

Human development and food: a global vision

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Abstract

The food fact forms part of life and thus is complex. Efforts have been made to give an overall vision by grouping the themes into four very wide conceptual axes, which in turn contain many subsystems. Thus, each axis has its own articulations and any progress in each of these is positive, but the overall solution to human feeding (technical and social) corresponds to a solution that is simultaneously tran-sectorial and trans-disciplinary. Evidently, each region will have its own statistically priority axes and in some cases the actions to be carried out vary between environments for the same objective. It is clear that one model, with various systems of equations with multiple variables, has no single response, either today or tomorrow. There is a wide range of possible actions, and imaginative solutions must be sought to obtain results on the four axes. However, the chosen ones must be guided by the principles of the ethics of the culture of peace that people and nations need.

Keywords: human feeding, ethics of the culture of peace, human development

Introduction

Human development is closely linked to resolving the basic problem of the food essential for sustenance. Thus, the more that this is ensured and the less effort and time dedicated to this producing it, more time is available for all those other activities that generate civilisations and cultures.

Without mentioning our ancestors' change from vegetarians to omnivores, for millennia, humans were hunter-gatherers as the only way of obtaining food resources. More than 2 million years of hunting and gathering. Over 2 million years during which the main daily concern for humans was the search for food. This system was an evolutionary dead-end.

Approximately 10,000 years ago, the first indications of the great revolution appeared. Food production was carried out by a fraction of society while the rest could do many other activities given that their food supply as a basic biological necessity was covered. This led to the birth of trade, money and the economy, techniques and science, and also to the political concept of empire; in short, civilisation. At that time, the first farming and animal husbandry appeared in various places, together with the earliest pottery recipients. The success of these first attempts led to the definitive implantation of agricultural communities. This first great food revolution was fully consolidated by 7,000 years ago, the date of the beginning of the Neolithic age.

Thus, the Neolithic represents the first step that enabled humankind to develop all its capacities. Freed from the daily search for food for subsistence, a significant part of the population could then spend their time of other more creative tasks that supplied solutions to challenges. Limiting ourselves to the world of food, the Neolithic saw the birth of the concept of food production (basic ingredients) by a few, but also saw the development of the concept of cooking in the sense of food processed ready to consume (Triptolemos Foundation, 2004).

However, the Neolithic unfortunately introduced a problem into the incipient society: hunger. *The Neolithic revolution meant a social pact*: while some produced food, the rest had to produce something relevant for society; everyone should contribute an added value to the system: bartering appeared

followed by money, the market and the economy. The greater availability of food favoured the growth of the population, which then required greater food resources, and led to the concept of conquest to obtain new productive lands. From then on, there was a fragile social balance between necessities, availability and acquisitive capacity given its sensitivity to climatic conditions, population, war, economy, etc. Yet, society has made continuous scientific and technological efforts to increase productivity and quality in the primary sector as well as legal measures to ensure the right to food for humans. Even so, the balance has not been reached and there are still around 1,000 million people (out of 6,000 million) who still live under the shadow of hunger or malnutrition.

The current situation

If we focus this global conceptual approach on the situation in the first decade of the 21st century we find a situation that can be summed up as follows:

According to data from the UN (2009), in 2008 the encouraging tendency towards the eradication of hunger in the developing countries changed and began to increase again rising from 16% (2006) to 17% (2008). Regionally, in sub-Saharan Africa there were than 100 million more extremely poor persons than in 1990. Globally, the UN (2008) estimated that in 2015 there will be around one thousand million people living in extreme poverty. One of the factors that contribute to this problem is the growth in the urban population in the large cities (Figure 1). The UN (2009) highlighted that the improvement of living conditions in the slums has not followed the rapid growth in the cities. Finally, obesity reappears as a global factor that also now increasingly affects the developing countries (Figure 2).

