# THE FOOD ACT AS AN ELEMENT OF BIO-HARMONISTIC GLOBALIZATION

Romulus GRUIA[1], Liviu GACEU[2]

**Abstract.** *The paper establishes an adequate analysis framework on the link between globalization, food consumption, health and nutrition, which can lead to a bio-harmonistic globalization. A number of issues are being addressed regarding the integrated dynamics of the power system, with emerging potential. In this sense, the bioeconomic models in food are analyzed in relation to the globalization of diversity and complementary identities, necessary to transform the world into a harmonious unit. From here and also the provision of food in relation to demographic evolution and migration, for a balanced globalization. Uncontrolled, the process will lead to a global food crisis, thus signaling a large disharmony. The study aims to find solutions related to balanced nutrition and, by applying the principles of bio economy, avoiding food waste and protecting the environment. Also, aspects of food diversity as a balancing factor from the perspective of food safety and security and the impact of health are synthesized through the mechanisms of food diversification, including at the sophisticated level of gastronomy.*

**Keywords:** food act, bio-harmonism, globalization, integronic, gastronomic engineering

## 1. Introduction

Globalization in general remains a vague, guilty theme, generally creating adversities and alarmist reactions. It is perceived as an extension (internationalization) of the market by certain people, exposed as a scarecrow, and for others it seems a natural process and, of course, a tempting intellectual fashion, stirring up emotivism and generating harsh partisanship.

Beyond these limits, it remains a serious reflection theme, either as an imminent harm, or as a source of benefits. Anyway, it is a „functional reality of post capitalism", an implacable one, cancelling the possibility to avoid a „marching" process [3]. And, without any doubt, in this process nourishment becomes a reference element, being indispensable as „need".

The evolution of the feeding manner and of the food typology is a known fact and accepted by all the people, but the analyses of all detail problems leads to an as correct as possible understanding and, especially, to its future dynamics within global context [1,6,7,18].

[1]Prof.Ph.D. Transilvania University of Brasov, Romania, Corresponding Member of the Academy of the Romanian Scientists ( ecotec@unitbv.ro; romulus.gruia@gmail.com
[2]Prof.Ph.D. Transilvania University of Brasov, Romania, Associate Member of the Academy of the Romanian Scientists (gaceul@unitbv.ro)

At the same time, from the globalization perspective the world is considered as a whole with characteristics going „between *glo**b**alization* and *glo**c**alization*, respectively between universal and particular" (*NB- **Glocalization** is a combination of the words "globalization" and "localization." The term is used to describe a product or service that is developed and distributed globally but is also adjusted to accommodate the user or consumer in a local market.)* Thus, the approach of cultural type emphasizes the political and economic meaning of a changing conception, but also forms of diverse participation at a more and more compressed world. This is what Roland Robertson (2000) says: *„The Globalization Concept refers to the world reduction and the growth of the awareness degree of the world as a whole"* [24].

From this perspective, we distinguish the problem regarding the development and adaptation of the food manner within globalization conditions, respectively of demographic increase in relation to the reduction of the planet resources.

**Work hypothesis:** we start from the idea that, consequently to globalization, sustainability of food may be achieved by ***refurbishment*** (as for example adaptation to the climate changes) and by increased utilization of the ***food biodiversity*****.** In this situation, the „complexification" process inevitably leads to the system vulnerability too, implicitly to diverse disharmonies regarding food at world level, which imposes to imagine regulation and bio-harmonization mechanisms.

Within this context, the **objective** of the study is double:

(a) to make a **diagnoses** linked to the *biodiversity of the alimentary act* (with emphasis of *technological and cultural mechanisms*, including of the *gastronomic culture* the food manner and its influence upon food systems, over time, up to the present globalization process) and
(b) to analyze the *food globalization* by highlighting the specificity of the present phase of the feeding manner in relation to the globalization process, in the idea to find essential directions for a feasible **prognoses** of the agro-alimentary system and of the food act in its whole, regarding evolution along the decades to come.

## 2. Work methodology

There are used a series of study methods such as: the conceptual analyses in relation to globalization / food; managerial, technical and statistical analyses of the food act phases; or observations regarding the integronic dynamic of the alimentation system on the axes between general and particular.

## 3. Results and discussions

### 3.1. Theses and Antitheses regarding Globalization

Globalization is a phenomenon at planetary level, irrespective of our will, representing a multicausal and polyvalent process, based on *„unity in diversity"*, that is continuously fighting the unique levelling global model, given by the convergence of partisan interests generating disharmonies.

