

ISSN: 2543-6821 (online)

Journal homepage: <http://ceej.wne.uw.edu.pl>

Sübidey Togan

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**To cite this article**

Togan, S. (2024). Food Safety: A Developing Country Perspective. Central European Economic Journal, 11(58), 54-66.

**DOI:** 10.2478/ceej-2024-0006

 To link to this article: <https://doi.org/10.2478/ceej-2024-0006>

**This article was edited by Guest Editor:**

Jan Hagemeyer  
University of Warsaw, Poland

as part of the Special Call to mark the 70th Birthday of Prof. Jan Jakub Michałek

Sübidey Togan 

Bilkent University, Faculty of Economics, Administrative and Social Sciences, Üniversiteler,  
06800 Çankaya/Ankara, Turkey  
corresponding author: togan@bilkent.edu.tr

## Food Safety: A Developing Country Perspective

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### Abstract

Developing countries, trying to achieve an acceptable level of food safety at the least possible cost (efficiency objective) and facilitation of market access to the large and lucrative developed country food markets (market access objective), could follow the multilateral, regional, unilateral or the independent approach. The paper studying the pros and cons of these approaches aims to determine the most appropriate food safety reform package. It shows that the best approach is the unilateral. Under this approach the achievement of efficiency objective requires the adoption and implementation of the multilateral approach. The achievement of market access objective requires the adoption and implementation of the regulatory regime of the developed country whose markets the developing country is intending to penetrate. Instead, the paper proposes that the developing country adopts and implements the developed countries' regulatory regime only in agricultural sub-sectors with highest comparative advantage scores, and that in all other agricultural sub-sectors the country should adopt and implement the regulatory regime as developed by multilateral approach. Since the tasks associated with designing and implementing the food safety policy reform are challenging, the paper advocates that this task should be left to a new institution, the 'Food Safety Council', which needs to be formed as an autonomous public institution with sufficient financial and technical resources.

### Keywords

food safety issues | food trade | trade facilitation

### JEL Codes

Q17, Q18, Q19

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Food safety is an attribute of foods purchased by consumers in retail outlets and food service vendors affecting the health of all citizens. Consumers generally assume that all food products sold in the market are completely safe, but by the nature of agricultural and food production, processing and distribution, there is never absolute control of the processes, and hence, it is impossible to achieve absolute safe food product (Monteiro et al., 2018). However, there are processes and practices that have a lower probability of causing food safety hazards.

The challenge for any country, in particular for a developing country, is to deliver acceptable levels of food safety at the least possible cost (efficiency objective). In addition, the developing countries are interested in facilitating market access for their food products to the large and lucrative developed country markets (market access objective). However, achieving these two objectives in developing countries is challenging.

In principle, the easiest way to achieve efficiency objective in developing countries is to leave the task to market forces, but studies show that this objective cannot be achieved through competitive markets (Akerlof, 1970). When purchasing food products, consumers generally have little information about food safety hazards in different food products, and as a result, they have difficulty distinguishing safe food from unsafe food. On the other hand, producers of food products usually have more reliable information about the safety of food products. In a market economy, it would not be possible to sell safe food products because of their high prices, while unsafe food products would be sold due to their relatively low prices. Since healthy and safe food cannot effectively be provided in the market, efficient allocation of resources in the economy cannot be achieved because of market failure due to asymmetric distribution of information. Thus, effective and rational government interventions would be required to satisfy the efficiency condition.

Governments usually address this failure by creating and enforcing regulations that prevent low-quality goods from entering the market.

To attain the efficiency and market access objectives, the developing countries can basically follow one of the following four approaches. They could follow the 'multilateral approach' by adopting and implementing the food safety standards, guidelines, recommendations, control and conformity assessment procedures developed by international organisations such as the Food and Agriculture Organization of the United Nations (FAO), World Health Organization (WHO) and World Trade Organization (WTO). Alternatively, they could follow the 'regional approach' by adopting and implementing the food safety rules, regulations, controls and conformity assessment procedures developed by developed countries or country blocks such as the European Union (EU). Thirdly, the developing countries could follow the 'unilateral approach' by adopting and implementing some of the food safety standards, guidelines, recommendations and conformity assessment procedures developed by international organisations and some other rules, regulations and conformity assessment procedures developed by developed countries or country blocks. Finally, the developing countries could follow the 'independent approach' by developing their own food safety rules, regulations, controls and conformity assessment procedures.

This paper studies the pros and cons of each of the above-mentioned four approaches and concentrates on determining an appropriate food safety reform package and its sequencing over time. The final section of the paper discusses food safety governance issues in developing countries. The paper is structured as follows. Section 1 discusses the food safety standards, guidelines, recommendations, controls and conformity assessment procedures developed by international organisations, and Section 2 studies the food safety rules, regulations, controls and conformity assessment procedures developed by the EU. While Section 3 concentrates on the study of food safety issues from a developing country perspective by analysing the pros and cons of each of the multilateral, regional, unilateral and independent approaches, Section 4 tackles the determination of appropriate food safety reform packages for developing countries and their sequencing over time as well as the food safety governance issues in developing countries. Finally, Section 5 concludes the work.

