

Legislation on Food Waste Prevention: Overview of Practices in Industrialized Countries

Tatjana Tokareva¹, Aija Eglīte²

Latvia University of Agriculture, Faculty of Economics and Social Development

Svētes iela 18, LV-3001 Jelgava

E-mail: ¹tatjana.tokareva@inbox.lv; ²Aija.Eglite@llu.lv

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Abstract

The world is producing enough food to feed the world's entire population. Yet almost one billion people go hungry. Another billion are malnourished, lacking the essential micronutrients they need to lead healthy lives. One billion adults are overweight of which almost half a billion are obese, and can easily waste the food they have. But even if the amounts of wasted food are significant, most industrialized countries are only at the beginning on the road to food waste reduction. Since in some countries, glass, paper or cardboard recycling is not well established, it is another level of confusion how to get people think about waste sorting or organic waste. This paper aims at identifying how differently industrialized countries deal with food waste and analyze which method is more successful when it comes to food waste reduction.

Keywords: recycling, food donation, legislation, waste, landfill, Japan, US, EU.

Introduction

Food consumption varies among countries and different cultures. But, in general, thousands of people in the world suffer from hunger every day whereas many of those oversupplied throw away food. The amount of produced but lost/wasted is food about 1.3 billion tonnes per year when 925 million people are starving every day (Gustavsson et al., 2011). Experts predict the global population will reach 9.3 billion by 2050 and food demand will rise 50–70% (Bond et al., 2013). Global food waste must be addressed to feed the world's growing population and the only way to do it is to change trends in food production and consumption in order to significantly reduce food waste. Doing nothing the problem of hunger/food waste will become more and more serious.

The key drivers behind unsustainable food consumption patterns are population growth, rapid urbanization and income growth (Moomaw et al., 2012). Governments face worsening inequalities across and within many countries therefore efforts should be made to ensure that all people had access to sustainable, nutritious food.

The main concern over food waste reduction is not only motivating producers/sellers/consumers to waste less food but also setting up a comprehensive and well-organized system of collecting and utilizing recyclable food resources. Food loss/waste leads to wasteful use of energy and higher greenhouse gas emissions. In Sweden, agriculture accounts for 10–12% of the total greenhouse gas emissions, meanwhile nearly a quarter of agricultural food products are thrown away (IDA's Climate ..., 2010). In the UK, CO₂ emissions from food waste has reached 14 – 15 million tonnes, in Australia, from household waste – 5.25 million tonnes, i.e. as much as from iron and steel production in the country (Baker et al., 2009). It is estimated that 10% of global greenhouse gas emissions comes from food production which has not been ever consumed (Stuart, 2009). The European Commission has estimated that every euro spent for reducing food waste will save 250 kilos of food worth €500 (Staes, 2014).

To address the food and nutrition needs of population in richer and industrialized countries at the same time preserving natural and productive resources, food production systems have to be changed, resources have to be used efficiently and effectively, food consumption patterns changed, sustainable diets promoted (Meybeck et al., 2012). Government plays an important role in reducing

food waste by informing the public, organizing campaigns, adopting other policy measures.

The aim of this paper is to analyze how the food waste problem is dealt with in various industrialized countries and which waste reduction methods are most effective.

Research methodology

Critical analysis of literature sources, legal acts and regulations of various countries, scientific papers, monographs, other documents, databases, results of previous research, comparative analysis.

Analysis of the scientific problem

When it comes to legislation on the prevention and reduction of food waste, it is important to analyze how producers/sellers/consumers are motivated to:

1. reduce food waste producing/selling/buying less food;
2. recycle and reuse food waste.

The first step towards food waste prevention is to change attitudes towards food in industrialized countries where “it’s cheaper to dispose food than reuse it”. Food production for commercial sale means that part of them, scraps and by-products will

be thrown away because they do not meet quality standards, do not look nice or their packaging has been damaged, etc. (Stuart, 2009). But substandard products could be **collected, sold and used** by commercial and charity organizations because they are safe to use, have not lost their flavor, or texture, or nutritional value.

Another problem is **the way products are marketed**. Retail stores usually order a wide range of food products of the same or several brands from one manufacturer to get a good price. In industrialized countries, food products are usually packaged, displayed and bought in big quantities. Consumers also prefer to choose from a wide range of products. Buying and storing big quantities of food products means that most of them will expire and will be thrown away (Meybeck et al., 2012).

