

GLOBAL HARMONIZATION INITIATIVE - RECENT ACHIEVEMENTS AND FUTURE DEVELOPMENT

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Abstract

Trying to ensure safe and nutritionally adequate food many countries around the world have implemented stringent food safety regulations. However, these are not the same in all of the countries resulting in creation of the barriers for food trade. As a consequence, populations in some parts of the world enjoy a large choice of different food products, while other populations suffer from under nutrition.

Having in mind that the right of every individual is safe and nutritionally adequate food the Global Harmonization Initiative (GHI) has been founded. Its activities are focused towards elimination of the differences in regulation and legislation. One of the basic GHI goals is to help the promotion of the worldwide harmonization of food safety regulations, by achieving scientific consensus on key food safety matters in the aim of sustaining the integrity of food supply chain.

Thereby this will influence the eventual elimination of the differences in food safety regulations. In addition, it will stimulate research for those issues where scientific support is lacking. It will also facilitate the implementation of new processing and preservation technologies. It will result in establishment of new and further development of existing national and international food industries since the operational requirements will be unified and trading opportunities will be bigger.

GHI will be persistently active to achieve its goal in the light of the right of each individual to sufficient safe and healthy food.

Key words: *Safe food, legislation harmonization, GHI.*

1. Introduction

In the course of the past 40 years, due to the development of new technologies, food trade became

easier and more efficient. However, there has been also increased demand for ensuring stringent food safety control in the food trade. This control of the food associated hazards must cover the complete food chain- from farm to fork. Many countries worldwide have implemented stringent food safety legislation and on the other hand, some are just in the process of its implementation. Therefore, these differences are influencing food trade making it more difficult. Since the specific regulations are differing between different countries this creates obstacles in food trade and thus in the global food supply. As a consequence, populations in some parts of the world enjoy a large choice of different food products, while other populations suffer from under nutrition. Furthermore, sometimes too stringent, not scientifically justified food regulations are causing the destruction of large amounts of food. There is a need for the globalization of food safety regulations. Many governmental and nongovernmental organizations are already a part of this process, but still there is much to be done.

2. International food trade and food safety legislation

The food should have sufficient nutritional value and micronutrients, be free of hazardous substances and should be acceptable within a given culture (World Bank [1]). Furthermore, food security is defined as "access by all people at all times to enough food for an active, healthy life" (World Bank [1]). As a result of malnutrition, inadequate diets and insufficient food intake, human beings are faced with diseases and lack of vitality. This condition does not only affect individuals, but whole societies and will have, on the long term, global implications. At the global level the amount of food produced annually in the world is more than sufficient for healthy, productive and active life of the global population (World Bank [2]). Since more

than enough food is produced to feed a healthy global population, apparently, distribution and access to food is the problem. Large amounts of food are wasted for a variety of reasons, during harvesting, transport, processing, etc.

The globalization of the food market was facilitated by 60 agreements, annexes, decisions and understandings having the aim to remove trade barriers, the General Agreement on Tariffs and Trade (GATT) for reduction of tariff barriers has been produced (WTO [3]). Food trade, facing vast differences between countries, also has to be controlled in the terms of food safety, animal and plant health as well as technical standards. Therefore, two WTO Agreements have been made: the Agreement on Technical Barriers to Trade (TBT Agreement) and the agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). These two agreements, to a great extent, have facilitated the harmonization of food safety standards in many countries worldwide (WTO [4, 5]).

The necessity of the implementation of food safety legislation and regulations has been recognized and approved in most countries in the world. Basic principles of the "from farm to fork" concept of food safety have been also accepted. Further developments should lead towards harmonization and mutual recognition of this legislation between nations. Food legislation and regulations have been very well established in most of the developed countries. When we go back to food security, its safety and its function in our lives we come to the conclusion that each individual should be provided with nutritious, tasty and healthy food. In the mid 1970s, food security has been an issue with respect to the amount and stability of food supply (FAO [6]), while by the mid 1990s it had been expanded to include food safety and nutritional balance (Boisrobert *et al.*, [7]). This resulted in development of food safety legislation in every area of food production, distribution and trade in the terms of food quality and safety. When creating and adopting food legislation, both the needs of the producers and that of the consumers should be considered, along with various aspects of food safety, technology, obligations under the WTO agreements, social, religious and cultural habits (FAO [8]). Being aware of various negative effects that unsafe food and food of low quality may have, food safety legislation has expanded to ethical issue too.

2.1 Harmonizing organizations

Awareness of the benefits associated with globalized food trade has been recognized since long ago by a many of the governmental and non-governmental organizations, worldwide. These organizations include the World Trade Organization (WTO), the Codex Alimentarius Commission (Codex), the International

Standardization Organization (ISO) and the Global Food safety Initiative (GFSI). Codex and ISO develop standards helping nations to harmonize their food regulations and meet the marketplace needs.