## 1. International Food Safety Regulatory Regime

Food safety hazards refer to any factor present in food that has the potential to cause harm to the consumer, either by causing illness or injury. Food safety hazards may be chemical, biological, physical and allergenic (Rhodehamel, 1992; Schmidt & Rodrick, 2003; Lawley & Curtis & Davis., 2012; Government of Canada, 2014; World Health Organization, 2016; and Singh et al., 2019).

A sanitary and phytosanitary (SPS) measure is defined as any measure applied to protect human, animal and plant health from risks arising from the establishment or spread of food safety hazards. Such measures imposed by governments include all relevant regulations and procedures that are directly related to food safety and establish minimum standards for domestic- or foreign-produced food products, plants and animals that need to be satisfied in order to be allowed to enter the domestic market. Since standards vary considerably among countries, these standards act in general as non-tariff barriers to trade used to restrict international trade.

At the international level, the FAO, WHO and WTO are the major organizations that deal with food safety issues, and one of the most important agreements on food safety at the international level is the WTO Agreement on Sanitary and Phytosanitary Measures (SPS Agreement). The Agreement aims to lay a firm foundation for strengthening multilateral discipline in the implementation of food-safety standards, guidelines and recommendations in agricultural international trade, with a view of achieving the objective of protecting consumers while regulating the use of these standards, guidelines and recommendations as a means of non-tariff barriers to trade (Athucorala & Jayasuriya, 2003; Hoekman & Kostecki, 2009). The text of the SPS Agreement is part of the mandatory portion of the WTO Agreement, and therefore, all WTO members are bound by it.

The SPS Agreement contains provisions on control, inspection and approval procedures. Member countries of the WTO must inform other WTO member countries in advance of new and changing SPS regulations. The Agreement maintains that Member Countries can set their own standards, guidelines and recommendations; however, health and safety measures should be determined according to scientific criteria including an assessment of the

risks to human, animal and plant life or health using risk assessment techniques developed by relevant international organisations. Measures should be kept in force based on scientific data; there should be no discrimination between locals and foreigners in the implementation of health and safety measures; and countries should be encouraged to harmonise the standards using international standards.

The SPS Agreement does not specify how conformity assessment will be carried out. It stipulates that, in cases of disagreement, the disputes will be resolved by the 'Dispute Settlement Understanding' of the WTO. The Understanding, which can only be applied to commercial disputes between states, does not cover commercial disputes between individuals or companies. Therefore, various difficulties are encountered in carrying out the conformity assessments with this system as well as auditing and controlling of the SPS Agreement.

The SPS Agreement refers to the text of the Codex Alimentarius which were prepared by the Codex Alimentarius Commission (CAC) established in November 1961 by FAO. The texts were later developed by CAC. The WHO joined the Commission in June 1962. The SPS Agreement also proposes that the member countries of WTO use the standards prepared by the 'International Office of Epizootics (OIE) on animal health and the 'International Plant Protection Convention' (IPPC) in the field of plant health while developing their own national legislation on food safety (Stewart & Johanson, 1998). Note that the SPS Agreement in Annex A defines international standards, guidelines or recommendations as those established by the Codex, IPPC, or OIE.

The Codex Alimentarius consists of internationally accepted standards, codes of practice, directives, and recommendations on food, food production and food safety related to human health only. In addition to the standards developed for food products, the Codex develops general standards for animal feeds, antimicrobial resistance, contaminants, pesticide residues, nutrition, labelling and rules on biotechnology. All Codex rules are on a voluntary basis. Countries are completely free to adopt the rules developed or not. Codex standards may relate only to a product feature or to regulatory features of public interest. Examples of product standards are maximum residue limits for veterinary drugs and pesticides in food; examples of standards that include both general and product-specific provisions are those concerning toxins, food additives and contaminants in food; and

labelling and general food hygiene rules can be shown as examples of regulatory standards that concern society.

The IPPC came into force in 1952. According to Article I of the IPPC, the purpose of this organization is to secure common and effective action to prevent the spread and introduction of pests of plants and plant products and to promote measures for their control. IPPC was amended in 1997 in order to fulfil the role envisioned by the WTO, and the most significant change was the creation of a new standard-setting focus for the IPPC. The revisions provided the IPPC with the structure and the capability to become a major standard-setting organization like the Codex Alimentarius.

On the other hand, the OIE, created in 1924, coordinates studies of animal diseases, informs governments of animal diseases, and assists the member countries of OIE in the harmonization of regulations involving the trade of animals and animal products. It is the oldest veterinary association in the world and is similar to Codex Alimentarius in that it has a long history of establishing international standards.