In this process, the food act must be well analyzed in the context in which there may appear vulnerabilities in food globalization. As exemplification, among frequent disharmonies there may be mentioned: - unbalanced and differential food (see *Hunger* vs. *Over alimentation*); - affections and falling sick because of harmful „chemicals" and of pathogen microorganisms from food and others. Consequently there is imposed the idea of *health generating food* as an important element in food globalization. This one represents an element to solve the balanced food system at planetary level, necessary to a real harmonization, process certainly also found in other fields, which leads to a bio harmonist globalization [11].

**BIOHARMONIST GLOBALIZATION represents the phenomenon of transforming the world in a unity, that manifests itself at the whole globe scale, by specific means based on getting a dynamic balance sustained by the theoretic study of values and human condition in conformity with the model of the *Living Planet,* all being sustained by the moral principles applied in economic and social life, in the context of the coexistence of several different cultures integrated on the bases of the idea of ethic multiculturalism at macro level, reasonable interculturalism at micro level, based on interconnection the general framework of a GLOCAL management, realizing it Emergent interlocking (*NEXUS*).**

(NB: Emergence = interaction of components of a system, having as finality the emergence of the new of a superior order)

### 3.2. Globalization, Man and the Alimentary act

***Food*** must be regarded from the point of view of the human being under three aspects: (a) food as nourishment; (b) food as a stimulus of the emotive tonus; (c) food as spiritual element, to which man confers symbolic significations.

Of principle, at planetary level, man can NOT be satisfied with a food mixture, as reasonably as he may be prepared, food meaning more than the quantity and need to survive, which imposes the *food act to mean an integration of psycho-social elements sustained by technical and biological aspects and of production ones.*

The food act and the bio harmonist globalization refer to assuring food in relation to demographic evolution and migration (which also is a principle in the bio harmonization process). Therefore, based on the concept of the *Georgescu-*

*Roegen concept*, certain opinions [22] show that the number of population that may live on Earth is directly proportional with the terrestrial reserves of material and energetic resources (S) and inversely proportional with the speed of their consumption (r) and with the considered period (t), which may be expressed by the formula:

$$\mathbf{n = S/(r \times t).}$$

A not at all negligible script describes a menacing disharmony, namely: the potentiality of a world food crises. Thus, the propagation of the food crises from a state becomes a global problem of mankind because the effects of this crises may be in dynamics of avalanche, spreading within the whole regional system and then, possibly, at world level.

For example, in case a state will NOT anymore be able to feed its population, all those having relationship with the respective state would be affected. More than this, all the countries from the region could be affected by the crisis increasing the risk of regional affairs. In order to solve the crisis, if the resources of that state were insufficient, it would implicitly be necessary other states assistance (especially developed countries) and the one of international institutions.

In case major cataclysms do not appear, the globe population would faster increase, towards approximately 9 billion at the midcentury, and experts [1, 10, 18, 23, 25] consider that only ***doubling*** the present food production until 2030 would bring salvation!

The UNO system [27]: The World Food Program (WFP) yearly gets to more than 80 thousand of persons by the food help offered in 75 countries (approximately 11,500 persons work for the organization, out of which a large part are situated in remote zones, in order to directly help poor persons).

The plan draws 4 WFP major objectives: *(1).* To save lives and protect living means in emergency situations; *(2).* To sustain food and nourishment security, as well as to rebuild living means in fragile settlements or during post-conflict periods; *(3).* To reduce the risk and help people, communities and countries to respond food and nourishment needs; *(4).* To reduce malnourishment and break famine cycle.

We consider that it is very useful to apply the bio economic model to the food act too, idea that imposes analyses concerning the biological and technical relation between food and natural environment, as well as modalities to economically sustain food globalization by capitalizing biodiversity and diversifying food.

### 3.3. Food diversification - sustaining mechanism of Bio-Harmonist Globalization

It is known that biodiversity is a complex network of life that sustains us all. All our food reserve and sustainable development in this field [26] is based on biodiversity (as for example: coral reefs and seaweed „produce" fish we feed with; birds and insects pollinate our crops, and, of course, crops have plants as an origin, and animals exist due to plants etc.).

A simple analyses shows us that there is an OVERCONCENTRATION on a limited number of „star" plants (4 species: wheat, rice, maize, potatoes), well known ones and others are neglected, that might become very valuable ones (approximately 100-150 species of plants furnish the great majority of the world food, and other some thousands have capitalization potential). Also about this theme, the DIVERSIFICATION of the capitalization of animal breeding species is imposed (there are about 10-15 species frequently today such as livestock in farms), for economic utilization, technically and sanitary-veterinary controlled hundreds of species from the terrestrial (ex. hunting) and aquatic fauna.