There are many ways how to prevent and reduce food waste and governments focus on developing waste recycling systems.

Waste reduction in Japan

Japan is the country where approach to waste management is most serious.

Table 1

Materials generated in the municipal waste stream and recycling rate, Japan, 2010

Material	Generated waste (10,000 tonnes)	Recycling rate 2010 (%)	Target rate 2020 (%)
Livestock waste	8,700	90	90
Sewage sludge	7,900	75	85
Black liquor	7,000	100	100
Paper	2,700	80	85
Food waste	1,900	25	40
Wood mill waste	4,300	95	95
Wood construction waste	410	70	95
Non-edible agricultural product	1,400	30	90
Forest residue	800	1	30

Source: Asia Biomass Office, 2010

Table 1 shows that in 2010 about 19 million tonnes of food products were thrown away in Japan, about 149 kg per capita (23 million tonnes or 196 kg per capita in 2009), 5 to 8 million tonnes of that food was considered edible when it was discarded. This amount was equal to the amount of annual rice production (8.39 million tonnes). 3 to 4 million tonnes came from the food industry and another 2 to 4 million tonnes - from households, this is comparable to the total amount of food aid distributed worldwide (about 4 million tonnes (Marra, 2013)). The amounts of waste food are also big in other countries but the

paradox is that in 2013 Japan’s self-sufficiency rate was 39% (40% in 2009), which means that the bulk of Japan’s food supply is imported and yet a third of that food ends up in the garbage (Focus less ..., 2014).

Japan’s Food Recycling Law was enacted in May 2001 in order to encourage **food-related businesses** engaged in manufacturing and distribution of food products or providing catering and restaurant services to reduce the generation of food waste by collecting food scraps for recycling. The law was revised in 2007 to strengthen the guidance and

supervision of food-related businesses and facilitate recycling. It encourages food-related businesses to cooperate with fertilizer/animal feed producers or persons engaged in agriculture, forestry or fisheries on reusing and recycling agricultural, stock farm and fishery waste products and get approval (Global Environment Centre Foundation, 2011). The Food Recycling Law promotes “recycling loops”, the law requires the food industry to purchase farm products that are grown using compost/animal feed derived from waste food (Takata et al., 2012). The success of the Food Waste Recycling Law allowed Japan’s food industry to reduce, reuse and recycle an average of 27% of its food waste in 2010. A key driver behind the government’s promotion of food waste recycling has been the country’s high dependency on natural resources import. Japan’s self-sufficiency of feed for livestock was as low as 26% in 2011, implying that the vast majority of it was actually imported from abroad. With the Basic Plan for Food, Agriculture, and Rural Areas, the Japanese government set the objective of rising feed self-sufficiency to 38% by 2020 through the production of eco-feed via the implementation of recycling loops. The global rising in the prices for fuel, corn and soy meal made imported agricultural products destined to livestock as much as 50% more expensive, which enhanced the popularity of locally recycled feed (Marra, 2013). Therefore, while reducing the environmental burden, the new business models, infrastructures, technologies and policies in support of food waste recycling also have the direct objective to improve the stable domestic production and supply of food.

Although some foods are still acceptable for human consumption it is not common to donate them because producers/sellers are worried that customers will not handle leftovers safely and sue them when get sick. 90% of public schools in Japan do not allow children to take home leftover bread from school lunches. This situation stems from a food poisoning incident in 1996 in Osaka when 4 children died. The source of this poisoning was never found but it was assumed that tainted food was served at school. Still, the prohibition against taking home leftover food seems to have to do more with schools wanting to pre-empt possible lawsuits than with preventing food poisoning outbreaks (Brasor, 2009). Finally, not eaten food gets thrown away.

When it comes to **household food waste** in Japan, citizens and visitors are expected to separate household garbage. They are required to buy bags

