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Dimensions and risks associated to food security

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Abstract The food security concept developed during the time, extending its significances and connexions, at present, in the widest sense, meaning the totality of aspects concerning the optimal population access to food.
The main responsibilities concerning the food products sanitary security are centred on food's producers and commerciants. These have the obligation to survey the proper functioning of the processes they develop, using with this purpose a series of procedures based on a strictly self control. The quantitative and qualitative disparities at the world wide level concerning the alimentary problem show that where the food is insufficient, the qualitative structure is also uncorresponding. The food products' consumption phenomena is part of a complex of relations and causal determinations with other variables: economic, demographic and social.
The paper aims to present the main dimensions an risks associated to food security in our present society in order to underline the attention requested of these concerns.

Keywords: food security, risks, quality.

1. Introduction

The food security assurance represent, in the contemporary society not only a crucial problem for a great part of the world population, but also a major requirement for a normal unfolding of the international life.

The food security concept developed during the time, extending its significances and connexions, at present, in the widest sense, meaning the totality of aspects concerning the optimal population access to food. The concept appeared in '90th, following certain traditional preoccupations concerning the food offer at national level.

In a synthetic acception, recognizing on the international scientifically level the food security means: "the access for everyone and every time to food necessary for a healthy life".

The syntagm "food security" indicate an essential desideratum of the social and economic development and suppose the simultaneous approach of the disponibility and access to food, to the hygienically value and a nutritional equilibrium [1].

The food security problems are much closed linked to the food products quality; the complex concept of the food quality present specific values, expressed by the assurance of a quite perfect nutritive value. That`s why, in order to achieve the food security is indispensable to ensure the optimal quality, all along the food chain for each food product or service associated, by the active and motivated participation of all parts involved-public or private.

By using and transformation of the agricultural and food raw materials, the food industry has the role of producing high qualitative food products from the nutritive, sensorial and hygienically point of view. The lack of noxiousness and toxicity represent the most important condition required from a food product, because, otherwise it could become a risk for the health and life of consumers, and for the food security in general [2].

2.Risks associated to food security

There are three types of risks associated to the food consumption: nutritional, biological and chemical [1].

- The nutritional risks are: the under and over-nourishment; the micronutrients deficiency; the over contribution of vitamins or saturated greases.
- The biological risk means the presence of pathogenic agents or viruses in the food products.

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- The chemical risks, like natural toxins, environmental or industrial contaminants, agricultural chemical residuum, and necessity permanent evaluation and monitoring and a special attention given to new problems issued in toxicology, the increased used of new ingredients and components of food products, modifications due to food additives [3, 4].

In what concerns the microbiological and chemical risks, the technological factors have a major impact and they interact in two ways:

- In the developed countries, producers and traders explore permanently new keeping and preservation techniques which could generate risks when the effect on food is not very accurate evaluated;
- In the less developed countries, the basic infrastructure and know-how are practically inexistent or very fen represented.

In the last decade, a great number of food products obtained using the biotechnology science penetrated national and international markets, and generated certain controversies about nourishment and food security comparative with the conventional techniques.

And even the advantages of biotechnology products are evident the opponents of its pointed out some disadvantages like the reduction of nutritive value, the toxicity increasement, resistance to antibiotics, allergic reactions or irreversible environmental changes.

Concerning the dimensions and risks associated to the food security concept, Webb, P. and Rogers, P., consider that it must be a strategic objective at every level; the following factors are considered very important, grouped on categories of results [3]:

- ★ To ensure the suitable disponibility of foods: resources (reliable life means, production goods, durability of natural resources); productivity.
- ★ To ensure the suitable access to foods: incomes (market integration, purchasing power, saving potential, access to credits); efficiency.
- ★ For a corresponding use of foods: consumption (quality, characteristics and diversity of food), the equity of food distribution.

The results expected through specific programs, like the improvement of the community adaptability, of the life means obtainance and of the human capital are strongly linked to the permanent analysis of three types of risks associated to food security:

- Natural disasters: climatic impact, natural resources diminution and degradation, harvest variability, loss of goods etc.
- Economical risks: incomes fluctuations, unsuitable commercial terms, savings loss, jobs insecurity, price instability, high costs, lack of information, inflation.
- Social and health risks: malnutrition dissemination, conflicts, epidemics, risks perception, ethnic and social discrimination, corruption, army forces domination.

This way of analysis releaves spatial and temporal effects, materialized in acute insecurity (starvation), seasonal discontinuities, access or guaranteed use for all individuals.