Without entering into advanced technical and biological details, we consider it useful to highlight a series of SOLUTIONS for *bioharmonist globalization*.

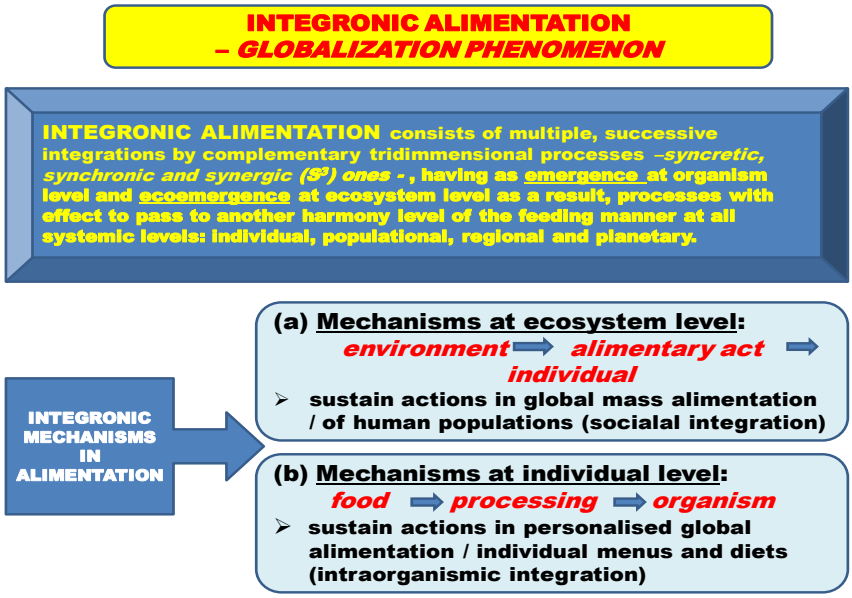


**Fig. 1.** Integration mechanisms in the globalization of alimentation

Those on bioeconomic models from the food production systems would be more important, the integronic alimentation model (i.e. the systems of food production, by successive and complementary integrations / the *integronic* dynamics). Thus there may be pursued biotransformation in the trophic chain of food ecosystems, in relation to the organism integrated metabolism (Fig.1).

The bioharmonization mechanism also has in view biotransformation. We refer for example to QUALITATIVE *energetic transformations* in food processing [2, 9, 17, 19]. It is taken into account that, based on knowing the correct composition and association, to get to a better digestion, absorption, *biodisponibility* and, finally, to a *biotransformation* at organismic level, as well as to a better ECO-BIODISPONIBILITY and/or ECO-BIOTRANSFORMATION at ecosystem level (see the below cachet).

| Specification | Description |
|---|---|
| **ECO-BIODISPONIBILITY** | **– Fraction from total food quantity and the corresponding energo-nutritional compounds that get to the metabolic circuit of an integrated organism in the trophic chain of a given ecosystem.** |
| **ECO-BIOTRANSFORMATION** | **- The totality of chemical transformations that food suffers during the processing cycles, modifications of ecologic, biologic and physical-chemical properties that influence productivity and efficiency at every trophic level.** |

We find these mechanisms, under different forms, in the flow of the alimentary act which in food processing is supposed to sustain successive eco-bio-transformations within the sustainable agriculture running in bioeconomic animal husbandry able to provide organic raw materials for food processing and producing local products in the territory and finally leading to culinary production as shown in the schema presented in Fig.2 [2, 9, 10, 14, 15, 16, 21].

Biodiversity protection does not only mean to save species and habitats. It means to assure the access to water and food and help thus ourselves face the severe effects of climate changes at global level, that already affect our capacity to produce food.

Biodiversity is essential in food security at global level, but based on the equilibrium of the situation at local level (Table 1).