designated by their local authority for different kinds of trash (in Kyoto city, cans, glass bottles, plastic bottles must be put in specially designated clear bags, other metal items - in any transparent bag, ordinary household garbage - in a specially designated yellow bags). The price of the bags set in advance depends on garbage utilization costs in the particular municipality as well as on how often garbage is collected. Usually bags with ordinary household garbage are collected twice a week, those with cans, bottles and PET bottles – once a week, those with other metal items (spray cans, frypans, etc.) – once a month, waste paper is expected to be sorted into bundles binding them tightly with string and collected with PET bottles, dry cell batteries should be returned to the shop. What can and cannot be put in a particular bag and how clean the package must be before disposing of it may differ from one local authority to another. Each area and city can have its own system. Therefore, when people move to a new apartment, they are given a booklet of a poster size, with pictures, explaining how to dispose of garbage, usually only in Japanese. It is not a complete list of guidance. People are also informed about garbage collection days, time and collection points. It is expected that people will keep garbage at home. If the garbage collection day is missed people should wait till the next collection day (Brasor and Tsubuku, 2013; Trash in Japan ..., 2013). Thus people are made not only to think what to throw away, how to separate garbage into recyclable and household garbage, how to dispose of garbage, what to do having missed the collection day but also throw away less because keeping garbage at home is problematic as well as expensive.

People who do not put garbage in specially designated bags by a particular municipality and/or dump their trash illegally can face up to 5 years in prison and a 10 million yen fine (over 70 000 euros) (Illegal Dumping Prevention, 2010).

The Japanese government has also worked out actions related to a better understanding of **food labelling** thus edible food is not dumped immediately.

Waste reduction in the USA

Another industrialized country where waste food in 2014 made up 14.5% (US Environmental Protection Agency, 2014) with a tendency to grow is **the United States of America**. There food waste reduction legislation differs from state to state.

Materials generated in the municipal solid waste stream and recovery rate, USA, 2012

Material	Percentage in the total generated waste	Recovery percentage (%)
Paper and paperboard	27.4%	64.6
Glass	4.6	27.7
Food waste	14.5	4.8
Wood	6.3%	15.2
Metals	8.9%	34.0
Plastics	12.7%	8.8
Yard trimmings	13.5%	57.7
Other	12.1%	16.1

Source: author compiled, based on US Environmental Protection Agency (2014)

In 2012 USA citizens disposed of over 36 million tonnes of food (115 kg per capita) but less than 5% got recycled (US Environmental Protection Agency, 2014). Much of it ended up rotting in landfills, releasing methane, a potent greenhouse gas causing climate change.

Currently the most drastic measures were taken in **Massachusetts** state, there **the statewide commercial food waste disposal ban regulations** were announced and took effect in October 2014. The ban targets entities such as universities, hotels, grocery stores, sporting and entertainment venues, other manufacturers that dispose of at least one ton of organic material per week. Instead of simply dumping leftovers, they have the choice to donate the usable food or to send any remaining food to composting facilities, plants that can turn scrap into the biogas or farms to be used as livestock feed. This disposal ban, announced in 2012, affects 1 700 entities and now they are reaping the benefits. Supermarkets, for example, save up from \$10 000 to \$20 000 annually per store by diverting food waste from disposal. The initiators of this ban believe that it can be extended to small businesses and households (EOEEA, 2014).

Presently Vermont and Connecticut states, New York and San Francisco also have similar regulations but they are not so strict as in Massachusetts. Other states also want to introduce such regulations on waste disposal, but to manage huge amounts of organic material resulting from the ban the necessary infrastructure must be in place. Many US composting operators are small, nearly all of the country's anaerobic digesters are designated to treat sewage or manure but not food waste (Johnston, 2014).

There are also state and federal laws (such as the Bill Emerson Good Samaritan Food Donation Act, The US Federal Food Donation Act of 2008, Ohio Good Samaritan Food Law) and general EPA guidelines on Food Donation, that protect both the donating organization and recipient organization

from liability. To encourage food donation, there is a federal tax law enhancing tax donations to businesses that do so.

When it comes to **consumers**, the survey conducted by the National Waste and Recycling Association on 7-9 April 2014 among 2 025 adults ages 18 and older showed that most respondents were inclined to separate food waste from trash for composting but were not inclined to pay more for disposal (National Waste & Recycling Association, 2014). The survey findings showed that 72% of the respondents did not compost, 67% of those non-composting were inclined to do that at the place they live, 62% were not inclined to pay for that. Many understood that separating food waste from other waste is a must.

Waste reduction in the EU

In the EU the **Waste Framework Directive** provides the legislative framework for the collection, transport, recovery and disposal of waste. The directive requires all member states to take necessary measures to ensure waste is recovered or disposed of without endangering human health or harming the environment and includes permitting, registration and inspection requirements. The directive also requires member states to take appropriate measures to encourage, firstly, the prevention or reduction of waste production and its harmfulness and, secondly, the recovery of waste by the means of recycling, re-use or reclamation or any other process with a view to extracting a secondary raw material, or the use of waste as the source of energy (Defra, 2014).