WTO is the global organization dealing with the trading rules between nations. Its goal is to help producers of goods and services, exporters, and importers to conduct their business. WTO is trying to remove the barriers to trade. The SPS Agreement ensures that countries apply the measures to protect human and animal health (sanitary measures) and plant health (phytosanitary measures). These measures should be based on risk assessment, supported by science. International standards, regarding SPS, are set by three international organizations: the Codex Alimentarius Commission (CAC), the International Office of epizootics (OIE) and the Secretariat of the International Plant Protection Convention (IPPC). Standards concerning food safety are developed mainly the CAC. WTO is a supranational organization that provides an arbitration procedure for resolving conflicts. If there is a conflict, a Dispute Settlement Body (DSB) is formed to arbitrate on the basis of WTO law (van der Meulen [9]).

Codex Alimentarius Commission (CAC) became an important international source of reference for developments associated with food standards, officially involving 175 countries, representing 98% of the world's population (Codex [10]). Codex Alimentarius ("food code") stands for a collection of standards, codes of practice, guidelines and other recommendations. Codex standards are related to product characteristics to provide means for health protection and harmonization of national regulations (Codex [11] and Surak [12]). Codex codes of practice are defining the production, processing, transport and storage practices for individual foods. Hazard Analysis and Critical Control Point (HACCP) in food safety management system is described in Codex General Principles of Food Hygiene (Codex [11]). Codex guidelines explain the principles of the policies in certain key areas or discuss the interpretation of these principles or provisions of the Codex general standards (Codex [11]). In developing its standards, guidelines and codes of practice, Codex uses the principles of excellence, by using internationally recognized expertise, independence of the experts, transparency and universality (Surak [12]). Two Codex standards, the Food Hygiene - Basic Text and the Guideline for the Validation of Food Safety Control Measures CAC/GL 69 2008 apply to food processors (Codex [13]). The Codex standards are not legally binding norms but directions that are agreed by member states and incorporated in their national legislation (van der Meulen [9]).

International Organization for Standardization (ISO), the world largest standards developing organization, was created in October 1946 at the meeting of the

Institute of Civil Engineers in London, with participation of 25 countries. ISO officially started its operation in 1947 and until now has published more than 17500 International Standards (ISO, 2009a [14]). Issued standards are related to agriculture, construction, mechanical engineering, medical devices and the newest information technology developments. The purpose of ISO standards is to enable the development, manufacturing and supply of products and services in a more efficient way and where relevant to food, also a safer and cleaner way. The food safety related ISO standards should facilitate the trade between countries and make it fairer, provide governments with a technical base for health, safety and environmental legislation, disseminate innovation and safeguard consumers. Until now more than 730 standards for food products or analytical techniques have been developed, while an additional 120 standards are under development by TC 34 (Surak [12]).

The Global Food Safety Initiative (GFSI), coordinated by the Food Business Forum (CIES), was launched in May 2000. It aims to improve food safety management systems and has defined several objectives: convergence between food safety standards, improvement of the retailers' efficiency through the acceptance of GFSI recognized standards, establishment of the international stakeholder platform for networking, knowledge and information exchange (GFSI [15]). The organization developed guidelines to benchmark certification schemes for food safety management systems (HACCP, scope and certification systems). Up to now, four standards developed by private organizations, have met all of the benchmarking requirements (Surak [12]).

2.2 Global Harmonization Initiative (GHI)

The necessity for the globalization of food safety regulation has been widely recognized by all actors involved in any branch of food safety and technology. Therefore, the need for elimination of the differences in food safety regulations and legislation has also been addressed during the meeting, held in 2004 and organized by the International Division of the Institute of Food Technology (IFT) and the European Federation of Food Science and Technology (EFFoST). Representatives of these two organizations, in cooperation with Food Safety Magazine and Elsevier Science launched the Global Harmonization Initiative (GHI), acting towards elimination of the differences in regulation and legislation (Joppen [16], Lelieveld and Keener [17], Boisrobert *et al.* [7]). The organizational structure of the GHI is outlined in Figure 1.