Due to the continuous diversification of the food offer, the risks evaluation represents a permanent process at the European and international level.

In this respect, in 2002, was created the main European institution, AESSPA (the European Authority for Sanitary Security of Foods), having like principal objective to provide counselling concerning all the scientific aspects linked to production, manufacturing and commercialisation of agricultural food merchandise [3].

The final decisions of AESSPA, agreed by the UE member governments, take into account a possible fast reaction to risky situations.

In the risk management process, at the European level is used the precaution principle, stipulating the risk limitation if justified reason, to presume a food sanitary insecurity, exists.

The real existence of risks must not be waited, but that principle couldn't be used like motivation to install a protectionist situation.

Any action must have in view exclusively the potential risk, avoiding the discrimination.

In the last decade European research programs are developed to priority study the following aspects [5]:

- The relationship between nourishment and health status;
- The obtainance of more healthy foods;
- The indirectly effects of animal feeding on consumers health status;

- The role of environmental factors in the human health;
- Production methods and techniques more safety and more ecological;
- The food security threats and ways to fight against them;
- The traceability of the communitary agricultural and food circuit;
- The moments and places where the animal diseases and allergies are more often arrised.

The specialized EU institutions survey at present the food sanitary security from a wider angle. Thus, instead to focus exclusively on contamination, the European authorities extends the verification area in order to ensure a more systematic control of the products conformity with exigencies concerning the consumers' information and reglementations regarding the foods content.

A fast alert system allows the fast dissemination of information regarding the appearance of new risks for every country inside the community.

Reasons to alert could be:

- A dangerous stuff use;
- The discovery of the Salmonella presence in meat and meat products;
- The import of fish from non-agreed extra-communitary transforming centres;
- The presence of mercury in fish and fish products;
- The dioxin presence in the content of a food product or raw material, etc.

In order to evaluate and find solution of the food global problem, on world wide level, numerous attempts were made, especially in the after war period. The proposed solutions were different, due to the theoretical different base and to the technical and economical instrument used (example: global models like parts of the human society development theories; the extrapolation undifferentiated theory etc.).

The food insecurity fighting needs long term policies, adequate and including a series of measures, as: research of new food resources from the spontaneous or cultivated flora; the balanced, integrated rural development; corresponding mechanism for price stabilization; food industry diversification and adjustment to local requirements; the potential consumption and demand modelling; the extent of international food help especially in crisis periods; the reduction of the over food consumption and of the malnutrition with serious implications on health and morbidity; the assurance of the consumption of corresponding foods from the nutritive and hygienically point of view; the better valorification of food products all along the food chain.

The main responsibilities concerning the food products sanitary security are centred on food's producers and commerciants. These have the obligation to survey the proper functioning of the processes they develop, using with this purpose a series of procedures based on a strictly self control like the HA.CCP (*Hazard Analysis. Critical Control Point*), *Code of Good Practice* or Quality norms. At the self control done by producers an added controls performed by national or communitary authorities.

The EU strategy regarding the food products sanitary security involves four main components:

- Establishment of clear rules regarding the food products and animal food sanitary security;
- Wording of notifications scientific, independent and accessible to public;
- Establishment of measures focusing the respect of reglementation and manufacturing processes control;
- Recognition of the consumer rights to choose food products in the situation of a good knowledge of origin and content.

Producers and processors must act in conformity with the specific aspects of these rules, having in view the following:

- Food products to be sanitary safe;
- Consumers to be permanently informed;
- Products offer to be as various as possible.

An other set of means to ensure the avoiding the food insecurity could be considered the reglementations regarding the consumer information through the nutritional labelling. The requirements concerning the food products labelling are regularly updates, depending on the demand evaluation and on the consumer's expectations regarding the food products quality. A challenge that faces at the moment the labelling of food products in EU is to find equilibrium between two main aspects:

- The consumer's information the most comprehensive possible;
- The avoiding of over charging the labels with information that could be difficult to read or understand.

And finally, a very important issue of the food products labelling is represented by the mentions referring to the nutritional properties.

Synthetic speaking, the assurance of a high level of food products security, for the European authorities consists in the most possible reduction of risks. In the EU specialized institutions point of view, the norms regarding the food security must encourage and not limit the choice and the quality. The purpose is not to stop innovation or to homogenize a vast and various offer on the food market, but to establish fundamental security norms to develop and fortify the quality and excellence.

The quality of a food product could not represent choice criteria for consumer if the sanitary security is not guaranteed.

Even risks couldn't be completely eliminated the preoccupation for strictly rules to a continuous evaluation on scientifically base must be permanent.

