

# HEALTHY FOOD SAFETY, LEGISLATION AND THE HACCP CONCEPT IN MONTENEGRO

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## Abstract

Due to the natural, cultural and historical potentials, development trends and strategic orientation to develop as a tourist destination, tourism in the long term presents one of the biggest potential for economic and business progress of Montenegro. As one of the countries of the Mediterranean ring, Montenegro belongs to that area not only geographical, climatic but tourist as well. With the development of tourism, the imperative is the need to provide for the tourists not only quality but also healthy food, valuing at the same time the internationally recognized standards. It is known that food is a very risky element of tourism, and the HACCP concept is the establishment of food safety systems through the analysis and control of biological, chemical and physical hazards in the entire process, from production of raw materials, production, distribution and consumption of the finished product. The paper presents the views of legal legislation related to the field of food, international ISO standard, ISO 22 000. The aim of this paper is to emphasize the importance of the HACCP concept.

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**Keywords:** Healthy food safety, legislation

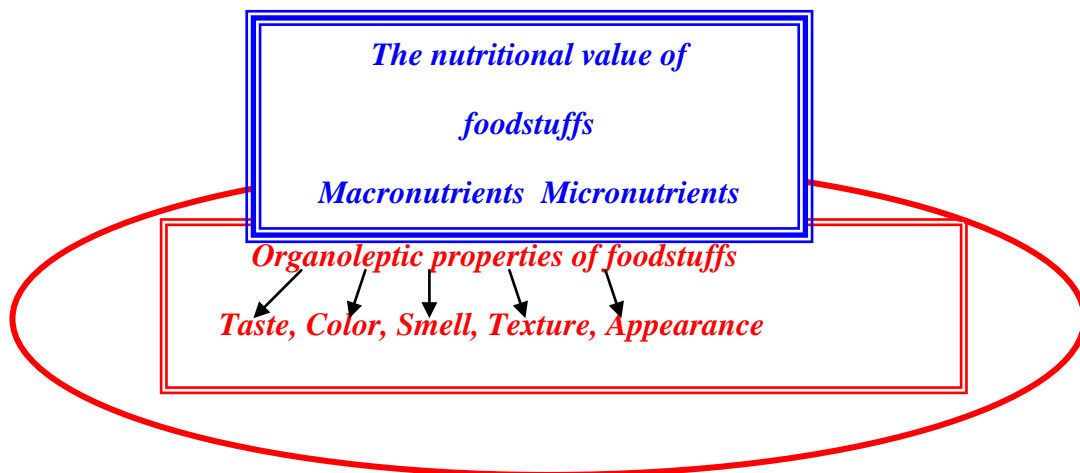
## Introduction

Tourism is one of the most important economic activities, which brings huge income while raising the living standard and the level of the economy of a country. Montenegro, a country rich in natural resources for food production, offers incomparable opportunities for food production and thus for the development of tourism. The gastronomic offer is part of the offer in any destination, and it represents tourist characteristic of the destinations. Tourists are more and more interested to get acquainted with these characteristics of the country, especially since food consumption is one of the primary needs of human and also is "one of the three favorite activities

of tourists."<sup>1</sup> One of the conditions for the successful development of tourism is providing high-quality and healthy safe food.

Protecting and improving the health as well as the quality nutrition is a subject of interest of many countries, and today special attention is paid to it. To maintain normal functioning a human needs food, and to feed means to enter by eating, drinking, or otherwise into the body substances that possess certain food (nutrition), energy and organoleptic properties.

*Graph. 1* Display of important factor for nutritional value and organoleptic properties of food



Food must be healthy safe and must have adequate nutritional value. Nutritional value of food consists of micro and macronutrients. The macronutrients include: proteins (proteins), carbohydrate (sugar) and fats (lipids). The micronutrients include: vitamins and minerals (mineral substances). Organoleptic properties of the food are: taste, smell, color, texture and appearance of food.

Availability to healthy safe food protects and improves the health of the population, but also presents one of the fundamental rights of every individual. Considering that, the standards of food safety, first and foremost the HACCP concept, from 1 January, 2006. , became mandatory in the EU<sup>2</sup>. The World Health Organization (WHO - World Health Organization) is an organization that deals with the preservation of public health, and as one of its top priorities it has determined taking all necessary measures and actions to improve the food safety system and reduction of illness caused by food and improper diet. In Montenegro, the Ministry of Health and Ministry of Agriculture, Forestry and Water Management in accordance with the guidelines of the WHO, in 2003 established the National Commission for the

<sup>1</sup> <http://www.culinarytourism.org/introduction>, 25.07.2013.