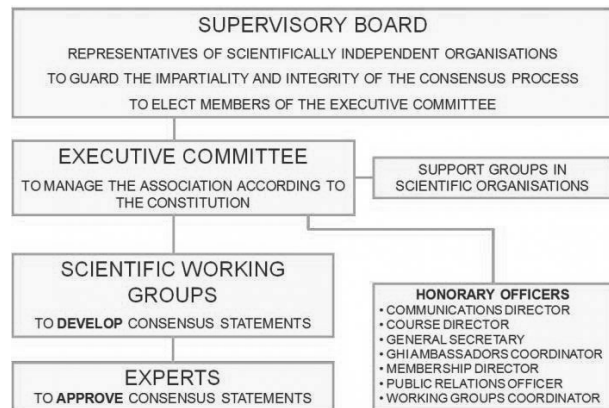


Figure 1. Organizational structure of Global harmonization initiative (GHI)

With such an ambitious goal GHI soon has been joined by other organizations, including the International Union of Food Science and Technology (IUFoST), the Food Chemistry Division of the European association for Chemical and Molecular Sciences (EuCheMS) and the European Hygienic and Design Group (EHEDG). Scientific research organizations, such as the National Center for Food Safety & Technology (NCFST) in Chicago and food science and technology departments of the universities all over the world have also joined GHI (Lelieveld and Keener [17]). There is one very important prerequisite that is enabling the implementation of GHI goals. This prerequisite is an active participation of responsible food scientists from all over the world, as well as identification of experts for specific fields (Lelieveld and Keener [17]). Having a sound scientific backup, in the form of global scientific consensus on food related issues, it will be very hard for governments and other parties involved in creation and enacting of the food safety regulations not to implement certain changes in food related regulations. Scientific justification of the needs for changing specific issues in food regulation globally is not always straightforward and explicit. Having in mind differences in historical background, health aspects and eating habits of different populations in the world, the proposals made by GHI will not be explicit in certain cases. These will be based on peer reviewed available scientific evidences, supporting the conclusion whether or not the consensus statement on safety can be obtained.

2.3 GHI goals

One of the basic GHI goals is to help the promotion of the worldwide harmonization of food safety regulations, by achieving scientific consensus on key food safety matters in the aim of sustaining the integrity of food supply chain (Boisrobert *et al.* [7]). The overall goal, defined in GHI charter (Figure2), of GHI is

to ensure the global availability of safe and wholesome food for all consumers (Lelieveld *et al.* [18]). The draft charter was developed in April 2005, at the first GHI workshop and published on the GHI website, www.globalharmonization.net for comments.

To reach its goals, GHI will not be influencing direct changes of laws or regulations: it will attempt to reach the published consensus of food scientists and technologists worldwide that stakeholders will use to achieve the desired changes. GHI is also aware that there are organizations that already started significant attempts towards harmonization of food safety standards and regulations. These organizations include the Codex Alimentarius Committee (a joint United Nations and World Health Organization commission), the World Trade Organization (WTO), International Organization for Standardization (ISO), European Food safety Authority (EFSA), etc. They are working towards harmonization of food safety regulations, but they do not approach and certainly not reach individual food scientists in all nations, globally. There are a large number of nations that are not involved in their work, for a vast variety of reasons. GHI has no intentions to repeat the valuable work that has already been done by these organizations, but will use existing results and resources to investigate whether global scientific consensus of the results can be achieved (Joppen [16]).

GHI has institutional and individual memberships. The institutional membership is restricted to scientifically independent organizations, which are expected to encourage their staff or membership to join GHI as individual members. GHI needs the support of these scientific organizations to achieve its goal. EFFoST and IFT have formed Special Interest Groups (SIGs) to support the activities of GHI (Keener and Lelieveld [19]).

Working Groups (WGs) will develop draft consensus statements of specific issues. These statements have to be science based, i.e. supported by scientific evidence. These draft statements will be distributed to GHI experts who have been selected on the basis of their qualifications, scientific expertise, experience and peer reviewed publications. Their comments will be fed back to the responsible WG for consideration. This will be an iterative process, until the experts agree that the draft statements are likely to be fully correct and hence acceptable. The then formulated draft consensus statements will be circulated among all individual members for comments or agreement, according to a transparent operational procedure. Any disagreements with the draft, provided with supporting scientific evidence, will be fed back to the experts for consideration, until consensus is obtained or, if not, a document will be produced explaining the differences in scientific opinion, encouraging research to resolve the issues.

2.4 GHI activities and prospective

As a result of the support of member organizations and participation of its individual members, GHI has participated in many conferences, symposia, seminars, workshops and other meetings (Boisrobert *et al.* [7]). Reports on these events and presentations can be found on the web site www.globalharmonization.net.

Several working groups (WGs) have been established, addressing issues such as microbiological food safety, toxicological safety, food preservation and harmonization of test protocols (Lelieveld [20]). Beside already founded WGs ("*Listeria monocytogenes* in ready to eat meals", "Safe maximum residue levels of selected antibiotics in food", "High-pressure processing of foods" and "Toxicological test protocols") there is interest in setting up WGs on "Nanotechnology and food", "GRAS status", the EU "Precautionary principle" and "Mycotoxins".

From its very foundation in 2004, GHI activities were actively supported by Elsevier Science and Food Safety Magazine (FSM). As a result, many articles on global harmonization have been published and in 2010 Elsevier/Academic Press agreed to publish a book entitled "Ensuring global food safety - exploring global harmonization".

