly equals to the annual meat consumption or to 10 % of food consumption.

Czech shopping trends

According to the Shopping monitor (Incoma GfK, 2014) large retailers (in terms of shopping area, diversity of products and organisation in chains) like hypermarkets, supermarkets and discount markets are the most preferred shopping places for food and drug-store items; 86% of respondents expressed their preference for large shops, 44% even preferred hypermarkets as a place for main shopping in 2013. It is a result of dramatic changes in consumer behaviour and in the structure of the retail sector. In 1997, there were just few hypermarkets; 62% of households did their main shopping in small usually specialised outlets and only a quarter did them in supermarkets similarly like a decade before political changes. The most rapid change in the consumer behaviour happened between 1997 and 2003 (before the EU accession) when the shopping in hypermarkets increased to 37%. Also the share of making main purchases of food and drug-store items in the discount markets doubled over that period. The trend of shoppers moving to hypermarkets has continued since that but with much lower speed.

Households have not only moved to hypermarkets, but they spend for food and drug-store items significantly more there than in any other shops. Hypermarkets have (naturally) the biggest shopping cart. The consumer decision is evidently strongly affected by information campaigns of retailers. Eighty four per cent of surveyed households in the Shopping Monitor (Incoma 2014) receive flyers in their mailboxes and 40% of them have already shopped based on them. Electronic flyers of chains on the internet are viewed by 12% of households, with 7% of households also making shopping based on them. The level of internet usage among so-called "housekeepers" (i.e. persons who are responsible for most household purchases of food and drugstore items) in the Czech Republic is relatively high. Half of all "housekeepers" visit the internet daily and another 30% of "housekeepers" connect to the internet at least once a week.

The flyers (either printed or electronic) however, include almost exceptionally information on sale actions. The fact that they direct household shopping decisions so significantly together with the large popularity of discount markets confirms households' strong concentration on price. According to most respondents in our recent survey in the dairy processing industry 40% of their produce is sold in sale actions. In connection to the project on geographic origin labelling we surveyed 6 dairy companies which together process about 20% of national raw milk production and in a number of

investigated products they occupy over 30% of the market.

"Sales", are obviously the main tool for attracting customers in the tense competitive market. Together with the other promotion instruments like loyalty cards which in the end reward the holders by discount, they necessarily encourage food purchases. It might be that they just attract customers from other shops to the one carrying the promotion, but it is very likely that they stimulate additional consumption. And it does not matter if the price of the luxury or normal good is reduced.

The high responsiveness of households to retailers' flyers (roughly 70% of the Shopping Monitor respondents read them and 40% use them in the food purchase decision (Incoma 2014) can be seen as an opportunity to guide consumers to more sustainable food. However, when we investigated the flyers of the main retail chains (April – first week of May 2014), we realised that they built largely on the current social practices in food consumption. E.g. "lot of food for Easter" including a huge choice of chocolate bunnies or "starting barbeque season" with special offers of big meat and sausage readymade packages.

Marketing cliché imbedded in the flyers has been gradually discouraging some consumers: the proportion of households that have a sign on their mailbox requesting "flyers not be put in" has already reached 12% (Incoma, 2014).

There are two other consumption phenomena to mention: food consumption nationalism and farmers' markets. Nowadays, we can find the reflection of the former in the flyers of all retail chains including the international ones (Kaufland, Ahold/Albert, Tesco, etc.) however without general information why to consume domestically produced food and whether it targets any particular issue of sustainability induced by globalisation. Concerning latter, farmers' markets experienced boom between 2009 and 2012. The last two years they stagnate or even some outside large cities disappeared. Farmers' markets have reintroduced "authenticity" in food shopping and due to this found their customers. The FarmPath project (FarmPath' project (Farming Transitions: Pathways towards regional sustainability of agriculture in Europe, FARMPATH, 2013) investigated them and considered them as an institutional innovation with great potential to address some sustainability issues. The sellers are small farmers and small local food processors (bakers, butchers, dairies, etc.) which might contribute to maintain or even enhance local diversity of agricultural production. There are several factors which decelerate the expansion of farmers markets (FM):

- Production and marketing costs are high, thus products are more expensive on FM than in supermarkets. It discourages some consumers, particularly from lower income categories and in poorer regions.
- Since consumers in large cities are willing to pay more, producers head to these sites. Thus food travel across the country (short is not so short).