Hunger and/or malnutrition are not exclusively found in the developing countries, although they have a greater and more dramatic impact there. In the developed countries, in a setting of frequent local farm surpluses, they are cushioned by social assistance (in the USA, 36.5 million people (11% of the population), received 'food stamps' in 2009), but this does not hide the lack of freedom to the basic right to have and organise one's own diet. The proportion and solution is similar in Europe. However, these rich countries also have serious problems in malnutrition whose most paradigmatic example is that of obesity. In the USA, at the end of the 20th century, a third of adults were obese, in Canada, one in every four, a similar rate to that found in most rich European countries.

From this brief and conceptual presentation of the world situation it can be concluded that hunger and malnutrition are global, in various forms, but all of them significant.

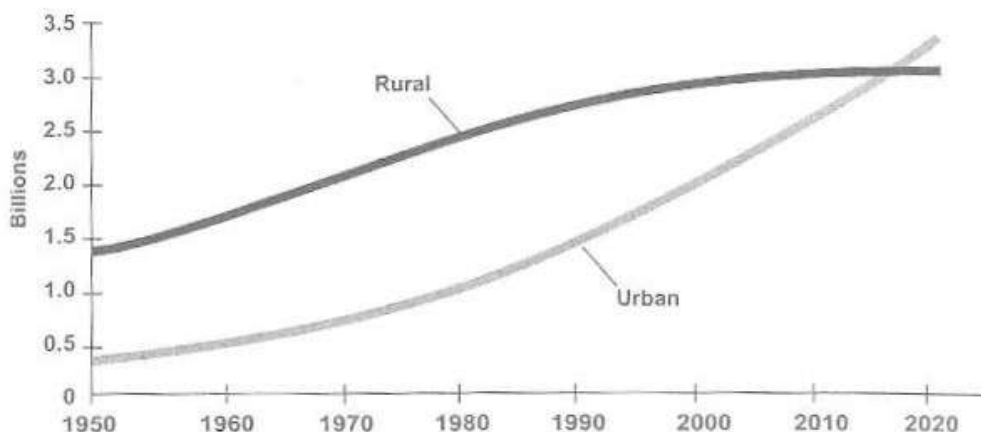


Figure 1. Urban and rural population levels in developing countries, 1950-2020 (United Nations, 1996).

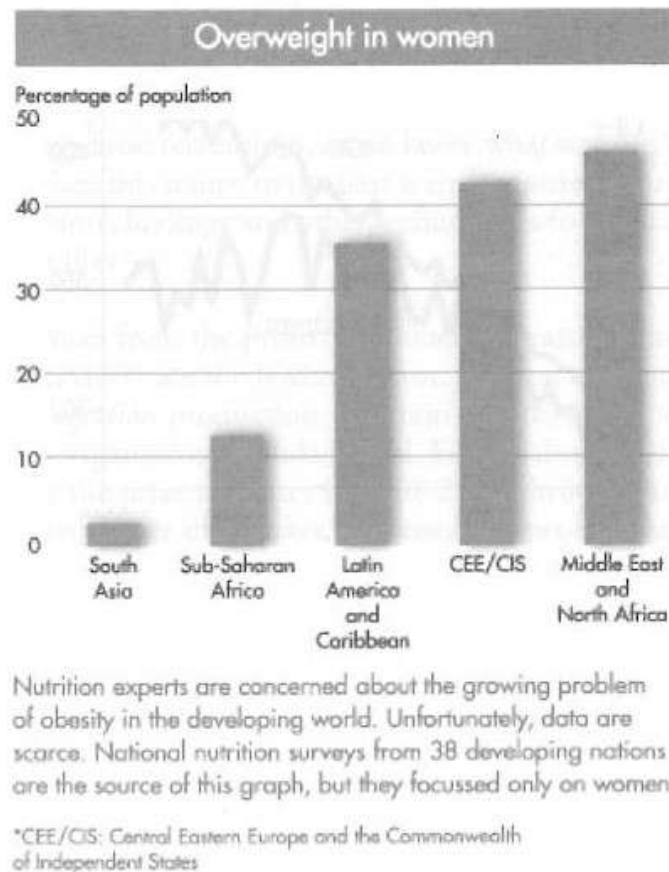


Figure 2. Overweight in women (after R. Martarell, International Food Policy Research Institute, 2001).