The EU **Landfill Directive** sets targets for the reduction of biodegradable waste sent to the landfill of waste as 75% of the 1995 level by 2010, 50% of the 1995 level by 2013 and 35% of the 1995 level by 2020. The directive places an obligation on Member States to handle waste in such a way as not to have negative impact on human health and the environment including requirements for collection,

transportation, treatment, storage and disposal of waste. Under the directives Member States have defined recycling targets, which are different for each country, and they must ensure waste management

practices comply with the waste hierarchy in which prevention is the favored option, followed by re-use, recycling and recovery, with disposal as the last resort (Kazmi, Shuttleworth, 2013).

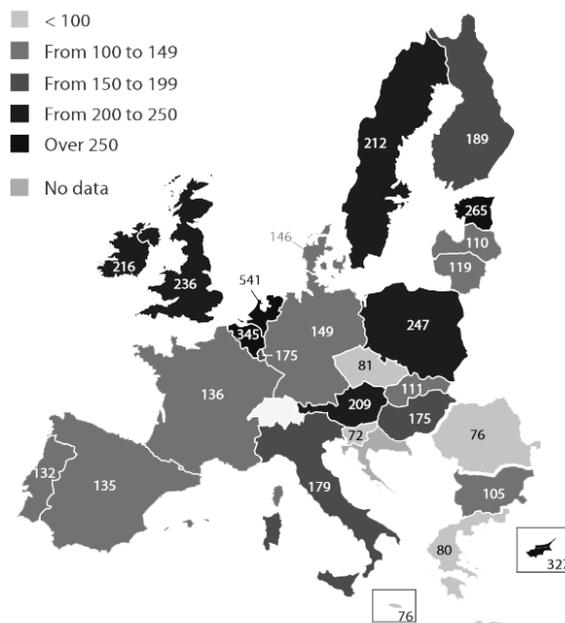


Fig. 1. Estimated total food waste in the EU, 2010
Source: STOA, 2013

According to EUROSTAT data in 2006 in Europe, totally 89 million tons of food got discarded. This translates into roughly 179 kg of food waste per capita in four sectors (manufacturing, wholesale/retail, food service/catering, and consumer). Of this amount, about 76 kg/capita, is produced by households (Preparatory study..., 2010). But data of the research *Global Food Losses and Food Waste*, carried out from August 2010 to January 2011 by the Swedish Institute for Food and Biotechnology (SIK) on request from the Food and Agriculture Organization of the United Nations (FAO), already shows that the overall loss/waste per capita increased

in Europe, and now it is 280-300kg/year (Gustavsson et al., 2011). According to EUROSTAT data, 42% of produced food is wasted at the household level, 14% – by catering facilities, 39% – by food producers, 5% – by traders (Preparatory study..., 2010).

If the situation in many EU countries is vaguely researched and real work on food waste reduction is not managed, then the **United Kingdom** government and non-governmental organizations are more concerned about wastage in general. The UK government set the target to reduce waste according to the EU Landfill Directive directions.

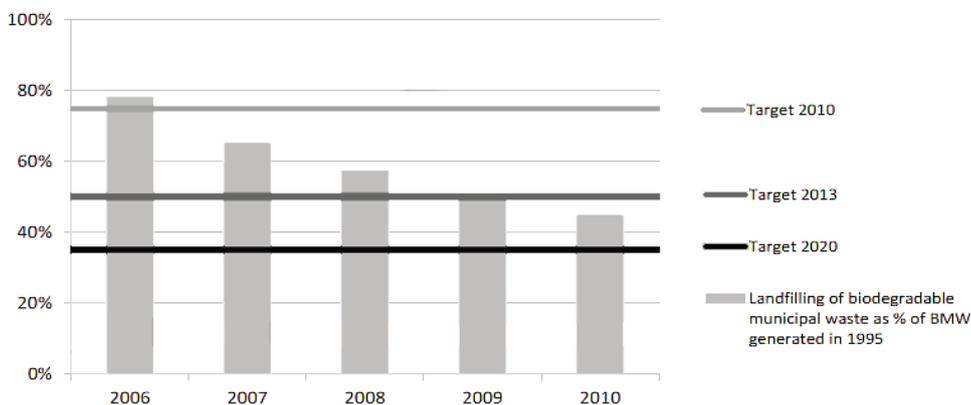


Fig. 2. Landfilling of biodegradable municipal solid waste in the UK
Source: EC, 2012; Watson, 2013

The goal of UK was to reduce municipal solid waste in 2013 till maximum 1 7844 thousand tonnes.