Table 1 Environmental behaviour of Czech households

	2002	2004	2005	2006	2007	2008	2009	2011	2012	2013
households do:	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
sort and recycle common waste	56/42	67/32	74/24	76/23	78/21	81/18	80/18	82/18	82/18	83/16
sort and recycle dangerous waste	57/36	70/26	72/24	71/18	72/20	71/21	75/19	74/22	76/18	79/17
save energy and water	40/56	42/54	46/50	48/46	53/44	48/48	47/50	49/48	53/44	53/44
purchase sustainable products	43/44	26/61	31/56	32/54	34/55	29/59	29/61	27/64	26/62	28/63
reduce the use of car	16/75	15/76	18/73	17/57	15/57	12/61	13/64	17/65	19/60	20/62
purchase organic products	--	--	--	--	--	12/82	11/85	12/85	11/83	13/85

Note: + ... always and frequently, - ... exceptionally and never

Source: CVVM (2013)

Table 2 Consumption trends of selected food items in kg of roughly processed raw material.

	1950	1960	1970	1980	1990	2000	2010	2012
Cereals	141.8	124.1	112.4	107.3	114.9	104.7	108.7	113.3
Meat	48.6	61	77.3	90.3	96.5	79.4	79.1	77.4
- beef	15	18.3	26.2	29.2	28	12.3	9.4	8.1
- pork	25.1	32.4	36.5	44.9	50	40.9	41.6	41.3
- poultry	2.4	3.6	7.7	11	15.8	22.3	24.5	26.2
Fish	3.5	5.4	6	5.8	5.4	5.4	5.6	5.7
Dairy products	227	173	197	236	256	204	244	
Fats	16.9	24.2	25.6	25.6	28.5	25.3	26	26.4
- butter	5.1	7.5	8.8	9.4	8.7	4.1	4.9	5.2

Source: CzSO (2012)

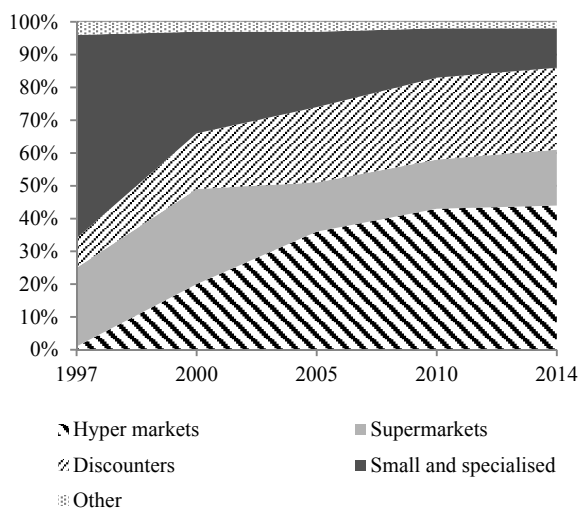
Table 3 Occurrence of the topics of sustainability and sustainable consumption in the programmes of the Czech political parties

Political Party	Parliament Elections 2013		European Parliament Elections 2014	
	Sustainable development topics	Sustainable consumption topics	Sustainable development Topics	Sustainable consumption topics
		Standard parties		
Czech Social Democratic Party	healthy landscape	reducing consumption of coal in households	improving environment in general	no particular attention
Cristian Democratic Party	sustainable energy	reducing energy consumption in households	yes to sustainability, but it should not conflict growth	no particular attention
	sustainable landscape			
	ecological education			
	careful dealing with renewable energy (no support to energy crops)			
TOP 09	reducing air pollution	reducing consumption of coal in households	improving environment in general	no particular attention
	improving water management	education of consumers		
	recycling			
Green party	sustainable energy,	improving access to "no meat" diet	sustainable energy,	more information for consumers about the way of production of food
	sustainable landscape	availability of public transport, roads for cyclists	sustainable landscape	
	animal welfare	continuing gardening in urban areas	animal welfare	
	no GMO		no GMO	
		Newly emerged parties		
Ano (Yes)	sustainable energy	no particular attention	improving environment in general	no particular attention
	general envi protection			
Úsvit (Sunrise)	no particular attention, but definitely "no" to renewable energy	no particular attention	no particular attention, but definitely "no" to renewable energy	no particular attention

Source: own survey of the programme documents

- In meantime, medium and even some large food processors introduced or registered some of their products as locally specific.
- Using FM requires modification of current social practices, but social practices are conservative.

Figure 2 Where the Czech households buy their food



Source: Incoma (2014)

Stakeholders

In the course of the PACITA project we visited several stakeholders: an association of producers, a retailer, NGOs, research institutions, policy makers. The first apparent observation is that there is no debate between them on the issue of sustainable consumption in general and thus the less in the area of food consumption. Producers usually open some debate when they are responding to legislation proposals: too late, too narrow in the scope and with no interactions with other stakeholders.