The SPS Agreement, by making reference to the Codex Alimentarius texts, recommends indirectly the use of the General Principles of Food Hygiene and hence the application of Hazard Analysis Critical Control Point (HACCP) system by all food business operators (FBOs). The aims of the HACCP system are the identification of food borne hazards, food safety hazards' assessment and food safety hazards' control (Garzia-Diez et al., 2018; Pierson & Corlett, 1992). The HACCP team, at the beginning of their analysis of a particular enterprise, lists all of the hazards that may be expected to occur at each step starting from primary production and carrying on to processing, manufacture and distribution until the point of consumption (Kafetzopoulos, D. & Psomas & Kafetzopoulos, P. D., 2013). Hazard analysis will then result in identification and formation of a list with all food borne safety hazards. Assessment and evaluation of these hazards is essential to assure that the HACCP system is implemented effectively. The next step is hazards control. Under hazards control, measures have to be defined that can be used to prevent or eliminate the identified hazards or to reduce them to acceptable levels. The food hazard control system aims at ensuring that the safety limits of the food borne safety hazards will not be exceeded. Hence, HACCP is a science based preventive program. HACCP has seven fundamental

principles: (i) hazard assessment, listing stages in the manufacturing process where significant hazards may occur and defining precautions; (ii) identifying critical points in the process; (iii) setting critical limits for each critical point; (iv) establishing procedures for monitoring each critical control point; (v) identifying corrective actions where deviations from limits are monitored at critical control points; (vi) establishing registration system for the HACCP system; and (vii) establishing procedures to identify the correct operation of the HACCP system. Thus, HACCP involves carefully recording all details and actions to provide enough documentation to indicate that the system is operational and all potential hazards in food processing are controlled. When properly applied, HACCP may thus lead to process redesign, which has a lower probability of causing food safety hazards and which can also reduce the cost of providing quality.

## 2. Food Safety Regulations in the EU

The food safety rules and regulations in the EU can be analysed under the headings of (i) rules regarding Codex Alimentarius, (ii) general rules on food safety, (iii) rules that businesses must provide to ensure food safety, and (iv) regulatory authority rules (World Bank, 2020; Smigic & Djekic, 2018). In addition, we have the private standards, which are becoming lately more and more important and have emerged because of increased concern on food safety in the developed countries.

The EU, which joined the Codex Alimentarius in 2003, has adopted all Codex Alimentarius rules, and it also agreed to apply these rules. On the other hand, the general rules on food safety consist of General Food Law Regulation (EC) No. 178/2002; Regulation (EC) 852/2004 specifying general hygiene requirements for food production; and Regulation (EC) 853/2004 providing specific hygiene rules for food of animal origin and basic hygiene principles for businesses at all stages of the food chain of animal products.

Regulation No. 178/2002 establishes the general principles and requirements of the food law as well as the general concepts of food legislation within the EU. The Regulation controls the safety of food products produced and consumed in the domestic market and develops a framework for the control and monitoring of risk management and the management and

prevention of risks. The objective of the Regulation is the achievement of free circulation of safe food and feed in the EU for the health and wellbeing of the citizens of the EU. On the other hand, the aim of the Regulation (EC) No. 2019/1381 amending Regulation 178/2002 is to ensure transparency in food safety and to develop risk determination methods in food chains.

The requirements for FBOs are specified in the Regulation (EC) No. 852/2004, which requires FBOs to establish and maintain a permanent procedure or procedures based on the HACCP system. In addition, the EU requires the implementation of certain prerequisite programs (PRP) for the effective establishment and deployment of the HACCP system. These programs are the basic practices that are not directly related to the control of production, but that enable the control of the factors that affect food safety and support the HACCP system (World Bank, 2020). Prerequisite programs cover Good Manufacturing Practices (GMP), Standard Operating Procedures (SOP) and Sanitation Standard Operating Procedures (SSOP). While GMP defines the structure of the equipment, production and storage areas, hygienic practices, cleaning-disinfection procedures, and requirements within the specified limits, SOPs are the procedures or layouts of operations that are required and routinely followed for the settlement in the enterprise, and SSOP covers the processes to ensure a clean and healthy environment for the preparation, processing and storage of the final product. In short, the prerequisites are the basic conditions that must be met in order for a place to be a food business and to start production.