Global vision and prospective

The solution to each case of hunger and malnutrition could seem to be specific, but the reality is that each of these situations is conditioned by four global themes that come together in each problem. Only a balance between these can contribute to a stable solution. The four axes for action are presented in Table 1.

What fundamental questions are covered by each of the systems? *Availability* deals with ensuring that there is technically enough food for all humans. It must not be forgotten that all food comes from primary production based on photosynthesis. Important gains have been made in the increase in production, but the basic indicator is the *per capita increase* and the outlook in this aspect is not encouraging (Figure 3), and even less so given the tendency towards a diet with a high consumption of meat from stabled animals as this means a higher consumption of primary food energy. Fisheries are in danger, the cultivable hectares have reached the limit and water is scarce, and then there is the

Table 1. Axis of the food balance (Triptolemos Foundation, 2010).

Axes	Area of influence
Availability	Production and distribution of enough food
Economic	Adequate agricultural/food prices received from the small producer to the consumer
Political and social	Purchasing power for the population to acquire a basic nutritional food supply
Food culture	Knowledge (education / information) + confidence in the food system

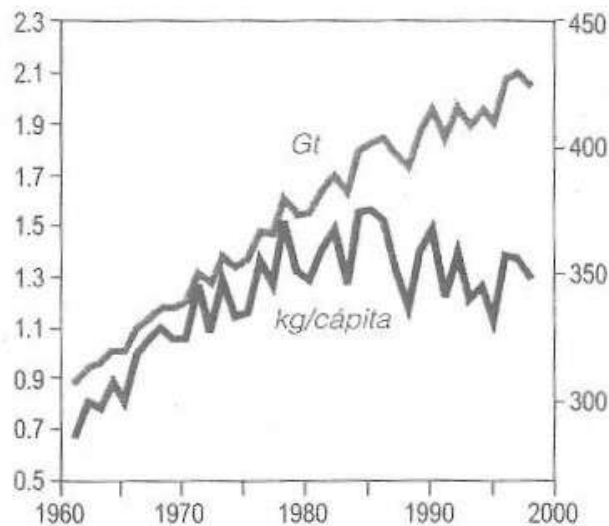


Figure 3. World grain production, 1961-1998 (obtained and calculated from FAOSTAT data – FAO, 1999). Grain production (Gt) Grain production (kg/head)

determining factor, population. This system has two means of regulation: science and technology converted into innovation, and demographic policy (Lamo de Espinosa, 2007). And finally, a worrying indeterminacy: the evolution of the biofuel markets and climate change can affect the reliability of the forecasts in the medium and long term (FAO, 2009).

Another aspect of the *availability* system is that generally availability is counted simply on the basis of the primary production. However, nowadays, with the growing urbanisation of the planet, food reaches the consumer in the form of products processed to a greater or lesser degree and this step is fundamental for increasing availability and ubiquity.

In a rural structure (until the 19th century), progress led to a tendency for population growth that was balanced by military conquests of new lands whose repopulation absorbed the population surplus. Food was prepared in rural pantries and kitchens. The Industrial Revolution totally changed this model. The expansion of the rural population changed to urban concentration, from the pantry and kitchen to the shortage of food from the country (problems of conservation and transport) and a lack of adequate housing. This setting led to hunger and influenced Malthus (1798) in his 'An Essay on the Principles of Population'.