<sup>2</sup> Vucic, Z. Z. Milanov, R.: *Food safety - HACCP and other systems in food production*, Draganic. Belgrade. 2006. p. 13.

food safety as professional and advisory body in whose work are engaged representatives of all relevant authorities, organizations and institutions. The Commission issued a document Strategy of healthy food safety, in 2006<sup>3</sup>. The document Profile of the country presents the detailed profile of the current situation in area of food safety in Montenegro. The main objective of the Strategy for Food and Nutrition Safety is the protection and improvement of health through the reduction of health and social problems resulting from the diseases that are caused or transmitted by food.

The strategy defines the levels of activity in terms of the implementation of the following measures: 1 Defining and developing of the integrated, comprehensive and sustainable food safety system with the capacity building of effective national food safety system, which implies ensuring of the safety and quality of food that is produced in the home country, and at the same time to ensure that the food that is imported to be adapted to national requirements and regulations. 2. Implementation of the measures of good hygiene practices (GHP - Good Hygiene Practice), Good Manufacturing Practice (GMP - Good Manufacture Practice) and HACCP food safety systems (HACCP Hazard Analysis and Critical Control Points - ISO 22 000), along the entire food chain from farm to table-that is, from primary production to the final consumer, in order to prevent any exposure of consumers to unnecessary and unacceptable levels of risk. 3. Scientifically based assessment, management, and risk communication. 4. Mutual cooperation between all subjects involved in production chain. 5. Raising the level of awareness of the importance of food safety and health measures. 6 Epidemiological studies related to diseases caused or transmitted by food<sup>4</sup>.

All the mentioned activities and strategy measures are regulated by the legal framework of the Law on Food Safety of the Republic of Montenegro, which is largely harmonized with the EU legislation.

### **Food and the legislation of Montenegro**

By legal regulations each country should provide not only quality diet of the population, but also protection of consumers from contaminated food with any poisonous substance. A number of laws, regulations, guidelines and other documents related to food safety were adopted in Montenegro. A large part was adopted at a time when Montenegro was part of FR Yugoslavia and in the common state with Serbia:

Law on Supervision of Foodstuffs and Goods of general use "Official Gazette of Montenegro", no. 26/73, 4/88; Freshwater Fisheries Act "Official Gazette of Montenegro ", no. 39/76, 51/76, 34/88, 4/92; Law on Wine and

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<sup>3</sup> <http://www.gov.me/files/1259925213.pdf>

<sup>4</sup> The Government of the Republic of Montenegro, Ministry of Health, Ministry of Agriculture, Forestry and Water Management. Strategy for food safety. Podgorica, 2006th p. 7.

materials derived from grapes and wines "Official Gazette of Montenegro ", no.9/83, 15/83, 27/94; Law on Health Safety of Commodities and consumer goods "Official Gazette of SFRY", no. 53/91; Law on Measures for the improvement of livestock "Official Republic of Montenegro ", no. 4/92; Law on the protection of plants against pests and diseases, "Official Republic of Montenegro ", br.4/92, 59/92, 27/94; Law on Agricultural Land "Official Republic of Montenegro", no. 15/92, 59/92, 4/93; Law on Seeds and Seedlings "Official Republic of Montenegro ", no. 39/92, 59/92; Law on Sanitary Inspection "Official Gazette of Montenegro", no. 56/92; The Law on Market Inspection "Official Republic of Montenegro ", no. 56/92; Law on the quality control of agricultural and food products in international trade, "Official gazette of FRY ", no. 12/95, 28/96; Law on Water "Official Republic of Montenegro", no. 16/95; Law on Protection against Ionizing radiation, "Official Gazette of FRY", no. 46/96; Law on Plant Protection "Official Gazette of FRY ", no. 24/98, 26/98; Law on Organic Agriculture "Official Gazette of FRY", no. 28/00; Law on the Protection of Agricultural and Forest Products "Official Gazette of FRY ", no. 28/00; Law on Genetically Modified Organisms "Official Gazette of FRY ", no. 21/01; Law on Inspection Control "Official Gazette of Republic of Montenegro ", no. 39/03 - General Law for all inspections; Law on Olive Growing "Official Gazette of Montenegro", no. 55/03; Law of the Sea Fisheries "Official Gazette of Republic of Montenegro ", no. 55/03; Law on Veterinary Medicine "Official Gazette of Republic of Montenegro ", no. 11/04 which was harmonized EU standards at the time of passing; Law on Health Care "Official Gazette of Montenegro", no. 39/04; Law on Medical Devices "Official Gazette of Montenegro", no. 79/04; Law on Drugs "Official Gazette of Montenegro", no. 80/04; Law on Protection of Population from Communicable Diseases "Official Gazette of Republic of Montenegro ", no. 32/05 which is aligned with the recommendations and programs of WHO; Law on Accreditation "Official Gazette of Serbia and Montenegro", no. 44/05; Law on Standardization "Official Gazette of Serbia and Montenegro", no. 44/05; Law on technical requirements for products and products compliance appraisal with the prescribed requirements "Official Gazette of Serbia and Montenegro ", no. 44 / 05.