According to Regulation 852/2005 the basis of EU food legislation is an integrated farm-to-fork approach, combined with risk analysis in relation to food, precautionary principles, the protection of consumer interest, principles of transparency, and legal responsibility of the FBO to ensure food safety. Note that the risk analysis combines two types of criteria: risk based and hazard-based 'cut-off' criteria (European Court of Auditors, 2019). Risk based criteria mean that a specific substance has to go through the entire risk assessment process to determine its safety limits, while hazard-based criteria bans certain substances purely on the basis that it considers them potentially hazardous without the need for a full risk assessment. On the other hand, the precautionary principle refers to specific situations where: (i) there are reasonable grounds for concern that an unacceptable level of risk to health exists, and (ii) the available supporting



information and data are not sufficiently complete to enable a comprehensive risk assessment to be made. When faced with these specific circumstances, decision makers or risk managers may take measures or other actions based on the precautionary principle, while seeking more complete scientific and other data. Thus, where there are reasonable grounds for concern and scientific uncertainty persists, the precautionary principle may be invoked during the risk management process and caution may be exercised.

Regulation 853/2004, which determines the hygiene rules for animal products and the production of animal products, covers raw and processed food products used in the production of animal products and excludes retailers. As general principles, the Regulation specifies the special conditions and specific warranties that the enterprises related to the marketing of animal products have to meet.

Following Regulation No. 178/2002, food businesses have to satisfy the traceability condition through all stages of production, processing and distribution. When the traceability condition is satisfied, the authorities can easily determine from which country, through which channel and from which farm the potentially harmful product is coming from.

Food labelling is the primary means of communication linking the producer and the seller of the food with the consumer of the food. Regulation (EU) No. 1169/2011 specifies the requirements labelling has to satisfy, such as the list of ingredients, allergens and nutritional values. On the other hand, Regulation (EC) No. 1760/2000 establishes a system for the identification and registration of bovine animals and for the labelling of beef and beef products, and Regulation (EC) No. 1830/2003 sets up a similar system for genetically modified organisms.

The withdrawal and recall requirements are specified in the EU General Food Law No. 178/2002, according to which FBOs are obliged to withdraw a food from the market as long as the food is considered by the FBO not to be in compliance with food safety requirements.

Regulation (EC) No. 2073/2005 on microbiological criteria for foodstuffs establishes the food safety criteria for certain important foodborne bacteria, including their toxins and metabolites. While Regulation (EC) No. 396/2005 sets out the regulatory framework for maximum residue levels (MRLs) of pesticides in or on food and feed of plant and animal origin, Regulation

(EU) No. 37/2010 creates the regulatory framework for the MRLs on veterinary drugs like hormones in animals.

Regarding regulatory authorities in the EU, note that the European Food Safety Authority (EFSA) was legally established under the General Food Law - Regulation No. 178/2002 and was set up in 2002. It aims to provide appropriate, consistent, accurate, and timely communications on food safety issues to all stakeholders and the public at large based on risk assessments and scientific expertise. The remit covers food and feed safety, nutrition, animal health and welfare and plant protection. On the other hand, the Rapid Alert System for Food and Feed (RASFF) has been established to provide authorities with an effective tool to exchange information about measures taken in response to serious risks detected in relation to food and feed.

Regarding control systems implemented by the EU, note that second paragraph of Article 17 of Regulation No. 178/2002 states:

Member States shall enforce food law, and monitor and verify that the relevant requirements of food law are fulfilled by food and feed business operators at all stages of production, processing and distribution. For that purpose, they shall maintain a system of official controls and other activities as appropriate to the circumstances, including public communication on food and feed safety and risk, food and feed safety surveillance and other monitoring activities covering all stages of production, processing and distribution. Member States shall also lay down the rules on measures and penalties applicable to infringements of food and feed law. The measures and penalties provided for shall be effective, proportionate and dissuasive.

Hence, each EU member state is responsible for the effective implementation of food safety regulations in the EU. The Official Food and Feed Controls Regulation (EC) No. 882/2004 forms the basis for the checks carried out. The regulation aims at an integrated and uniform approach to official controls along the agri-food chain. Competent authorities in the Member Countries organise official control systems to verify that FBO's activities and goods placed on the EU market comply with relevant standards and requirements set by EU regulations. Regulation No. 625/2017 specifies the methods to be applied during the controls, the conditions that laboratories must provide, the controls to be applied at the EU borders

and the penalties to be applied in cases FBOs do not comply with the conditions specified in the food legislation. The penalties must be, as stated above, effective, proportionate and deterrent. All FBOs must ensure compliance with EU regulations. The role of the EU is to assure that the control systems at the national level are effective, and the EU Commission is interested in ensuring that this objective is achieved.

The EU wants to ensure that not only the FBOs in the EU but also the exporters of food products to the EU from third countries meet the above requirements so that the EU consumers can consume healthy and safe food. To achieve this aim, the EU has developed an effective conformity assessment system. Lately, the heightened consumer concerns about the safety of the food in the EU has put greater focus on food safety and other quality attributes and led to increased stringency in more traditional product controls, such as tighter limits on pesticide residue levels and presence of heavy metals. On the other hand, with the extension of supply chains for agricultural and food products beyond national boundaries, new sources of risk were created as food became subject to greater transformation and transportation. Presently supply chains are fragmented across multiple enterprises. The diverse food production systems, regulatory frameworks and technical expertise along the food supply chain increased the risks of food safety hazards. As a result of these developments, a food safety failure along the supply chain could have profound consequences for the actors at the end of the supply chain.