The interviewed retailer is one of the biggest chain in food and drug-store items in the Czech Republic, a branch of an international retail chain. According to the manager, the company has already eliminated some unsustainable products from the offer as a response to the still more environmentally conscious society. Since the company knows that purchased food is stored home, they remove the items from the shelf earlier before the expiration date. However, such food does not go to the food bank because of 15% tax - instead, it is liquidated. 15% tax is a serious problem in which effect the food banks are short of food. It causes troubles to many charities.

This retail chain has no intention to influence consumers in the area of sustainable consumption; the manager believes that the company and its shops offer sufficient choice for consumers to decide which way in consumption they want to follow.

Two NGOs promote sustainable food consumption: Glopolis which is an established think-tank, relatively well recognised by policy makers, and rather spontaneous movement "Save food". Glopolis organizes discussion forums, seminars and a film festival on the sustainable food consumption issue. Further,

Glopolis issues a monthly electronic leaflet on food wastes called MAPP (A map of food wasting). The initiative "Save food" concentrates on demonstrative activities like open space cooking from otherwise wasted food (removed from shelf, visual non-standards, etc.). Such food is offered free of charge to attendants (intentional or random).

The activities of both NGOs received attention of media, particularly the national TV. Perhaps their propaganda of the issue has attracted attention of research (including us) too. The Institute of Sociology of the Academy of Sciences, particularly the Centre for Investigation of Public Opinion (CVVM) launched a survey on food waste by households in spring 2014. Unfortunately, the results were not published before writing this article. Another example of research on sustainable food consumption is the study of the Institute of Sociology on production of food in hobby gardens (Smith, Jehlička, 2013)

Policies and Politics

Sustainable consumption does not have its separate agenda in the Ministry of the Environment. Instead, it is matter of individual departments/projects. The activities of departments vary: e.g. the Climate protection department stipulates that economic effectiveness is sufficient driver for households to opt for environmentally friendly consumption, including the program "green to savings" aimed at improving energy effectiveness of houses. So emphasis on environmental benefit is rather small. While some other departments have launched targeted actions: on waste prevention (no food included), on eco-product labelling (manufactured product, no food), etc. A general problem of these initiatives is that not everybody knows about them. Only one fifth of the public is aware of the eco-product campaign (it was pointed out during the interview in the Ministry of Environment). Some form of environmental marketing will be necessary to educate the people. The agenda of environmental education is, however, being ping-ponged between the Ministry of the Environment and the Ministry of Education, Youth and Sports thus effectively halting any progress in this regard. Similarly, the social agenda of the sustainable consumption is in the responsibility of the Ministry of Labour and Social Affairs, while the energy certification of buildings is with the mandate of the Ministry of Industry and Trade. Clearly, food is within the mandate of the Ministry of Agriculture. This fragmentation seems to cause several problems in terms of better approaching the whole spectrum of environmental issues. Moreover, the Ministry of the Environment is not in favour of public involvement. The overall priorities are consulted only internally. Except few surveys, the general public is excluded from any policy-making of the Ministry.

The situation at the government level only reflects the low attention paid to sustainability and sustainable consumption and production in the policy agendas of political parties. The interview at the Ministry of Environment we did in September 2013, but looking at the agenda of political parties for the parliamentary

elections in October 2013 in Table 3 does not indicate any chance for a substantial improvement. Sustainable food consumption element can be found only in the programme of the Green party – it concerns the availability of non-meat dishes in public catering.

Sustainability including sustainable consumption and production is a global issue; coordination at the EU level is thus important. However, these issues were only marginal in the agenda of the Czech political parties for the European parliament elections in spring 2014. Sustainability (environmental protection) was addressed only in general terms and except the Green party there was no word on sustainable consumption and production. If we divide the parties in two groups: the standard parties and the newly emerged parties, we can see that sustainability was not settled in the programmes of the both newly emerged parties (both together received more than a quarter of votes). Also, the categorical “no to renewable energy” of one of them (“Usvit” - which means Sunrise in English) - much stronger than all reasonable proposition of the Green party (which did not cross the 5% threshold to enter the Parliament in the Elections 2013) - illustrates how deeply the issue can be discredited by policy failures.