2. Strategies to ensure the food security

The food security could not be assured through a unique strategy, the same for all regions of a country or for all countries, Consequently, the solution for all the aspects of the global food security impose strategies differentiated depending on the regional and national specificity and on the economic development level.

In the countries in way to development, the food security could be assured only by preservation, development and corresponding use of the agricultural resources, sustained by the own governments but also by the international communities; that means new food's strategies and policies.

The food help could generate benefits on short terms and could not solve the real problems, just reduce the incertitude on long term. In this context, it is obvious that the improvement could be taken into account on long term.

The eradication of the food insecurity must take into account potential interventions with the following goals:

- ⋆ Increasement of the power reaction in the crisis situations;
- ⋆ To set up the capacity to obtain a level of living founded on various and long lasting elements (goods, resources, infrastructure);
- ⋆ Improvement of the individual's aptitude to use optimal the resources by increasement of the human capital.

Public actions in this respect involve long term investments, institutional capacities setting up, and dissemination of the scientific gains [5].

The basic element consists in activities linked to the nutritional information's distribution through social marketing, with the purpose to modify the food behaviour, programs permitting the immediately access to food by interventions on the labour market; simultaneous will increase the productivity and the flow of incomes in areas linked to infrastructure. Consequently, public actions could have a favourable or unfavourable impact in any point of the food chain. That's why, the strategies to eliminate the food insecurity must base on the risk's management at the individual or social level.

Webb P. and Rogers P. in "*Addressing the "in" in Food security*" identified several potential actions to decrease the food insecurity, grouped as follows [4]:

- **The productivity increasement:** the small enterprise financement, new agriculture technologies, water resources management, women assertion, etc.;
- **The human capital' building**: educational support, nutritional education, development monitorization, diet's diversification, mother and child care;
- **The community adaptability's improvement**: breakwaters against floods, help's distribution, therapeutically nourishment, refugees protection, reforestation etc.;
- **The improvement of means of living**: natural resources management, goods production, infrastructure, interventions on market, rural products/services.
- **Incertitude attenuation**: fast alert systems, disasters simulation and the community preparation, nutritional education, food's supplement [4].

Consequently, the food problem solution on worldwide level could be achieved only through development and modernization of each country; with this purpose, there are countries where reforms and structural adjustments to the real possibilities of the economical processes are implemented.

The global models, inclusively those concerning the food security, present a general character, and consequently, a series of disadvantages, representing mostly an exercise than an operational concept.

The responsibility for healthy and corresponding nourishment devolves all the participants of the system; the present challenge consists in building efficient food systems, to ensure the implication and engagement on long term of all interested parts.

In the developed countries, the control and food security systems face enormous pressures concerning the identification, analysis and fast reaction to the potential risks and the necessity of monitorization and suitable control of the increased amount of processed and commercialised products [3].

In the countries in way to development, the extremely various food systems present numerous weaknesses, facing problems that affect the food security, their population being exposed to many potential being exposed to many potential risks, like: global problems (population increasement, lack of resources, infrastructure and legal frame) or the consumers' attitude (lack of knowledgement, organization and mobilization of the consumer's associations) [4].

3. Conclusions

The quantitative and qualitative disparities at the world wide level concerning the alimentary problem show that where the food is insufficient, the qualitative structure is also uncorresponding.

The food products' consumption phenomena are part of a complex of relations and causal determinations with other variables: economic, demographic and social.

The causes of the food insecurity are both deep and numerous and impose the necesity of development on one hand of the analysis capacity and on the other hand, of instruments adapted to different situation and their evolution.

The eradication of food insecurity could be accomplished both through the uncompletion of the food security notion with elements regarding risks concerning the disponibility, use and access to food and by the rewording of actions in order to directly orientation towards the vulnerability of.

4. References

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[1]. M. Bobe, Probleme merceologice ale proiectarii nutritionale a produselor alimentare (in Romanian), PhD Thesis, ASE Bucuresti (2004).

[2]. www.http:cursdemanagement.wikispaces.com, - cap.3. Managementul productiei si calitatii (2006).

[3]. A. Burda, Mutatii in calitatea produselor agroalimentare in Uniunea Europeana. Perspective si optiuni pentru Romania (in Romanian), PhD Thesis, ASE Bucureşti, (2007).

[4]. Webb, P. and Rogers, P., Addressing the "in" in Food security, USAID Office of Food for Peace, Occasional Paper no.1 feb.2003.

[5]. L'agriculture et la sécurité alimentaire (2009) http://www.alimentationinfo.org/fra/ketenA3.htm