This goal, according to the government provisional calculation, has been achieved. The next goal is

landfilling no more than 12491 thousand tonnes of solid waste by the year of 2020 (Watson, 2013)

In 2011, Sainsbury's became the first British supermarket to send no food waste to the landfill. The majority of the retailer's excess food is now used to generate energy through anaerobic digestion. As of 2011, Sainsbury's was the largest British retail anaerobic digestion user after signing a three-year agreement with the waste management company Biffa. The grocer made its zero-food-waste-to-landfill pledge in 2009. With this policy, Sainsbury's helps Britain fulfill the EU Landfill Directive mandating the reduction of biodegradable waste to landfills to 50% of the 1995 level by 2013. Sainsbury's has also made efforts to reduce its food waste through better inventory control and sales forecasting and by donating edible but unsellable food to the hungry through charities like FareShare. The grocer has been working with the charity for more than 17 years and provided millions of meals (Stuart, 2011). But such manufacturers/sellers/distributors are still a rarity, therefore the Landfill Tax, which is currently

£72 per tonne, continues to be the main driver for authorities to reduce waste sent to landfills.

The situation in **Croatia** is different, currently waste management is one of the largest challenges in the environmental sector there, this area also demands the biggest adjustments, so the country's food waste parameters can meet the expectations of the EU. Currently municipal waste management in Croatia is undergoing a radical transformation from decentralized disposal of non-treated waste on numerous local sub-standard landfill sites within counties to centralized waste management and Waste Management Centres (WMC) servicing the needs of one county or, in some cases, of several counties. The WMC concept has been adopted by the Croatian government in its National Waste Management Plan. Croatia still lacks of an effective waste management system. Most of the waste produced in the country is exported for treatment to other European countries, mainly to Austria (Matkovic, 2012).

Sweden is the example of the country where waste management is best in the EU.

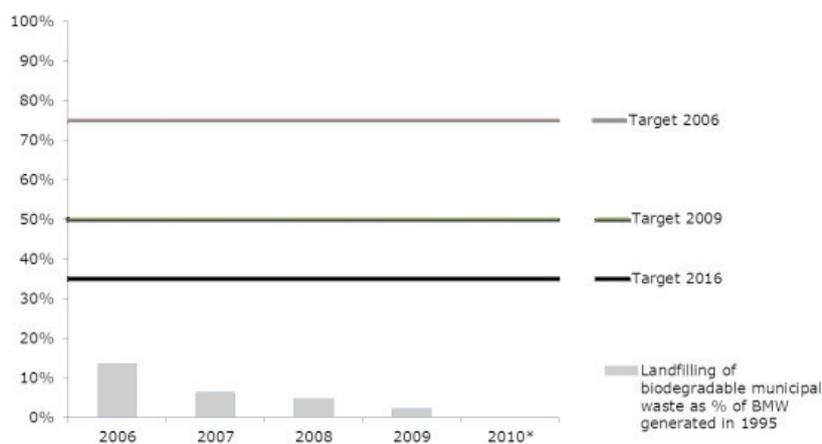


Fig. 3. Landfilling of biodegradable municipal solid waste in Sweden
Source: EC, 2012; Watson, 2013. *Data missing

The waste management polity of this country is often called a success example. Its recycling rates were high already in 2001, at 40%, and by 2010 Sweden reached 49%, just 1% below the target of 50% set out in the Waste Framework Directive. Sweden most likely will be able to fulfil the target by 2020. More than 99% of all household waste is recycled in Sweden, as a rule recycling stations are located no more than 300 metres from any residential area. The landfill tax which came into force on 1 January 2000 played a vital role in the diversion of municipal waste stream from landfills in favour of recycling and incineration. Consecutive increases in taxation in 2002, 2003 and, finally, in 2006 instigated a continuous increase in recycling materials in the municipal waste stream. In 2002 the Swedish government set the landfill ban on sorted combustible waste, and in 2005 – the landfill ban on organic waste (Milius, 2013).

There are also countries in Europe, such as Denmark, Germany and the Netherlands, where incineration of waste has a long history with, existing side-by-side, high recycling rates.