A set of visionaries appeared, supported by science and technology and impelled by an ethical sentiment that did not annul their economic sense, and they founded a set of innovative groundbreaking companies, which helped to palliate the problem (conservation and externalisation of cooking) and allow the harmonious development of the population in an urban environment. During the 18th century, science renewed agronomy: fertilisers, irrigation, mechanisation, genetic improvement, is the need for raw material. The food industry acquired its technological dimension around 1850 (Liebig) 52 years after Malthus's manifesto was published and contributed to the failure of his postulates and allowed food stability, until the present, in the urban world (approx. 80% of the population of the developed countries). Its philosophy continues to be permanent research-innovation, which leads us to believe that its contribution to this axis will be fundamental.

In an ever more urban society, in both the globally rich and the developing countries, innovations based on science and technology for both production and service (quality + nutrition) and applied by groundbreaking companies will again acquire the same or greater importance than they had in the

19th century. In the developing countries, rural production is important for those who still live in the country, but help is increasingly needed for the creation of local agrifood companies, with technology, to cover the growing needs for processed products for the cities. With all respects, we cannot struggle to return to a 17th-century agrifood technology, as we know what size of population that was able to support. This is even truer when this return to the past is enthusiastically backed by those who are also enthusiastic about applying biotechnology and other technologies to medical progress. But is food not the first 'global medicine' for life?

On the *economic axis*, fair prices from the primary production, passing through distribution and the companies (products and services) are the leading factor. Bearing in mind the small producers and the influence of climate on agrarian production, a certain control of the system by governments, or even better, United Nations organisms, is fundamental. Financial speculation on agrifood resources must be avoided (remember the price increases in 2008-2009 throughout the foodstuff market) or protectionism and quotas that distort the market. An economic perspective must be developed based on the sustainability of the resources that sets tendencies so that they can be taken into account in the business world and that specifically consider the influence of the economic axis on the global food situation and its relation with society. There are encouraging signs in this sense. For example, the direct influence of food on economic history and the health costs provoked by malnutrition for Society have been studied by R.W. Fogel (2004).

The *political and social axis* in the noble sense of the concept is mainly responsible for the coordination and simultaneous resolution of the whole. The UN (2009) highlights its importance among the millennium targets: to strengthen social policies. Food security and hunger have been used politically throughout history either through blockades of the civilian population or in massive and publicised assistance in emergency situations. Prolonged food crises have everywhere been the popular spark for revolutions including those with the greatest ideological content (the French and Russian Revolutions).

The political system should establish rules that allow a harmonious development of everything together. Basically:

- security (availability);
- safety (harmlessness);
- sustainability of the global system;
- basis economic regulation (employment and others);
- policies for development of science, innovation, education/information.

The axis of *the culture on food* and its profound resolution with the rest is no less important. Man has always linked food to beliefs in a subconscious demonstration of its importance. A lack of preoccupation for food is also a factor in health. Truthful, global, non-partial education that allows the information to be understood. One example, how many people interpret the labels on the products in relation with their diet as a whole? Nor is gastronomic culture (an important but partial aspect) mistaken with food culture. On the axis of communication of knowledge, it is essential to avoid the global development of a double food track in matters of health. Distrust through poor education can destroy a scientific programme, a company or an end market final with greater possibilities of availability. And also coherence: obesity, apart from other factors, is the result of high-calorie feeding, which nowadays is cheap. Thus what are needed are not only dietary information but also modification of the economic parameters.

Final abstraction

The food fact forms part of life and thus is complex. Efforts have been made to give an overall vision by grouping the themes into four very wide conceptual axes, which in turn contain many subsystems. Thus,

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each axis has its own articulations and any progress in each of these is positive, but the overall solution to human feeding (technical and social) corresponds to a solution that is simultaneously trans-sectoral and trans-disciplinary. Evidently, each region will have its own statistically priority axes and in some cases the actions to be carried out vary between environments for the same objective.

It is clear that one model, with various systems of equations with multiple variables, has no single response, either today or tomorrow. There is a wide range of possible actions (Smil, 2000), and imaginative solutions must be sought to obtain results on the four axes. However, the chosen ones must be guided by the principles of the ethics of the culture of peace that people and nations need.

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