All of the above-mentioned tendencies have led to the emergence of private standards as an important mode of market governance in the agri-food sector in many industrialized countries (Henson & Humphrey, 2009). Currently, there is a substantial range of private standards, developed by distinct type of organizations to serve diverse purposes. Those standards, which are all voluntary, have become very important in global agri-food value chains, and one of the defining characteristics of these standards is their increasing focus on the processes by which food is produced. Private standards have thus witnessed a shift towards management-based approaches.

The private food standards can be classified under three headings: individual company standards, collective national standards, and collective international standards. An example of an individual company standard is Carrefour's Filières Qualité; an example of collective national standard is British

Retail Consortium (BRC) Global Standard for Food Safety; and an example of collective international standard is GlobalG.A.P. While individual company standards are set by large food retailers such as Carrefour, collective national standards are set by collective organizations that operate within the boundaries of individual countries, including industry associations and NGOs, and collective international standards are set by international organizations such as GlobalG.A.P. formed by an international coalition of European retailers.

It is important for manufacturers to document that the goods they produce comply with the standards and possess certificates issued by internationally recognized certification bodies. However, the presence of too many different companies, and national and international standards, in the market was creating problems for manufacturers. The problem was that the producers had to certify that the goods they produced were in compliance with the standards and that many certificates were issued by, for example, 'BRC Global Standard for Food Safety', 'IFS (International Food Standard)', 'GlobalG.A.P.' and internationally operating 'Food Safety System Certification 22000 (FSSC)'. While developing standards, these organizations also audit food businesses and give them certificates showing that the conditions related to EU food safety or special standards, for example HACCP, traceability or marketing, are met.

Recently, the Global Food Safety Initiative (GFSI) has made a significant improvement in standards by providing mutual recognition of various specific food standards. GFSI has developed a benchmarking platform against which certain private food safety standards are recognized. Currently, GFSI recognition offers a passport to the global market among both recognised certification program owners and the companies they certify. To be recognised by the GFSI, certification program owners must verify that they meet the GFSI benchmarking requirements. Thus, the GFSI certificate has made an important contribution to the development of international trade.

### 3. Achieving Food Safety in Developing Countries

Developing countries are interested in achieving acceptable levels of food safety at the least possible cost (efficiency objective) and in facilitating market

access to the large and lucrative developed country markets (market access objective). In order to achieve these two objectives, the developing countries can basically follow one of the following four approaches: multilateral, regional, unilateral, or independent.

### 3.1. Multilateral Approach

Since the establishment of the WTO in 1995, different developing countries, driven by the prospects of potential welfare gains, have tried to liberalise their food sectors following the multilateral approach. But, as explained in Section 1, the conditions developing countries have to meet under the multilateral approach are quite stringent, and the task of satisfying them is challenging. In particular, major difficulties will be faced by the developing countries in adopting and implementing the standards prepared by Codex Alimentarius, OIE and IPPC since these standards are typically much stricter than those prevailing in the developing countries. Another difficulty for developing countries arises when FBOs in those countries try to adopt and implement processes and practices that have a lower probability of causing food safety hazards, namely the HACCP system. Although large FBOs in developing countries generally apply the HACCP system, most medium and small-scale food enterprises fail to do so. The major reason for this failure is the lack of knowledge, expertise and financial resources. But to achieve the efficiency objective adoption of HACCP system by all FBO's is essential. Thirdly, major difficulties will be faced by the developing country when trying to achieve the market access objective through the multilateral approach. Penetrating the developed country markets depends critically on the developing country's ability to meet the food safety standards imposed by developed countries such as the EU, the private food standards used in those countries as well as the developed country's control and conformity assessment systems. Since the standards set by the developed countries are typically much stricter than those imposed by Codex Alimentarius, OIE and IPPC, which we assume the developing country satisfies (a strong assumption), the developing countries face the difficult task of harmonising their food safety regulatory regime with that of the developed country whose markets it intends to penetrate. Hence, adopting and implementing the Codex Alimentarius, OIE, and IPPC standards are not sufficient to satisfy the developed country food safety standards, such as those of the EU. As a result,

the developing countries will not be able to satisfy the market access condition by adopting the multilateral approach. Fourth, under the multilateral approach, commercial disputes between states can be settled through the Dispute Settlement Mechanism of the WTO but not the disputes between individuals and companies. Finally, control and conformity assessment systems developed by the multilateral approach are not as effective as the control and conformity assessment systems of developed countries such as those of the EU.

