

## **Population, Poverty, Production, Food Security, Food Sovereignty, Biotechnology and Sustainable Development: Challenges for the XXI Century**

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**Abstract.** In the fight to eliminate poverty in the world is fundamental unity of all forces involved in it, from the national and supranational organizations, non-governmental organizations (NGOs) till the people themselves. This can be achieved the full right to food and food security. But do not forget an essential component, food sovereignty. So everyone must to have at all times, physical and economic access to sufficient food in quantity and quality, to have a healthy life. But it is clear that in our globalized world are happening events such as the specialization of production by regions, imports of agricultural products at prices below cost of production in the importing country and public aids that allow rich countries exported at prices below their production costs, which has been ruining the food sovereignty of all regions and particularly regions of developing countries. We discuss how to fit some of the variables which are involved in achieving the goal of eliminating hunger in the world, and highlights the difficulties of all kinds, political, social or economic.

**Keywords.** Human population, poverty, production, food security, food sovereignty, Biotechnology, rural development, sustainable development

### INTRODUCTION

In our world it has been observed many paradoxical situations and events difficult to solve. One of them is undoubtedly referred to the title of this work: how to reconcile the increase in population, poverty, agricultural production, food security, food sovereignty and sustainable development. In the following lines we will try to analyze the challenge for this century represented by them.

As a first consideration we note that many authors have been concerned with analyzing the different aspects from very different optics, from the defenders of industrial farming as a solution to current problems and from those who defend a return to small-scale and local production, trying not to interfere too much with the environment.

We could make a series of questions and try to answer them trying to cover all aspects and dimensions that have both the new agriculture as an instrument to solve the problems of humanity, the rights of peoples and the environment.

How to solve the trinomial Population, Poverty and Production?

The first thing that should be defined and should be continuously present is the right to food of every human person. Article 25 of the Universal Declaration of Human Rights specifies that everyone has the right to a standard of living adequate assuring for him and his family, health and well-being, especially food. The first thing to note is that the right to food includes "every person and his family," obviously including children and women, whereas it can not establish any kind of discrimination. In this sense it has been established a comprehensive international law to try to ensure this right, a thousand times violated by governments and groups. It should be noted previously that following FAO, more than 900 million people worldwide suffer malnutrition. Over than 90% of this people are located in developing countries with high birth rates and consequently population. But in addition, the known chronic hunger and malnutrition cause mental deficiencies and physical atrophy in children who are still growing, without forget that according to the same institution, over than 2,000 million people suffer the so-called "hidden hunger", a type of hunger caused by the lack of micro-nutrients, resulting in poor physical and mental development.

To try somehow to analyze and establish strategies to address the problem in 1996 was held the World Food Summit (WFS) which adopted the Rome Declaration on World Food Security and the Plan of Action of the World Food Summit. What it has been achieved so far? We could say almost anything. In fact it is believed that in view of the data used at present it will be necessary about 60-70 years to fully complied with the commitments made by consensus at the 1996 Summit.

In 1999 it was established the International Covenant on Economic, Social and Cultural Rights (ICESCR), which was established in Article 11.2 that the Signer States of the Agreement recognizes "the fundamental right of everyone to be free from hunger," so they will take, individually and through international cooperation, the measures, including specific programs, which are needed to:

1. Improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, the divulgation of the principles of nutrition and the developing or reforming of agrarian systems to reach more efficient use and exploitation of natural resources."

2. Ensure an equitable distribution of world food supplies in relation to need, taking into account the problems between both food- importing and exporting countries.

Many other agreements and laws have been produced with the same goal, starting with the Geneva Conventions of 1949 and its various protocols to the Millennium Summit of the General Assembly of the United Nations (UN) on September 8, 2000 in which 189 countries participated (with 147 Heads of State or Government), and signed the so-called Millennium Declaration (MD), from which they originated a number of international conventions established as the Millennium Development Goals (MDG). The Millennium Declaration is a statement of values, principles and objectives for the international agenda of the century, such as freedom, equality, solidarity, peace construction, social development and the promotion of democracy and human rights that as we can see is just touch on the Universal Declaration of Human Rights and the Charter of the United Nations.

The official report issued by the UN in 2010 on the achievements of the Millennium Development Goals (MDGs) is a balance, in our view, something triumphant in general terms, without solving the real structural problems that exist and are undoubtedly the source of the problems. As Perez de Armiño (2008) references from Barton (2005), the MDGs adopt a merely palliative approach since to addressing systemic and deep problems through technical solutions, without the courage to face the roots of the same. The MDGs is formed by

8 objectives, with 18 finally goals and 48 measurable indicators to monitor, with 2015 as the frame of reference (UN Official Home for the MDGs).

Furthermore, and in terms to make compatible population, hunger and production, we find that in the MDGs there is a total commitment to the neoliberal system prevailing for many years, and certainly responsible for the current global crisis. This neoliberal vision is evident in the eighth objective which includes economic growth as a source of development and prioritization of trade and private investment as a source of financing for development, leaving the State and public authorities in the background or even missing. This neoliberal approach, inspiring the MDGs, is precisely one of the main drags on reducing poverty and hunger (Perez de Armiño, 2008). The relief of the state to a simple secondary supporting role and the prioritization of the market have led to increasing social inequality and vulnerability of disadvantaged groups. Nevertheless public policy is an essential tool in the fight against hunger and in favour of food security. But being positive we note that it is possible to combine population, hunger and production. The trinomial should be solved by introducing food security and especially food sovereignty.