The last few years it is actual harmonization of regulations concerning food safety in Montenegro with the EU regulatory, because it is one of the conditions for Montenegro's candidacy for membership in the European Union. Law on Food Safety<sup>5</sup> was adopted by the Parliament of Montenegro in 2008., thus completing the legal regulations regarding food

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<sup>5</sup> Law on Food Safety, Official Gazette of Montenegro, no. 14 / 07.

safety. Relevant ministries perform control of the implementation of the law on food safety. Control of the implementing of food safety conducts<sup>6</sup>: Ministry of Health, Ministry of Agriculture, Forestry and Water Management and the Ministry of Economy.

Tab. 1 Control of law enforcement on food safety

<p><b>Ministry of Health</b></p>	<ul style="list-style-type: none"> <li>- Department of health and sanitary surveillance</li> <li>- Institute of Public Health of Montenegro</li> <li>- Laboratories</li> </ul>	<ul style="list-style-type: none"> <li>- Regulatory procedures</li> <li>- The implementation of food control</li> <li>- Testing of samples</li> <li>- Nutritional requirements</li> <li>- Epidemiological surveillance</li> </ul>	<p>The system of water supply for drinking and food, production facilities, market and sale of food, serving of food, persons handling with food</p>
<p><b>Ministry of Agriculture, Forestry and Water Management</b></p>	<ol style="list-style-type: none"> <li>1. Veterinary Administration             <ul style="list-style-type: none"> <li>- Department for professional work of veterinary</li> <li>- Veterinary Inspection</li> </ul> </li> <li>- Veterinary surgeries</li> <li>2. Veterinary Diagnostic Laboratory</li> </ol>	<ul style="list-style-type: none"> <li>- Procedures for registration of facilities for processing food of animal origin</li> <li>- approvals for the import of food of animal origin</li> <li>- inspection and testing of food and raw materials of animal origin</li> </ul>	<p>Foods of animal origin, animal feed, veterinary drugs</p>
	<ol style="list-style-type: none"> <li>3. The agricultural sector             <ul style="list-style-type: none"> <li>- Department of Agriculture</li> <li>- Department for inspection control</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>- Monitor the agriculture and agro-industry</li> <li>- Inspection control over the implementation of the agricultural law</li> </ul>	<p>Herbs, fruits, vegetables, plant protection products in agriculture</p>
<p><b>Ministry of Economy</b></p>	<p>Republic Market Inspection</p>	<p>Quality, trade and labeling</p>	<p>All types of products</p>

<sup>6</sup> Government of the Republic of Montenegro, Ministry of Health, Ministry of Agriculture, Forestry and Water Management. Strategy for food safety. Podgorica, 2006. p. 12

Under this law, the term food is any substance or product, processed, partially processed or unprocessed, intended for human consumption or can be expected to be used for human consumption. Food includes water: 1 used for public water supply as drinking water; 2 used, or embed into the food during its manufacture, preparation or treatment; 3 bottled or otherwise packaged water, table, spring or mineral water. Food also includes drinks, substances that are incorporated into the food during its manufacture, preparation or treatment, chewing gum, as well as supplements and foods of mineral origin. Food, according to the origin, is divided to: a) food of animal origin (food derived from animals or originating from animals in processed or unprocessed form - in some cases also include live animals (eg, lobsters or live shells); b) food of plant origin (food derived from plants in the processed and unprocessed form); c) combined food (food containing products of plant origin and processed products of animal origin), d) other food (food of mineral origin, water, drinks, chewing gum, etc.).

According to Article 23 Law on Food Safety<sup>7</sup>, it is forbidden to produce and trade food that is not safe. The food is considered safe if it is not harmful to human health, if is suitable for human consumption and if it is used properly. Food safety is determined by: 1 fulfillment of the requirements at each stage of production and trade, and requirements for handling, storing and displaying, to the sale to the consumer as well as the requirements for preparation and consumption according to its intended use; 2 information submitted to the consumer, including information on the declaration and their compliance with the manufacturer's specification, or other information available to the consumer concerning the prevention of adverse effects of certain foods on human health. Harmful effect of food on human health is determined according to: 1 possible adverse effects, direct or indirect, short-or long-term on health of the person who is consuming it, as well as potential impact on future generations; 2 possible cumulative toxic effects; 3 particular health sensitivities of a specific category of consumers to which the food is intended.