Note that the developing countries adopting the multilateral approach fail to achieve not only the market access objective but, in general, also the efficiency objective. The main reason for the failure to achieve the efficiency objective is the high cost of satisfying the conditions set by the SPS Agreement, Codex Alimentarius, OIE and IPPC and fulfilling the condition that all FBOs in the country implement the HACCP system. Since under the multilateral approach, most of the adjustment costs will have to be borne by the developing countries, and those countries are not willing to channel their scarce financial resources to food safety issues, the adoption of the multilateral approach by developing countries until recently has failed to satisfy the efficiency condition in those countries.

### 3.2. Regional Approach

To satisfy the efficiency and market access conditions, the developing countries adopting the regional approach could try to conclude regional trade agreements with developed countries, such as the EU, US, Japan and Australia, promoting free trade and covering food safety issues. If successful in their attempt to conclude a regional trade agreement with the developed country or country block whose markets the developing country intends to penetrate, the developing country would commit itself to adopting and implementing the food safety rules, regulations, and control system, as well as the conformity assessment system of the developed country or country block. For the developing countries in the periphery of the EU, such as the Middle Eastern and North African (MENA) countries, the appropriate developed country would be the EU. Hence, MENA countries would be required to adopt and implement, among others, the EU's food safety *acquis*, discussed in Section 2 above, as well as the EU's private food



safety standards, controls, and conformity assessment systems. Note that countries on the periphery of the US would have to adopt the rules, regulations, controls, and conformity assessment systems of the US and private food safety standards used in the US. The same goes for countries looking to trade with Japan and Australia. In order to simplify the exposition, we shall concentrate on MENA countries and the EU only in the following section.

If the regional trade agreement between the MENA country/countries and the EU covering food safety issues is successfully concluded, then the MENA country/countries would benefit from the EU's templates for developing best-practise legislation and use the EU's implementation methods. The MENA country/countries, adopting and implementing the EU food safety *acquis*; control and conformity assessment systems of the EU; and the private food safety standards used in the EU, will be able to satisfy not only the EU's market entry conditions but also the efficiency conditions. Finally, note that, under the regional approach, the adoption and implementation of the EU's food safety *acquis*; control and conformity assessment systems of the EU; and private food safety standards by the MENA country/countries will also be very costly. Most of this cost will have to be borne by the MENA country/countries and only partially by the EU. For the MENA country/countries, the main question is how to secure the willingness of the EU to conclude regional trade agreement promoting free trade between the parties covering food safety issues.

### 3.3. Unilateral Approach

Under the 'unilateral approach', the MENA country could choose certain aspects of standards, guidelines, recommendations, control and conformity assessment systems from the multilateral approach and certain other aspects of rules, regulations, controls and conformity assessment systems from the regional approach. In particular, the MENA country could achieve the efficiency objective by adopting and implementing Codex Alimentarius, OIE and IPPC standards and ensuring that all FBOs in the country implement the PRP and the HACCP systems over time. Although the conditions for the achievement of efficiency objectives are quite stringent, those conditions need to be satisfied over time if the policy makers in the MENA country/countries desire to achieve the efficiency objective.

On the other hand, the achievement of market access objectives in the MENA countries requires the adoption and implementation of the EU's food safety *acquis*, as well as the adoption and implementation of private food safety standards together with the EU's conformity assessment and certification systems. This is a formidable task that no MENA country/countries would try to fulfil because of its difficulty and its very high costs. To elaborate this point, one could consider in some detail the EU's market entry conditions for exporters of specific agricultural commodity groups such as 'fresh fruits and vegetables' from third countries.

MENA country exporters intending to export fresh vegetable and fruits to the large and lucrative EU market have to satisfy the EU's (i) hygiene and food safety standards; (ii) traceability conditions; (iii) maximum residue limits of pesticide; (iv) maximum residue limits for chlorophyrifos; (v) maximum residue limits for chemical additives such as lead, cadmium, nitrate and perchlorate; (vi) microbiological criteria of pre-cut fruits; (vii) plant health regulations; (viii) marketing standards; (ix) labelling and packaging standards; and (x) social and environmental standards (Centre for the Promotion of Imports from Developing Countries, 2022).

Since the EU's hygiene and food safety standards and traceability conditions have been discussed in some detail in Section 2 above, we will briefly discuss the EU's conformity assessment system for fresh fruits and vegetables here.

The EU, which wants to make sure that both the HACCP and PRP systems have been applied, leaves the determination of this issue to the private sector conformity assessment institutions deemed appropriate by the EU Commission. The EU insists that the products to be imported to the EU are certified with a certification system such as the GlobalG.A.P. certificate accepted by consumers in the EU, as well as by the EU Commission. Similar procedures are also applied to export products from MENA countries to indicate that they satisfy the traceability conditions.