Having as overall goal providing safe and wholesome food for every individual on the planet, GHI will help to eliminate regulatory differences between countries by providing science-based tools for solving food safety issues.

3. Conclusions

It has become obvious that differences in food safety regulations are burdening both food trade and food supply. Attempting to decrease and eventually to eliminate these differences will have several benefits. It will stimulate research for those issues where scientific support is lacking. It will facilitate the implementation of new processing and preservation technologies. It will help the establishment of new and further development of existing national and international food industries since the operational requirements will be unified and trading opportunities will be bigger. GHI will be persistently active to achieve its goal in the light of the right of each individual to sufficient safe and healthy food.

4. References

- [1] World Bank. (1986). *Poverty and hunger: Issues and opportunities for food security in developing countries*. A World Bank Policy Study. Washington, D.C.
<URL: <http://web.worldbank.org>. Accessed 3 May, 2011.

- [2] World Bank. (2000). *World Development Report (WDR) 2000/2001: Attacking Poverty*. <URL: <http://web.worldbank.org>. Accessed 4 May, 2011.
- [3] WTO (2009a). *Understanding the WTO: the Agreements Agriculture: Fairer markets for farmers*. World Trade Organization Geneva, Switzerland. <URL: <http://www.wto.org>. Accessed 4 May, 2011.
- [4] WTO (2009b). *Understanding the WTO Agreement on Sanitary and Phytosanitary Measures*, World Trade Organization, Geneva, Switzerland. <URL: <http://www.wto.org>. Accessed 4 May, 2011.
- [5] WTO (2009c). *Understanding the WTO Agreement on Sanitary and Phytosanitary Measures*. World Trade Organization, Geneva, Switzerland. <URL: <http://www.wto.org>. Accessed 4 May, 2011.
- [6] FAO (2003a). *Trade Reforms and Food Security – Conceptualizing the Linkages*. Food and Agriculture Organization of the United Nations, Rome, 315 pp. <URL: <http://www.fao.org>. Accessed 5 May, 2011.
- [7] Boisrobert C.E., Keener L., Lelieveld H.L.M. (2010). *The Global Harmonization Initiative*. In: Ensuring global food safety: exploring global harmonization, Academic Press, Elsevier, pp. 71-90.
- [8] FAO (2004). *Globalization of Food Systems in Developing Countries: Impact on Food Security and Nutrition*. FAO Food and Nutrition Paper, 83. Food and Agriculture Organization of the United Nations, Rome, 300 pp. <URL: <http://www.fao.org>. Accessed 5 May, 2011.
- [9] Van der Meulen (2010). *Development of food legislation around the world*. In: Ensuring global food safety: exploring global harmonization. Academic Press, Elsevier, pp. 7-12.
- [10] Codex (2003). *Recommended international code of practice, General principles of food hygiene*. CAC/RCP 1-1969, Revision 4, Codex Alimentarius Commission, Rome, Italy. <URL: <http://www.codexalimentarius.net/web/publications.jsp?lang=en>. Accessed 5 May, 2011.
- [11] Codex (2006). *Understanding the Codex Alimentarius*. Codex Alimentarius Commission, Rome, Italy, <URL: <http://www.codexalimentarius.net>. Accessed 5 May, 2011.
- [12] Surak J.G. (2010). *Harmonization of international Standards*. In: Ensuring global food safety: exploring global harmonization. Academic Press, Elsevier, pp. 339-351.
- [13] Codex (2008). *Guideline for the Validation of Food Safety Control Measures*. Codex Alimentarius Commission, Rome, Italy, <URL: <http://www.codexalimentarius.net>. Accessed 5 May, 2011.
- [14] ISO (2009a). *Discover ISO*. International Organization for Standardization, Geneva, Switzerland, <URL: <http://www.iso.org>. Accessed 5 May, 2011.
- [15] GFSI (2009). *Global Food Safety Initiative*. Paris, France. <URL: <http://www.ciesnet.com>. Accessed 5 May, 2011.
- [16] Joppen L. (2005). *Putting science first*. Food Engineering and ingredients, 22-26.
- [17] Lelieveld H., and Keener L. (2007). *Global harmonization of food regulations and legislation - the Global Harmonization Initiative*. Trends in Food Science & Technology 20, pp. 15-19.
- [18] Lelieveld H., Keener L., Boisrobert C. (2006). *Global harmonization of food regulations*. Feature, (4), 58-59.
- [19] Keener L., and Lelieveld H. (2004). *Global Harmonization of Food Legislation*. Trends in Food Science & Technology, 15, 583-584.
- [20] Lelieveld H. (2009). *Progress with the Global Harmonization Initiative*. Trends in Food Science & Technology, 20, S82-S84.