How the right to food, food security and food sovereignty can resolve or at least help to solve the problem?

First of all we must define these concepts. The first, according to the Universal Declaration of Human Rights in 1948 (art. 25) and subsequently collected in the International Covenant on Economic, Social and Cultural Rights of 1976 (art. 11), is defined as:

“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.”

In fact “the right to access, individually or collectively, on a regular and permanent, to quantitatively and qualitatively adequate and sufficient food and the means to produce such a way that corresponds to the cultural traditions of each population and to ensure a physical and mental satisfactory and dignified life” (United Nations, 2002). In this definition is sufficiently explicit food security as the right “to food quantitatively and qualitatively adequate and sufficient.

On food sovereignty, in the Conference organized in October 2000 in Bangalore, by the Via Campesina and the Latin American Coordination of Rural Organizations (CLOC) is essential to fighting Designated as the concept of “Food Sovereignty”, defined as the “right of their own peoples to define agricultural policy and food without ‘DUMPING’ to other countries ”. For Via Campesina, Food Sovereignty requires the existence of “a healthy food production, good quality and culturally appropriate for the internal market” which means “to keep the food production capacity, based on a diversified farm production (biodiversity, productive capacity of land, cultural values, preservation of natural resources) to ensure the independence and food sovereignty of peoples.”

Probably the most elaborate definition of Food Sovereignty as outlined was “the right of peoples to define their own sustainable production, distribution and consumption of food, guaranteeing the right to food for all people, based on small and medium-sized production, respecting their own cultures and rural modes, fishing and indigenous forms of agricultural production and agricultural marketing, and management of rural areas, where women play a key role. Food Sovereignty must be settled on diversified production systems based on ecologically sustainable technologies.”

The combination of these three concepts, particularly food sovereignty, causes some added effects and requires some prerequisites to be achievable. The Forum of La Habana described these effects and requisites as follows: Food Sovereignty,

(1) promotes economic and political sovereignty and cultural development of peoples;  
(2) recognizes agriculture with farmers, indigenous and fishing communities with links to the territory; primarily oriented to meeting the needs of local and national markets; an agriculture considering central the human; an agriculture which preserves, values and promotes multifunctionality of rural and indigenous way of production and land management;

(3) involves the recognition and appreciation of the economic, social, environmental and cultural advantages of agriculture on a small scale, family farms, the rural and indigenous agriculture;

(4) implies the recognition of multi-ethnicity of nations and the recognition and appreciation of the identities of native peoples. This also implies the recognition of autonomous control of their territories, natural resources, production systems and management of rural areas, seeds, knowledge and organizational ways;

(5) contains the guarantee of access to healthy and sufficiently food for all individuals, particularly for the most vulnerable sectors, as an imperative obligation of national governments and the full exercise of citizenship rights. Access to food should not be considered a form of assistance from government or a charity of public or private national nor international entities;

(6) requires the implementation of radical processes of integral Agrarian Reform adapted to the conditions of each country and region to enable farmers and indigenous – considering women with equal opportunities- an equitable access to productive resources, mainly land, water and forests, as well as the production media, financing, training and strengthening their management and interlocution capacities. Agrarian Reform must be recognized as an obligation of States in those countries where this process is necessary, within a framework of respect for human rights and as an efficient public policy to fight against poverty. The programs for the commercialization of land promoted by the World Bank are unable to replace the true Agrarian Reforms and do not solve the problem of access to productive resources for peasantry;

(7) knows that the international food trade must be guided by the supreme purpose of serving humans. Food sovereignty does not mean autarchy, full self-sufficiency or the disappearance of international agricultural and fishing trade (Text of the World Social Forum in Porto Alegre, 2002).

As we can see Food Sovereignty does not have as first objective an increase in food production but also introduces a new approach, the rights approach and the social and ecological responsibility in the same production. To take effect the right to food, food security and food sovereignty, it is essential to have the resources to produce, ie, land, seeds, water, forests and to respect biodiversity, and also the right to decide what is produced, how it is done and where the production is sold. Obviously all of this is against the policies of major producers promoted by neoliberal capitalism. Applying all that implies food sovereignty about rights, environment, participatory democracy, rural development, etc. represent, according to Rivera Ferre (2008), a reduction in global economic growth and a transformation of the current social structure. Obviously the current socio-political context is in the opposite direction.

Where the Biotechnology and Rural Development would be in the context we are discussing?

More and more appear different voices about if biotechnology can open possibilities of development in the field of the agronomy in its wide sense because of the impact in the rural development, in fact, the impact in the agriculture, livestock, fishing and environment. Thus, environmental and even ethical-moral debates continuously appear discussing the convenience or not of its use.