CONCLUSION

Our explorative research shows that Czech households are opened to sustainability issues in both the global as well as local contexts. They exhibit interest in information that well as they can actually do something for environment; households responded positively to improved infrastructure - sorting and recycling common waste, which has already become a norm of behaviour and to policy programmes stimulating energy savings in housing.

Regarding food consumption, the current lifestyle does not provide much space for sustainability concerns. It is partly due to lack of consumption alternatives. It seems that retailers and consumers are too much concentrated on price. Discounts definitely encourage consumption. On the other hand, 12% of households choose organic products at least occasionally.

The whole action area of sustainable consumption suffers poor communication among stakeholders. Only one NGO launched a systematic provision of information and occasional discussion forums. But in general there is no discourse on the subject. In effect, food which must be taken from shelf due to approaching expiration date is liquidated instead of being sent to food banks just because of the 15% tax. Consequently, food banks lack food donations on which number of charities depends. As indicated our interviews, policies are poorly coordinated during their preparation as well as during their implementation. Coordination with producers and distributors is even worse.

Sustainability issues and environmental activities have been discredited by the failure of the “renewable energy” policy. The communicated opinions of the both recent presidents also undermine effort of environmentalists: the book of the president Klaus “Blue,

Not Green Planet” or the speech of president M. Zeman in the European Parliament criticizing the European legislation requiring the replacement of classical incandescent bulbs by energy saving lighting or by proposing abolishing the National park Šumava.

Acknowledgments:

This paper is based on the research carried out in the FP7 project Parliaments and Civil Society in Technology Assessment (PACITA), SIS-2010-1.0.1 – Agreement 266649.

REFERENCES

- CzSO (2013) Spotřeba potravin 1948-2012 (Food consumption 1948-2012). Czech Statistical Office. ISBN 978-80-250-2442-3.
- CVVM (2013) Press releases on related to the survey of the citizens' concerns of the environment and the related policy issues. The institute of Sociology, the Czech Academy of Sciences.
- DAGEVOS, H. – VOORDOUW, J. (2013). Sustainability and meat consumption: is reduction realistic? *Sustainability: Science, Practice, & Policy*, Vol. 9 Issue 2
- CLOTHIER, L.- LANGTON, S.- BOATMAN, N.- WOODEND, A (2008) Agricultural specialization. Defra Agricultural Change and Environment Observatory. Available at: <http://archive.defra.gov.uk/evidence/statistics/foodfarm/enviro/observatory/research/documents/observatory11.pdf> ; Accessed on 15 May 2014, pp 27
- DUCHIN, F. 2005. Sustainable consumption of food: a framework for analysing scenarios about changes in diets. *Journal of Industrial Ecology*, 9(1-2):99-114. <http://dx.doi.org/10.1162/1088198054084707>
- FAO (1999) Agricultural Biodiversity, Multifunctional Character of Agriculture and Land Conference, Background Paper 1. Maastricht, Netherlands. September 1999.
- FAO (2012) Improving Food Systems in for Sustainable Diets in Green Economy. FAO-GEA Rio+20 Working paper 4. pp 41
- FARMPATH (2013) Alternative Marketing Channels. The James Hutton Institute, Aberdeen. Available at: <http://www.farmpath.eu/sites/www.farmpath.eu/files/documents/Alternative%20Marketing%20Channels.pdf> .
- FREIBAUER, A. - MATHIJS, E. - BRUNORI, G., DAMIANOVA, Z. - FAROULT, E. - GIRONA I GOMIS, J. - O'BRIEN, L. - TREYER, S. (2011) Sustainable food consumption and production in a resource-constrained world, FEG, SCAR, European Commission
- GARSIDE, B. - MACGREGOR, J. - VORLEY, B. (2007) Review of Food Miles, Carbon, and African Horticulture: Environmental and Developmental Issues. PIP-COLEACP/IIED-NRI, <http://pip.coleacp.org/files/documents/PIP%20food%20miles%20report%20for%20web.pdf>, accessed on May 15 2014
- GUSTAVSSON, J. - CEDERBERG, C. - SONESSON, U. - VAN OTTERDIJK, R. - MEYBECK A. (2011)

Global food losses and food waste – Extent, causes and prevention. A study conducted for the International Congress SAVE FOOD! at Interpack2011 Düsseldorf, Germany. Rome: FAO. Available at: <http://www.fao.org/docrep/014/mb060e/mb060e00.pdf>.