Inadequacy of food for human consumption shall be determined on the basis of its use because of possible contamination from the environment or in some other way (because of putrefaction, deterioration or decay, etc.). When the food, which was found to be unsafe is part of a production, seria or shipment of the same food according to category and description, it is believed that all the food in that production, seria or shipment is unsafe, unless the contrary is proved.

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<sup>7</sup>Law on Food Safety, Official Gazette of Montenegro, no. 14 / 07

## **The role of the ISO standard, ISO 22000 and HACCP concept in Montenegro**

Standard is a word that means something that is measure, and standardization represents a procedure of adopting and applying standards and quality norms<sup>8</sup>. In this sense, tourism workers have an obligation to make their services comply with internationally recognized standards, regardless of the fact that the standards in the creation and implementation a voluntary because standard is recognized as a reference (national, European or international) as a response to market assessments, guaranteed method to develop consensus. In this sense, tourism workers have an obligation to make their services comply with internationally recognized standards, regardless of the fact that the standards in the creation and implementation is voluntary because standard is recognized as a reference (national, European or international) as a response to market assessments, guaranteed method of development based on consensus<sup>9</sup>. For Montenegrin hotel industry is especially important that the most important check of that compliance comes from foreign tourists who usually fill its capacity. If a guest is satisfied with the quality of service that is the best indicator of the application of appropriate standards because the quality is a good thing<sup>10</sup> and represents the market category that includes the totality of creation and realization of material products and services to the degree to which their properties ensure consistency with the demand<sup>11</sup>.

For a long time there is standardization of quality assurance in organizations. The first official standard was published in 1971. The American National Standards Institute ANSI (American National Standards Institute) entitled Specifications of the general requirements for the quality of the program. Later, the United Kingdom, France and Germany published their standards, and all this led to the establishment of the International Organization for Standardization - ISO. International Organization for Standardization (International Organization for Standardization - ISO) is the institution responsible for standards and it is consists of representatives of the so-called Standardization Bureau. The major products of ISO Organization are International standards. After years of work the composition of norms ISO 9000 has realized. In the base of such composition there was the protection of the customer and the user through

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<sup>8</sup> Cerovic, Z.: *Hotel management*, University of Rijeka. Rijeka. 2005. p. 135.

<sup>9</sup> Perovic, M. J. Krivokapic, Z.: *Quality management services*, Pobjeda . Podgorica. 2007. p. 63.

<sup>10</sup> Avelini, Holjevac, I.: *Quality management in the tourism and hospitality industry*, Faculty of Tourism and Hospitality Management Opatija. 2002. p. 519.

<sup>11</sup> Kosar, Lj., Raseta, S.: *Challenges of Quality - Quality management in hospitality*, Higher School of Hotel Management Belgrade. 2005. p. 23.

prescribed, implemented, documented and regularly auditarni composition for quality management, in which also was integrated classic service of the quality control of products and services of any kind and any organization. ISO standards are applied in many industrial sectors, and this paper discusses its application in tourism ie. hotel management with special emphasis on standard ISO 22 000.

Standards related to food security management are ISO 22 000 that define the requirements for management system in food security where an organization in the food chain of the food requires to demonstrate the ability to control the potential hazards that threaten to food security in order to ensure food safety at the time of consumption. It applies to all organizations regardless of size<sup>12</sup>. This standard (ISO 22 000 from point 4 to point 8) defines: a) The procedures with the documentation (item 4) similar to the QMS<sup>13</sup>, b) Management responsibility (food safety policy, planning, responsibilities and powers of communication and management review), c) Resource Management (resources insurance, human resources, competence, awareness and training, infrastructure), d) Planning and implementation of safe food (prerequisite programs - PRP, providing risk analysis, product characteristics, flow diagrams, hazard analysis to establish the HACCP plan), e) Valorization, verification and improvement of the system for managing food safety (validation, a combination of control measures, control of monitoring and measuring, verification of the improvement systems) "<sup>14</sup>. ISO 22000 is therefore relies on good manufacturing practices, HACCP concept and various directives in the field of hygiene and thus ensure food safety and in the hotel industry.