First of all we point out, from all above, that the application of biotechnology can benefit the rural development because it is a technology that allows approaching many of the human necessities related with the health, the aging, the feeding, the environment and the sustainable development of the communities. The use of illness free seeds, resistant to plagues and with smaller necessities of harmful chemical products for the health and the environment, with some nutritional and with possibilities to be applied to generate products for industry, it represents itself a positive impact in the rural areas.

The inability to eradicate hunger in the world has served to justify the application of biotechnology, which as we noted in the paragraph above has a priori many advantages, certain precautions must be taken in the face of their widespread use. If we talk about food production for human consumption, there are many international agencies that prefer, in view of some data, a preventive position. Such is the case of the World Food Programme (WFP). WFP has pledged to use, as food aid for human consumption, only and exclusively food which has been sufficiently controlled in both the donor and the receiver countries.

According to FAO, for 2030 will have more than 2000 million inhabitants that will depend, at the same time, on agriculture for their subsistence but also the natural resources will be more and more fragile. Therefore this organization is in favour of biotechnology as an opportunity to reform the agricultural and livestock production with the objective of sustainable development. In 2000 FAO published its "FAO Statement on Biotechnology" which takes into account and reflect on the possible contributions of genetic engineering, including: application to animal production (increasing the health of animals, feed and species), improving plant production (improved seeds, reducing the need for chemicals, prevented from deteriorating of the cultures ...), a saving of the work and the increase of nutritional value. In a communication dated May 17, 2004 FAO falls about Biotechnology in following terms: "biotechnology represents a great promise for the agriculture in developing countries, but until this moment a limited number of people and nations of the developing world have harvested benefits." In fact the developing countries have a series of limitations to use the current biotechnology and to obtain its benefits. Among these limitations we can indicate that at the moment the cultures are not centred in the basic feeding; that the national regulations are inadequate; that the markets and the systems of distribution of seeds are unfunctionals and, why not, that these countries have very poor capability to establish systems of animal and/or plant breeding genetics. But it also recognizes the difficulties of its application in relation to the potential risks for human health, possible environmental consequences, the trend towards privatization and the increasing lack of information, and an entrenchment of intellectual property rights.

At the present time the international organisms implied in animal and plant production, as FAO, or different professional associations and supranational organizations like European Union are even very sensitive on the rural development and the conservation of animal breeds and plant varieties in order to preserve their character of genetic resource which are very important for the future development. Many legal regulations have been introduced to stimulate the extensive production and environmental systems. For a correct rural

sustainable development, to work in the agriculture and in extensive animal production, to stimulate the agro-environmental formation, to support the animal autochthonous breeds and the products with origin denomination, they are different lines to favour. Also this is the way that will certainly contribute to give solutions at medium term. Many different development programs for developing countries must be elaborated and improves by international organisms like FAO, contributing them the necessary biotechnology in order to allow to their societies and their farmers to remain fixed in their environment and in their production system assuring dignity and enough rents that allow them to maintain their ways of life without necessity of looking for other ways, mainly to go to the cities, abandoning the rural environment with the consequent loss of biological and cultural diversity.

## CONCLUSIONS

Regarding the MDGs, in general they should be considered positively because they have universal support by all the States represented at the UN, so the fight against the poverty as the worst of the harm, is one of the aims of the international agenda. On the other hand, the MDGs set a time frame, making them useful in the future pressure on governments and evaluate national and international policies. So MDGs can substantially contribute to reducing poverty and hunger. But we should not be dreamers; there are many limitations and contradictions that will certainly be a drag on hunger eradication, implementation of the right to food, food security and why not to food sovereignty.

In 2005 it was celebrated an International Conference by e-mail organized by FAO between the months of June and July about "*THE PAPER OF THE BIOTECHNOLOGY IN THE CHARACTERIZATION AND CONSERVATION OF GENETIC RESOURCES OF CROPS, VEGETABLE SPECIES, ANIMALS AND FISH IN COUNTRIES IN VIA OF DEVELOPMENT.*" During the Conference it could observe that the main problem in the developing countries, in relationship with the animal and plant production, was that all their technologies were focused to the subsistence since the farmers had poor access to the financing sources, technical and marketing and on the other hand they needed more development and reduction of the poverty. It is important don't forget in this circumstances the conservation of the resources is not high-priority for farmers.

It is necessary to recognize that, for example, the use of the new technologies to recycle the agricultural wastes through fermentations affects to the energy sector, to the agro industry and produces an additional positive effect in the environment. Also, we should not forget that the biotechnology, particularly the genetic biotechnology, together with the archaeology, the language, the knowledge, the history, etc., can give us the keys of the origin and the evolution of the agriculture and the livestock. In addition, cultural values, the link with the land and territory, the link with the seeds, with their ancestors, with the place itself, are fundamental elements of peasant survival and even give their identity that can be done even stronger than the economic reality.

For rural sustainable development and food security is it necessary to elaborate, to develop and to introduce the correct decisions and mechanisms in the rural environment. The main challenge of the biotechnology in animal and plant productions is not only to answer the needs of food of the society but to answer its sensibilities about the innocuousness of foods and on the protection of the animals and environmental health too and, of course, the rural sustainable development of the developing and underdeveloped populations.

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