INCOMA GfK (2014) Press releases. <http://www.incoma.cz/en/default.aspx>

KLAUS, V. (2007) Modrá nikoliv zelená planeta, Dokořán (Blue, not green planet); pp 168

IISD (1994) Oslo Roundtable on Sustainable Production and Consumption. International Institute for Sustainable Development. Available at: <http://www.iisd.org/susprod/principles.htm>

MEYER, R. - RATINGER, T. - VOSS-FELS, K. P. (2013) Plant breeding and innovative agriculture - Technology options for feeding 10 billion people. IP/A/STOA/FWC/2008-096/Lot7/C1/SC1 - SC3. Available at: <http://www.europarl.europa.eu/stoa/cms/home/publications/studies>

MYLAN, J. (2014) Understanding the diffusion of Sustainable Product-Service Systems: Insights from the sociology of consumption and practice theory. *J. Clean Prod.* <http://dx.doi.org/10.1016/j.jclepro.2014.01.065>

MONT, O.K. (2002). Clarifying the concept of product-service system. *J. Clean. Prod.* 10, 237-245. [http://dx.doi.org/10.1016/S0959-6526\(01\)00039-7](http://dx.doi.org/10.1016/S0959-6526(01)00039-7)

ORR, S. - CHAPAGAIN, A. (2006) Virtual water: a case study of green beans and flowers exported to the UK from Africa. Fresh Insight, IIED-DIFD-NRI, www.foodstandard.net

PIMENTEL, D. - PIMENTEL, M. (2003) Sustainability of meat-based and plant-based diets and the environment. *Am. J. Clin. Nut.* 2003;78 (sup); 600S – 603S

PRIEFER, C. - JÖRISSEN, J. - BRÄUTIGAM, K-R. (2013) Options for Cutting Food Waste -Technology options for feeding 10 billion people. IP/A/STOA/FWC/2008-096/Lot7/C1/SC2-SC4. Available at: [http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/513515/IPOL-JOIN_ET\(2013\)513515_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/513515/IPOL-JOIN_ET(2013)513515_EN.pdf); pp 144

SMITH, J. - JEHLICKA, P. (2013) Quiet sustainability: Fertile lessons from Europe's productive gardeners. *Journal of Rural Studies* 32 (2013) 148-157.

STAHEL W.R. (1997) The functional economy: cultural and organisational change from the industrial green game: implications for environmental design and management. National Academy Press, Washington, D.C., 1997: 91-100.

ŠTIKOVÁ O. - MRHÁLKOVÁ, I. - FOLTÝN, I. - ZDENÍČKOVÁ, I. (2013) Závěrečná zpráva projektu „Stanovení prahu potravinové bezpečnosti pro zásobování obyvatel v případě krizových situací a ohrožení“ (Stating thresholds of food security in the case of emergency situations), UZEI and Ministry of Interior.

ŠTIKOVÁ O., SEKAVOVÁ, H, MRHÁLKOVÁ, I (2009) Vliv socio-ekonomických faktorů na spotřebu potravin (The effect of socio-economic factors on food consumption). Working paper 95, ÚZEI Prague, <http://www.uzei.cz/2009-2/>, pp. 72

TUKKER, A. - GOLDBOHN, A. - DE KONING, A. - VERHEIJDENA, M. - KLEIJN, R. - WOLF, O. - PÉREZ-DOMÍNGUEZ, I. - M. RUEDA-CANTUCHE, J. (2011) Environmental impacts of changes to healthier diets in Europe. *Ecological Economics* 70(10); 1776-1788. <http://dx.doi.org/10.1016/j.ecolecon.2011.05.001>

TUKKER, A. - HUPPES, G. - GUINÉE, J. - HEIJUNGS, R. - DE KONING, A. - VAN OERS, L. - SUH, S. - GEERKEN, T. - VAN HOLDERBEKE, M. - JANSEN, B. - NIELSEN, P. (2006) Environmental Impact of Products (EIPRO). IPTS/JRC. EUR 22284 EN, pp.139.

UN-CZECH (2013) Plýtvání jídlem jako ekonomický, sociální i environmentální problém (Food waste as an economic, social and environmental problem). UN Information Centre and Glopolis Media Brief prepared at the occasion of the World Environment Day in 2013. Available at: <http://www.osn.cz/soubory/final-media-brief-unic-glopolis.pdf>, pp. 3.

WARDE, A. (2005). Consumption and theories of practice. *J. Consumer Cult.* 5, 131-153. <http://dx.doi.org/10.1177/1469540505053090>

VENTOUR, L. (2008): Food waste report - The food we waste. Waste & Resources Action Programme (WRAP), Banbury

ZEMAN, M. (2014) Speeches and publications. Available at: <http://www.zemanmilos.cz>