

Abstract

Project title	"Provision of services for the preparation of methodologies and analyzes for the purposes of the project „Enhancement of business branding through the development of a carbon footprint evaluation system in the cross border area“ (CB CARBONFREE)"
Activity 1	Development of a toolkit and multi-criteria analysis for micro, small and medium enterprises in the food sector in Bulgaria (mainly exporters)
Result no	D3.2.1 of the project
Beneficiary	Haskovo Chamber of Commerce and Industry
Artist	Center for Testing and European Certification Ltd

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The project is co-funded by the European Union and National Resources of the participating countries under the " INTERREG V-A GREECE - BULGARIA 2014-2020 "Cooperation Program."

A toolkit was developed and a multi-criteria analysis of micro, small and medium-sized enterprises in the food sector in the region was carried out.

The causes of global climate change and the direct link to the food sector are indicated. Greenhouse gas (GHG) emissions arise mainly from the burning of fossil fuels in the energy and transport sectors. The food sector has been identified as another major driver of climate change.

The food chain or food supply chain is examined and includes agricultural production, food processing, distribution, retailing and consumption of food, and waste disposal.

Clarification of the tasks and objectives that are set before the European companies from the food industry in the direction of reducing the carbon footprint in the sector.

Neighboring Greece and Romania remain the leading destinations in 2021 for Bulgarian exports of agricultural goods (together they form nearly a quarter of the total agricultural exports for the year), agricultural production is part of the food chain and should not be omitted in the analysis process.

A general analysis of the economic sector in the Haskovo region was made, considering the geographical position of the region, climate, economic profile of the companies in the region, traditional sectors and local companies operating in the food industry. In the district, companies mainly develop production activities in the bakery, confectionery, meat processing, milk processing and canning industries.

The applicable international, European and national regulations/standards are analyzed in the context of the project, for example, the "Farm to Fork" strategy. Its implementation is an indicator of accelerating the transition to a sustainable food system. The need for a neutral or positive impact on the environment is great;



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making efforts to minimize climate change and adapt to its impacts; reducing the loss of biodiversity, ensuring food security, nutrition and public health, ensuring that everyone has access to sufficient, safe, nutritious and sustainable food.

The EU Code of Conduct for Responsible Food Business and Marketing Practices is effective from 5 July 2021. and is one of the first outputs of the Farm to Fork strategy and an integral part of its action plan. The Code sets out the actions that 'farm-to-fork' actors such as food processors, food service operators and retailers can voluntarily commit to tangibly improve and share their performance in the field of sustainability. These actions can be directly applicable within their operations as well, or they can encourage collaboration with industry peers and other food system stakeholders (such as farmers and consumers) to make similar changes.

EN 14060 family of standards has been carried out by the International Organization for Standardization (ISO) - which supports the transformation of scientific knowledge into tools that help tackle climate change. Greenhouse gas mitigation initiatives through the quantification, monitoring, reporting and verification of greenhouse gas emissions and/or removals.

[A study was made of the methodologies for calculating the carbon footprint concerning the food and beverage sector.](#) It is noteworthy that internationally agreed upon methodologies, from The International Organization by Standardization (ISO) and World Institute for Resources (WRI) and the World business advice for sustainable development (WBSCD) begins t in 2008 as the application of the methods of PCF quickly is dialling strength and everything appears everything more individual initiatives.

One of the first public PCF methodologies to be published was the British Publicly Available Specification (PAS) 2050 (BSI 2008), which was developed in response to the growing need from industry, society and other stakeholders for a consistent methodology to assess product emissions of GHGs over the life cycle (BSI 2008).



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An example of an initiative for standardization, esp directed to the production of foods, is the ENVIFOOD protocol, a guidance document, specific for food and drink created _ by The European one round table for sustainable consumption and production of food, an initiative on a multitude interested countries, co-chaired from The European one commission and business associations from the chains for delivery on food and drinks.

Product Ecological Footprint (PEF) is a multi-criteria measure of the ecological performance of a good or service throughout its life cycle. PEF information is produced with the primary objective of seeking to reduce the environmental impact of goods and services, taking into account supply chain activities (from the extraction of raw materials, through production and use, to final waste management).