As stated earlier, the EU sets MRLs for pesticide and publishes these limits in the Official Journal. Since pesticide limits are reduced over time, it is obligatory for exporters to follow these limits closely. In addition, the EU envisages reducing the pesticide limits by 50 percent within the framework of the 'European Green Deal'. The EU requires that the products the third country exporters want to export to the EU meet

these limits with certifications issued by organizations such as the GlobalG.A.P. or similar internationally recognized certification bodies accepted by the EU Commission. However, Germany, the Netherlands and the UK set these MRLs lower than the EU standards, while supermarkets in the EU set these limits even lower. Therefore, it is recommended that third country exporters act according to the maximum residue limits determined at the lowest level and have the certifications done accordingly.

The maximum residue limits of chemical additives such as lead, cadmium, nitrate and arsenic are specified in the annex of the Regulation No 1881/2006. On the other hand, the EU insists that microbiological hazards such as salmonella and *E. coli* in pre-cut fruits are prevented. These are usually handled by complying with the HACCP principles during production according to the Regulation No. 2073/2005 and certified thorough the certification institutions such as the 'International Featured Standard' (IFS) or 'British Retail Consortium Global Standards' (BRCGS).

The EU specifies the measures required to ensure plant health in the Regulation No. 2016/2031 and requires food producers and exporters of food products to the EU to comply with the conditions specified in the Regulation No. 2019/2072. Exporters are required to have a 'Phytosanitary Certificate' for the products specified in parts A and B of Annex XI of the Regulation No. 2019/2072. The EU has special conditions for the products specified in Annex VII of the same Regulation. Furthermore, the EU prohibits the importation of products specified in Annex VI of the Regulation.

The fruit and vegetable marketing standards of the EU are specified in the Regulations No. 1308/2013, 2017/892 and 543/2011. According to these Regulations, all fruit and vegetable products imported to the EU from third countries are sorted into three groups: extra class, first class and second class. Second-class products consist of good quality products, first-class products consist of better-quality products than second-class products, and extra-class products consist of much better quality products. The EU also classifies products by size and defines tolerance limits for determining quality. For example, oranges are divided into 14 classes according to their diameters, while lemons are divided into eight classes. Exporters who want to enter the EU market must accurately specify the quality class and size of the products they want to sell in the EU market and

document this information. Certification regarding marketing standards can be made by certain third countries. In addition to the marketing requirements, the EU also requires exporters to comply with the EU's labelling and packaging standards discussed in Section 2.

Recently, the EU started to require the third country exporters to comply with the EU's social and environmental standards. Among the standards developed in this regard, there are different standards such as GRASP developed by GlobalG.A.P. for social standards and SPRING developed for sustainable irrigation.

The EU carries out official checks at the borders to ensure that all specified conditions of the EU are met. During these controls, third country exporters have to submit the documents specified in part C of Annex XI of the Regulation No. 2019/2072. At the end of these controls, the EU shares the information about the insufficient products with the public through the RASFF Annual Activity Reports. The EU puts food companies and food exporters that export insufficient products on a special list. In those cases, the EU checks these products sent by the specified companies or exporters more frequently and more strictly. If the requirements are still not met, then the EU may stop importing the products from the country under consideration.

The above considerations reveal that it is a challenge for MENA exporters to satisfy the EU's market access conditions for fresh fruits and vegetables. Satisfaction of the market access conditions for other agricultural commodity groups such as 'processed fruits and vegetables' and 'grains and pulses' are at least as difficult as for 'fresh fruits and vegetables'.

Under the unilateral approach, the MENA country could concentrate its efforts on harmonising the regulatory regime on a few agricultural commodity groups. We propose that the MENA country concentrates its efforts on agricultural sectors where the country has highest comparative advantage scores. Once these agricultural sectors are determined, the country will apply its limited resources to adopt and implement the EU rules, regulations, controls, conformity assessment procedures, and private standards in those sectors only. In all other agricultural sectors, the country will adopt and implement the SPS Agreement rules and the Codex Alimentarius, OIE and IPPC standards. Depending on the availability of financial resources, the country may

adopt and implement EU's rules, regulations, controls, conformity assessment procedures and private standards to other sectors over time with relatively high scores in the comparative advantage ordering.

### 3.4. Independent Approach

In principle, a MENA country could develop its own food safety rules, regulations, controls and conformity assessment procedures, but the task is very challenging. The developing country has to develop its regulatory regime so that it will satisfy the principles of good governance, namely transparency, equal treatment, non-discrimination, integrity, competition and predictability. In addition, the MENA country has to ensure that the adopted regulatory regime will lead to satisfaction of the efficiency and market access objectives. But the capacity of a MENA country to satisfy the principles of good governance and achieve the efficiency and market access objectives is limited. Hence, it is almost impossible for a MENA country to achieve these three objectives.