HACCP concept (Hazard Analysis and Critical Control Points) presents a systematic preventive approach to food safety, for detecting chemical, biological and other irregularities that may occur in all processes of production, preparation, packaging, distributing food and providing solutions to prevent them in practice. HACCP concept was first applied in the United States, in the company Pillsbury in collaboration with Natick Laboratory and NASA to provide hygienic and toxicological properties of food for astronauts<sup>15</sup>. It was based on the engineering principle of fault analysis, modes and effects at any stage of the process and setting up effective control mechanisms. After that, the concept is accepted by the

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<sup>12</sup> [http://www.iso.org/iso/catalogue\\_detail?csnumber=35466](http://www.iso.org/iso/catalogue_detail?csnumber=35466), 27.07.2013.

<sup>13</sup> *Quality Management System*

<sup>14</sup> Perovic, M. J. Krivokapic, Z.: *The quality management system of the hotel*, Faculty of Tourism and hotel industry Kotor, Faculty of Mechanical Engineering - Quality Center. Podgorica, 2006 p. 124.

<sup>15</sup> Mortimore, S. Wallace, C.: *HACCP A Practical Approach*. Aspen Publishers, Inc, Gaithersburg, Maryland, 1998. pp. 1-2.



World Health Organization and the Food Organization and the European Union. The concept is aimed at identifying specific measures for their control to ensure food safety, and the next approach is to complete the food industry receive appropriate training on the proper application of the HACCP concept<sup>16</sup>.

HACCP concept is used to assess the risks and establish a system of control and it is more focused on prevention, rather than testing of the finished product. Concept is applicable throughout the entire food chain, from farm to table and its implementation is based on scientific facts about the risks to human health. In Montenegro has been legally binding since 2011. Companies are, including hotel companies, opting for the introduction of this standard, in addition to legal obligations, because it will greatly improve their business. The aim of introducing the HACCP concept is to define and detect the causes that may endanger the guests' health and their safety in all phases of the food cycle, or in the procurement, transportation, storing, food preparing, serving and disposal. The main goal of the HACCP concept is to produce a safe product. The microorganisms that cause a variety of diseases, as well as a number of harmful chemicals, are examples of some of the dangers that HACCP will try to reduce or completely eliminate. It will never exist process for which we can say that it is 100% safe, but it must always be present constant effort to avoid faults<sup>17</sup>. It is known that food is a very risky element of tourism offer, because at each stage it can spoil, and if we take into account specificity of nature of the restaurant business in terms of providing healthy food (the presence of various health risks - eg. Many suppliers, different number of technological processes, ways of serving, changes in offer of dishes, etc.), then in the hotel industry HACCP concept is interpreted as a concept that act preventively, by setting goals, planning, acting, measuring, analyzing and improving, which prevents the occurrence of incidents or cases of emergency or endangering the health of a visitor. HACCP affects the mode change, the way of behaving towards guests, funds for work and work products, culture and consciousness of the participants in the work processes of a restaurant. Principles of HACCP concepts are the same as for the QMS (Quality Management System), and especially important are: focus on the user, employee involvement and teamwork, process approach and continual improvement<sup>18</sup>

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16 Stevenson, K.E.: Implementing HACCP in the food industry. Food technologies. .1990. pp. 179-180

17 Swanson, K.M.J. Anderson, J.E.: Industry perspectives on the use of microbial data for hazard analysis critical control point validation. J. Food Prob. 2000. p. .63.

18 Curcic, S. Milunovic, S. Djuric, M.: Introduction of HACCP system in Catering and hotel facilities. Quality Festival 2007.: Kragujevac, National Conference on Quality. 2007. p. 3.

but it must be noted that testing of this concept can lead to the loss of a part of the product, as they are in some form of testing extremely destructive<sup>19</sup>.

### **Conclusion**

One of the most important aspects of food production is certainly its quality and safety. Legislative in the food field in Montenegro is largely harmonized with the EU legislation, but now the main problem is the lack of application of ISO standards in food production, and the overcome of these problems is expected in the future. A small number of hotels and other companies set up a HACCP concept.

The reasons are multiple: lack of information on the HACCP concept, initial (relatively) high financial investment present resistance to the introduction of "something new" and the implementation of the concept that requires constant efforts. In the high-developed countries, application of the principles of HACCP concept is widespread, while in the EU is legally binding. The ultimate goal of HACCP concept is that the application of adequate procedures produces safer products. This does not mean that by applying HACCP concept always ensures 100% safety for users, but it does mean that companies produce food in the best and safest way possible.

Since Montenegro has the natural potential for the production and export of high quality and safe food, it is essential that the entire food industry as soon as move on to the application of the HACCP system, as a comprehensive concept of ensuring of food safety.

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<sup>19</sup> Bauman, H. :HACCP–concept, development and application. Food technologies. 1990. pp. 156-158.

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