In general, the food waste reduction policy in Europe focuses mainly on waste recycling rather than on preventing food waste by donating edible food. Many researchers and non-governmental organizations' members argue that serious efforts to reduce food waste in Europe have not been made yet. In 2014 it was expected that the European Parliament will publish a **communication called *Building a Sustainable European Food System***. But instead the European Commission secretariat-general, under the enlightened leadership of secretary-general Catherine Day, once again blocked this policy. People expected to see a clear proposal on how to change the ways (often unsustainable) how food is produced in the European Union, identifying why

people are wasting so much of everything produced (at least 30% or 1.6 billion tonnes every year), and the target to change people's attitudes towards food will be set. The food waste matter was also taken away from the Directorate-General for the Environment and given to the Directorate-General for Health and Consumer Affairs in a way suggesting that the food waste problem is not a serious environmental problem (Staes, 2014). In September 2014, 11.11.11, a coalition of non-governmental organizations, unions, social movements and solidarity groups, met in Belgium to join the efforts of 70 organizations and 340 committees of volunteers for the purpose of achieving the goal – a fairer world with no poverty and launched their campaign on food waste called *Sorry is not Enough*. The aim of the campaign is to call on the general public to put pressure on policy makers to act strongly against food waste. The members of 11.11.11 believe that the act of the European Commission to block its very own action plan to address food waste and to promote a sustainable food policy is shameful and need wider publicity (Sorry is niet genoeg, 2014).

The European Waste Survey conducted between 3 and 7 December 2013 among 26 595 respondents from different social and demographic groups who were interviewed via telephone on **household waste**, highlighted the lack of awareness of the food wastage problem. 92% of the respondents thought that food waste reduction is a positive thing, only 43% agreed that they generate too much food waste and they could possibly make an effort to reduce it. 71% of the respondents also indicated that they would not mind to separate their waste if they would be sure that the separated waste would not end up just in the landfill and would be effectively recycled. Over 50% of the respondents also admitted that the financial benefits and nearness of waste recycling and composting facilities would definitely motivate them to waste less or to sort and deliver their waste. Even 34% of the respondents in Denmark and 31% in Lithuania were unwilling to pay a fixed sum for waste management through their taxes (European Commission, 2014).

It was also proposed to remove the **label “best before”** on certain food products very soon because such labelling, according to the ministers of the Netherlands and Sweden, is confusing and makes people dispose of good food because of safety concerns (Cohen, 2014). So the only reference point for customers will be a production date and also the smell, look and taste of a product. Customers will have to decide whether it is safe to buy/eat a product relying on their skills rather than just reading the label “best before”. However, only time will show if this initiative is effective and will not end up in bigger wastage. Nowadays, if a product has not reached its “best before” date probably customers will not throw it away before that date, but if such

date disappears and customers see only a production date probably they will decide to throw away that product.

Conclusions

Overconsumption in developed and developing countries has a direct impact on food prices negatively affecting food accessibility to the poor.

Food waste now makes up the biggest part of the solid waste that reaches municipal landfills and incinerators in many developed countries

Countries deal with the food waste problem in different ways. Some really do not care about it and have big landfills, others make an effort to motivate people to sort their waste and then recycle it, still others make an effort to motivate people to donate their food by making it less risky for the donor and by providing tax discounts for doing so.

Most of the countries use taxation as a key motivator for the producers/retailers/consumers to recycle and/or reduce waste. Another very effective method is, when it comes to household food waste reduction, to set only concrete waste collection days. When you need to store your garbage you better understand its amounts and have to think twice before throwing something away.

Compared to Japan or the US, food waste reduction initiatives in Europe are not so strict and drastic, and the EU Parliament itself is not ready to implement the communication called *Building a Sustainable European Food System*.

Many countries are not prepared to establish and use food waste recycling facilities since that requires resources those countries do not have. Consumers, in general, do not support food recycling or food waste reduction initiatives if that will cost them more or if that will affect their right to choose the products they want to buy.

The possible solution for governments could be creating such legislation that will require producers/sellers sell smaller packages at the price of bigger ones, motivate producers/sellers to use more advanced packaging that controls moisture, ripeness, freshness. No such legislation has been established so far.

Nowadays, the prevention of food overproduction and oversupply is hardly on any government's list although there are some measures that could be used and they have been mentioned in the present paper.