Another example is the Organizational Environmental Footprint (OEF), which is a multi-criteria measure of the environmental performance of an organization providing goods/services from a life cycle perspective.

While the PEF method is specific to individual goods or services, the OEF method applies to organizational activities as a whole ie. for all activities related to the goods and/or services that the organization provides from a supply chain perspective (from the extraction of raw materials, through use, to final management of waste from the activity).

The global dairy industry, through the International Dairy Federation (IDF), has also developed several companies - and sector-specific 'standards', for example, a common approach to calculating the CF of milk and milk products (IDF, 2010).

The Greenhouse Gas Protocol (GHG Protocol) is the most widely used international accounting tool that enables businesses to understand, quantify and manage greenhouse gas emissions.



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The benefits and efficiency of methodologies for calculating carbon footprints are indicated as part of the study of the impact of the food industry on the ecological footprints of the environment. This is very important because the analysis of the techniques used to produce products allows the identification of the weakest links in the production chain and allows them to improve.

The essences of the key concepts - "ecological footprint", "carbon footprint", and "life cycle" are distinguished in accordance with the research;

Basic terms are clarified, which are the foundation for upgrading and implementing the analysis and methodology for improving the trademark. Illustration with specific examples, both from national and European good practices.

Sustainable business models of a company producing mineral water are examined and an example from the dairy industry is given. Exemplary, appropriate measures to reduce the carbon footprint are indicated for milk and milk products for the companies of this branch. Minimizing greenhouse gas emissions is one aspect of a 'sustainable food industry', although it is likely to have impacts on various aspects of the economy such as environmental (e.g. land use intensity), social (e.g. livelihoods, and competitiveness).

The principles of sustainable production are analyzed and the quantitative method for assessing the environmental impact of a product or service - the life cycle assessment (LCA) - and the benefits of performing this assessment are discussed.

The concept of sustainable food is identified, the stages it must have gone through and the main processes that are directly related to the production of this food and subsequently contribute to greenhouse gas emissions are indicated.

Ecolabelling processes and the benefit of ecolabelling schemes in creating market niches for environmentally friendly products and certification of production processes are analysed. The different eco-labelling schemes, different types of



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eco-labels and the importance of environmental product declarations are discussed.

Examples of eco-labels are given and generalizations are made about the eco-label as a factor in improving the brand.

Developed a toolkit for multi-criteria analysis for micro, small, medium and large enterprises in the food sector in Bulgaria. It can be used in decision-making, to evaluate problems when a person/manager is faced with a number of different alternatives and expectations and wants to discover the best solutions in relation to different and often conflicting objectives.

Specific steps for carrying out such an analysis are indicated, examples and methods of action at each stage are given. The disadvantages and limitations of this type of analysis are also indicated.

Data analysis and preparation of comparative tables and charts illustrating the subject of the analysis. Summarizing the results, drawing conclusions, conclusions and giving directions. 21 companies representing the food sector from the Haskovo region with a variety of production activities participated in the analysis.

Questionnaire cards were prepared questions with questions characterizing the sustainable policy of a company. The criterion is ecological and social in nature, the aim is to analyze the real knowledge, preparation and readiness of the companies from the sector and their management team to switch to sustainable production. Increasing their efficiency and care for nature, reducing the carbon footprint of manufactured products. Sustainability of the entire production chain - from the supply of raw materials from agriculture to the end customer and the retail outlet.



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The analysis shows that the companies from the food sector in the region are in the initial stage of sustainable production, but they are trying to implement activities to improve their policy in this direction.

Companies should actively work in the following aspects: the optimization of production, the application of new techniques and technologies, the use of renewable energy sources (RES), the promotion of sustainable consumption by its customers, the reduction of pollutant emissions in the atmosphere, water and land, sustainable management of natural resources.

The company that wants to improve and take the path of sustainable development needs to carry out a comprehensive assessment of the impact of its production on the environment and determine the resulting environmental effects. It should also not be forgotten that the food industry is the main industry in most countries of the world, including Bulgaria. It is one of the main sectors with the largest percentage of greenhouse gas emissions in its production processes.

Each company must develop criteria for its sustainable development, based on comparative analyzes of actual manufactured products, and their subsequent application in business strategy.