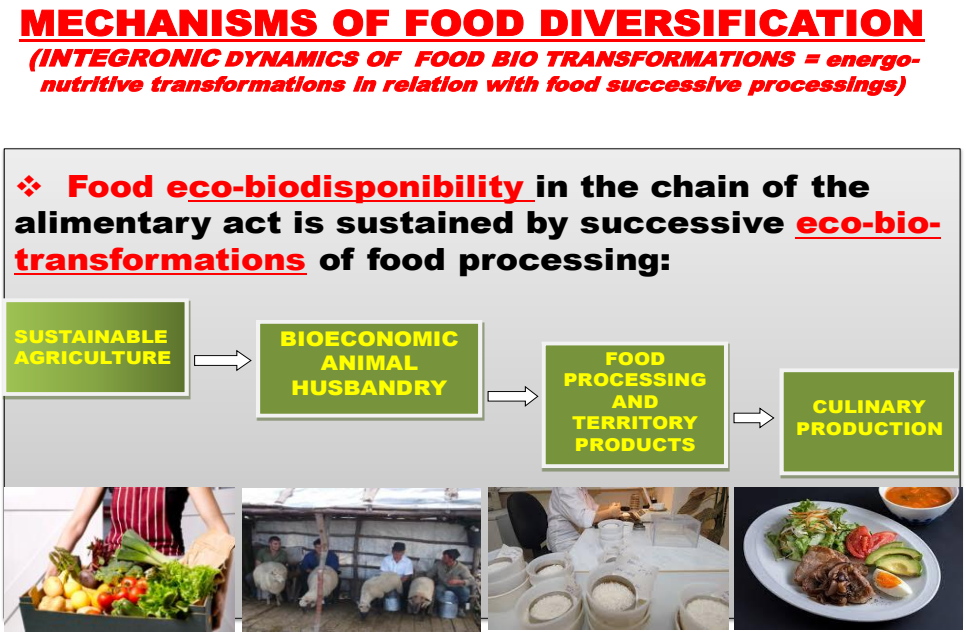


**Fig. 2.** Food integrated and controlled diversification in the flow of the alimentary act

**Table 1.** Solutions for future balance and development in the World Alimentary System

| *No.* | *Strategic direction* |
|---|---|
| 1 | Application of the bioeconomic model in the alimentary act. |
| 2 | Food diversification and superior capitalization of genetic resources that belong to a large scale of biodiversity. |
| 3 | Adaptation at the conditions of global and regional reality at present. |
| 4 | Harmonization of the alimentary system by local resource capitalization. |
| 5 | Minimization of food waste. |
| 6 | World spread of gastronomic culture for the good knowledge of diversity and increase of understanding between people. |

There may be observed that the alimentary act presupposes an integration of psycho-social elements sustained by technical-biological and production aspects, all being necessary for the application of the *bioharmonist principles* in structuring the world alimentary system [8]. There is aimed decentralized, identitary and complementary harmonized globalization (based on the wealth of local products), as it is described in the synthesis of Table 2.

**Table 2.** Agro-food contribution of local communities in a bioharmonist globalization

| *No.* | *Contribution* | *Specification* |
|---|---|---|
| 1 | Stimulation of local economy | - Money spent at local farms and producers remain in the local economy, thus generating economic improvement, but also more jobs at other local enterprises. |
| 2 | Less displacement | - Locally produced food has to cover a much shorter way until market, which means that it is consumed much less fuel and it generates less gas with greenhouse effect. |
| 3 | Less waste | - Due to shorter distribution chains in the local product distribution, depositing and trade process, the quantity of waste food diminishes. |
| 4 | More freshness | - Local food is fresher, healthier and tastier, because it gets quicker from the farm to the consumer's dish, thus less nutritive substances being lost and food doesn't alter so fast. |
| 5 | Beneficial for the soil | - Food local production encourages local agriculture diversification, which reduces the dependence on monoculture – i.e. to cultivate a single type of culture on a large area, to the prejudice of the soil. |
| 6 | Attracting tourists | - Local food promotes agro tourism and farmers 'markets, as well as opportunities to visit local farms and producers, which helps to attract tourists to the zone. |
| 7 | More connected communities | - Local increase of food production contributes to create and maintain more vivid communities, by connecting consumers with farmers and producers that furnish locally produced healthy food. |

Perspective alimentary harmonization in globalization is linked to the fact that man can't be satisfied with a food mixture, as reasonably as it may be prepared [9, 14, 20, 24]. This fact because alimentation means much more than the need to survive, situation in which understanding and the pleasure of the alimentary act are to be found in ***the gastronomic culture.*** Gastronomy gets special valences, especially in the globalization process, adapted to specific conditions from totally different geographic zones.

Another element with the potential to avoid a food crisis and to harmonize the food act in general, refers to food waste, especially with regard to food waste from public food establishments (eg restaurants). In the world, between a quarter and a third of the food consumed is wasted (!) and this loss can be precisely the difference between a proper diet and malnutrition in many countries around the world, according to a report of World Bank. The food crisis in a state is a global problem of mankind because the effects of this crisis are spreading throughout the regional system and then, possibly, worldwide.