## 4. Food Safety Reform and Food Safety Governance in Developing Countries

The above considerations reveal that the adoption and implementation of food safety policies under multilateral, regional and unilateral approaches will be challenging for MENA country/countries and that the independent approach is not a feasible alternative for these countries. Of the remaining three approaches the regional approaches could also be eliminated for MENA countries, as the chances of concluding a regional trade agreement with the EU emphasizing free trade and covering food safety issues are very dim.

The country could follow the multilateral approach and attain efficiency objective by fulfilling the conditions for attaining efficiency objective as stated in Sub-Section 3.1. But as emphasized in that Sub-Section, the approach has limitations. If the multilateral approach is rejected by the policy makers of the MENA country/countries on the basis of its limitations, then the only remaining feasible alternative is the unilateral approach.

To implement the food safety reform following the unilateral approach the MENA country needs to be very clear about its own intentions since the reform will require substantial financial resources. In addition, the reform will require major change in the thinking of the economic policy makers in the MENA country. Once the policy makers are aware of the difficulties of introducing the food safety policy reform, and if they are still willing to implement the reform package, they could leave the planning of the reform process and its implementation to a new institution, the 'Food Safety Council' (FSC), which needs to be formed as an autonomous public institution with sufficient financial and technical resources.

The decision making board of FSC has to be staffed with non-elected professionals appointed for a fixed duration of five to seven years following the merit principle with the aim of making FSC fully independent from political authority. In the MENA country, the board members appointed to FSC should be knowledgeable with the SPS Agreement, Codex Alimentarius, OIE and IPPC standards, the PRP system, the HACCP system, the EU *acquis* on food safety, private food safety standards, the EU's control and conformity assessment systems and the EU's market entry conditions for exporters of specific agricultural commodity groups from third countries.

The FSC would have the mandate to plan the path of food safety policy reforms package over time; study its sustainability; inform politicians and the public about the implications of food safety policies; and improve policymakers' incentives to opt for sound food safety reform policies. In particular, the FSC will have to design policies so that all of the large, medium and small FBOs in the country will implement the PRP as well as the HACCP system over time. Since this may require channelling substantial amounts of public funds to those enterprises not implementing the PRP and HACCP systems, the FSC should be able to design the reform package so that at the end of a pre-specified period of time all of the FBOs will implement those systems. In addition, FSC should be able to determine the specific agricultural commodity groups where the MENA country has comparative advantage in and also their ordering. Since under the unilateral approach the MENA country in agricultural commodity groups with highest comparative advantage scores will apply the EU rules, regulations, control and conformity assessment procedures over time, the FSC has to design and implement the food safety policy reforms in those sectors depending on the size of public financial



resources available over the planning horizon. Since in other agricultural commodity groups the country will adopt and implement Codex Alimentarius, OIE and IPPC standards, the FSC has to design and implement the food safety policy reforms policies for those sectors over time satisfactorily. Finally, in the long run, the FSC should aim to accomplish the tasks assigned to EFSA in the EU that the MENA country would consider as appropriate.

Once FSC will be established with sufficient financial and technical resources it would have to employ necessary number of qualified professionals who would prepare periodic studies on relevant questions of interest to the Council and who will follow the reform process. Legally, FSC should not have the power to force the government to follow its advice. It will be an advisory body. If the advice of the FSC is rejected by the political authority, FSC could still influence the outcome as long as the public recognizes the competence and nonpartisanship of the FSC. Thus, FSC would be effective as long as it builds up a reputation for good quality non-partisan analysis over time.

## 5. Conclusion

Although consumers in MENA countries want to consume healthy and safe food without being exposed to chemical, biological, physical and allergic hazards, it is impossible to achieve this aim. The best that MENA countries can hope to achieve is an acceptable level of food safety at the least possible cost (efficiency objective). A second objective of MENA countries is the facilitation of market access to the large and lucrative EU food market (market access objective). The MENA country could try to achieve these two aims through adoption of one of the following four approaches: multilateral approach, regional approach, unilateral approach, and independent approach. Of these four approaches, the only feasible approaches for MENA countries are the adoption of multilateral and unilateral approaches. The country could follow the multilateral approach and attain efficiency, but not the market access objective. The approach has also certain other deficiencies mentioned in sub-section 3.1. If the multilateral approach is rejected because of its limitations, then the only remaining feasible alternative is the adoption and implementation of the unilateral approach. Thus, the food safety reform package for the developing country and its sequencing over time will have to be based on the unilateral approach.

Since the tasks of reforming food safety policies using the unilateral approach are very challenging as explained above in Sections 3 and 4, the paper proposes that the task should be left to a new institution, the 'Food Safety Council', which needs to be formed as an autonomous public institution with sufficient financial and technical resources.

## Acknowledgments

I am sincerely thankful to Jan Hagemeyer and an anonymous referee of the Central European Economic Journal for their valuable comments and suggestions.

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