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Правовое регулирование в области обращения с пищевыми отходами: опыт промышленно развитых стран

Резюме

Потребление продуктов питания очень варьируется между странами и между представителями разных культур. С одной стороны, тысячи людей голодают, а с другой, многие жители планеты страдают от ожирения и выбрасывают излишки продуктов питания. На данный момент для удовлетворения всех потребностей людей производится достаточное количество продуктов питания при условии их правильно-го распределения.

Ключевыми факторами неустойчивости моделей потребления являются постоянный рост населения, глобальная урбанизация и рост доходов. Во многих промышленно развитых странах отношение к еде базируется на представлении о том, что утилизировать отходы дешевле, чем их перерабатывать и повторно использовать. В этих странах воздерживаются от пожертвования продуктов питания, поскольку не регламентирована ответственность в случае возможных проблем со здоровьем населения.

В некоторых странах отсутствуют специальные предприятия по качественной переработке отходов, что требует крупных капиталовложений. Кроме того, немаловажным фактором является и низкий уровень информированности и мотивации населения.

Основная цель настоящей статьи – определить, как промышленно развитые страны распоряжаются пищевыми отходами, и проанализировать, что детерминирует уменьшение расточительства продуктов питания.

Япония имеет положительный опыт в сфере сокращения и переработки отходов. Только за один год там количество пищевых отходов уменьшилось с 23 миллионов тонн до 18 миллионов тонн. Этот процесс регламентируется так называемым «Законом о переработке еды», который касается руководства и контроля пищевых предприятий и предписывает использовать ранее утилизируемую продукцию для кормления скота. Настоящий закон мотивирует потребителей сортировать отходы и также платить налоги, покупая определённые мешки для отходов. Данный закон определяет меры наказания за невыполнение предписаний, вплоть до лишения свободы сроком на 5 лет. В Японии пожертвования продуктов питания не поощряются во избежание проблем со здоровьем населения.

В свою очередь, в США расточительность в отношении продуктов питания является пока обычной практикой, несмотря на большую работу по изменению сложившейся ситуации. Миссисипи – первый штат, в котором, аналогично Японии, крупные предприятия обязаны предоставлять план по утилизации пищевых отходов. В Америке чётко оговорена возможность пожертвования продуктов питания, чем

предприятия активно пользуются, получая налоговые скидки. Аналогичная практика сложилась в штатах Вермонт и Коннектикут, а также в таких крупных городах, как: Нью-Йорк и Сан-Франциско. Жёсткая политика отдельных штатов и государства в целом в отношении потребителей ещё находится на стадии разработки.

В Европе 2014 год объявлен годом борьбы с расточительным отношением к продуктам питания, но на данный момент ситуация в Европейском Союзе является неоднозначной, так как в странах-членах ЕС исторически различается отношение к продуктам питания и их переработке. Например, в Германии отходы как утилизируются, так и перерабатываются. Два основных законодательных акта: директива ЕС «О наземных мусорных свалках» и рамочная директива ЕС «Об отходах» – являются общими для всех стран ЕС. Их цель – сократить количество всех отходов, в том числе пищевых. Законодательство фокусируется на переработке отходов и на использовании сырья для производства других продуктов. Несмотря на то, что рамочная директива ЕС «Об отходах» включает в себя профилактические мероприятия, они недостаточно конкретизированы. Планировалось, что в 2014 году ЕС выпустит посвящённое вопросу как профилактики, так и утилизации пищевых отходов коммюнике под названием «Построение устойчивой европейской продовольственной системы», однако данный документ до сих пор не обнародован. В Европе наличествуют примеры успешной работы в данной области. Например, Швеция фокусирует свои усилия на переработке и возможном пожертвовании продуктов питания.

В целом в промышленно развитых странах очень высокий уровень расточительства продовольственных продуктов, однако в большинстве случаев данная проблема рассматривается только в аспекте их переработки.

Во многих странах налоговая политика, система штрафов и наказаний являются основным стимулом для сокращения расточительства продовольственных продуктов. В некоторых странах, например, в Японии, у потребителей возникают бытовые проблемы с хранением мусора, поскольку его вывоз осуществляется в определённые дни и часы.

В большинстве случаев потребители не готовы отказаться от своих привычек, особенно если это влечёт за собой увеличение расходов и сокращение ассортимента продаваемых продуктов питания.

Ключевые слова: переработка, пожертвование продуктов питания, законодательство, отходы, Япония, США, ЕС.