**The gastronomic culture** in globalization represents the following elements: - human knowledge and multiculturalism; - recognition of specific values / originality of alimentation; - new food manners; - unique experiences/tourism gastronomy etc.

An overview of the historical evolution of the main characteristics of food polivalence and complexity starting from the 17th century till the beginning of the 21st century is synthetically presented in the cassettes given below [4,5,12,13].

The end of the 20th century and nowadays, we are facing the appearance of new trends such as: gastronomy/molecular cuisine, culinary constructivism, abstract cuisine, and the future could offer kitchen robotics, biocellular food, synthetic food and others.

**INFLUENCE OF GLOBALIZATION UPON MANKING GASTRONOMIC CULTURE**

| No. | RECENT HISTORIC PERIOD | CHARACTERISTICS REGARDING ALIMENTATION POLIVALENCE AND COMPLEXITY | |
|---|---|---|---|
| | | MAJOR EVENT | GASTRONOMIC SPECIFICITY |
| 1 | 17th and 18th century period | - spices and geographic discoveries<br>- The French revolution | ❑ **Complicated food based on flavours and taste:**<br>- with awareness of organoleptic elements and especially the control of culinary preparations taste with the first apparition of the sophisticated French cuisine, with diverse typologies:<br>- bourgeois cuisine / complrx cuisine<br>- working class' cuisine (bistros / at home) |
| 2 | 19th century period | - unprecedented scientific development: especially of chemistry and physics; rational / principal / and metabolic feeding | ❑ **Apparition of food chemistry – *(„gastro-chemistry" revolution)*:**<br>- what has fundamented *Haute Cuisine* and with its distinct style of Classic Cuisine (*Cuisine Classique*) |
| | 20th century period | - conceptual evolution of gastronomy in the first half of the 20th century and of trends from contemporary cuisine | ❑ **End of historic cuisine and, with the apparition of New Cuisine *(„la Nouvelle Cuisine")* new gastronomic models appear:**<br>- Fusion<br>- Fast food<br>- Excellence cuisine and others. |
| 3 | End of 20th century period. – beginning of the 21st one | - gastronomy based on physico-chemical, biological, genetic, ecologic, etc. Integronic and scientific bases, with feeding on the balance principle (harmonyof health generating, hedonic and integronic type). | ❑ **Apparition of new trends:**<br>- gastronomy / molecular cuisine,<br>- culinary constructivism,<br>- abstract cuisine (*element by element or „note à note"),* all these also being based on frontier sciences in biology and nutrition (nutrigenomics, metabolomics, transcriptonics and others.) |
| NB:In perspective it is imagined: kitchen robotics, biocellular food, synthetic food and others. | | | |

## 4. Conclusions

(1). Bioharmonist globalization proposes a viable model regarding spiky controversies from today's world concerning globalization, by imagining the structure in which there is functionally made a *NEXUS*, i.e. a commune zone of

osmosis between ethic multiculturalism at the human society level („macro"), formal interculturalism at the level of citizens and groups („micro") and economic and social balanced globalization, reference model applicable in life fundamental element: *food,* i.e. on direction of alimentary act.

(2). Bioharmonist globalization is based on an alimentation adapted to present reality (ex.: climate changes whatnot) which imposes food diversification and biodiversity capitalization, based on openness, innovation and continuous change, so that the benefits of the extent of globalization may non-discriminatorily reflect upon all those it has included.

(3). By bioeconomic approach and by the model of integronic alimentation (*consequently to successive and complementary integrations*) there may be highlighted biotransformation in the trophic chain of alimentary ecosystems, in relation to the organism metabolism, i.e. of certain mechanisms of bioharmonization (*such as eco-biodisponibility and eco-biotransformation too*).

(4). The present demographic rhythm at planetary level imposes as important priority to double food production until the year 2030, in order to reduce subnutrition and break the famine cycle.

(5). In bioharmonist globalization a first solid step is linked to the avoidance of food waste, which represents a regulating solution that aims health, by the difference between an adequate diets and overeating registered in certain countries on the globe.

(6). The spread of gastronomic culture on the world, for the good knowledge of diversity and improvement of communication between people will lead to efficiency increase and health generating impact of the alimentary act, with benefic results for a realistic prognoses regarding evolution of the alimentary system in its whole in the next decades (integration regarding agro-zootechnical production, products of the food industry, processing and obtaining culinary preparations).

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