

SUSTAINABILITY OF AGRICULTURAL PRODUCTION AND ITS IMPACT ON THE POLICY AND ENVIRONMENT

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Abstract: *The World Commission on Environmental Sustainability (1987: 43) identified sustainability as addressing current needs without compromising on the possibilities of taking the resources of future generations. Although this definition seems sufficiently well formulated, it has about 40 different definitions of the concept of sustainability in the context of policy actions and their implementation throughout the process.*

KEY WORDS: SUSTAINABLE AGRICULTURE, ECOLOGY, AGRICULTURAL PRODUCTION SYSTEMS

1. Introduction

The World Commission on Environmental Sustainability (1987: 43) identified sustainability as addressing current needs without compromising on the possibilities of taking the resources of future generations. Although this definition seems sufficiently well formulated, it has about 40 different definitions of the concept of sustainability in the context of policy actions and their implementation throughout the process.

2. Materials and method

O'Connor (1994: 153) divides the definition of "environmental sustainability" into three main categories such as to maintain the capitalist accumulation system, to maintain the necessities of human existence and to maintain the way of life by changing some of the facts. Maintaining distortions in the definition of sustainability also disturbs the political process and enables people with an interest to sustain the accumulated potential or lifestyle or change their already structured policy.

The only definition so far with minor changes is to maintain the need to live by applying two complementary components:

- to maintain the necessary level of environmentally friendly environment that ensures a sufficiently high quality of life;
- to create socio-economic conditions for people to reproduce.

However, there is socio-economic and environmental instability in the passage of labor from one sphere to another, as well as in the creation of some or other goods. This also implies another way of structuring societies and their activities. In these cases, the environment (in particular soils and waters) is treated as consumer goods that are subject to supply and demand.

The central player in this social system is an industrial company that seeks to reduce land investment (or rent) and labor (or wage) participation, but to increase its revenue when selling products.

This in practice means that the market becomes a basic social structure of modern society and a basis for the potential ideology of liberalism, socialism and other societies that are simply strategies for managing basic social structures.

Industrial firms are looking for ways to make costs internally and profit internationalize. The policy of a number of governments is aimed at defining and defending a political strategy to adapt the state approach to managing the efforts to internationalize the capitalist system.

The liberal system proclaims the self-regulatory functions of the market through the supply-demand relationship, the social system offers strong state support and intervention to protect the workforce from exploitation, and the third that labor must be sacrificed for the benefit of the nation. The neo-liberalism as an ideology proclaims the use of global resources on the planet as a strategy of capitalism.

The practical application is that in the first place companies are pursuing decentralization (dismantling or even dissolving) of production units to take advantage of the use of informal labor (those who are not united in trade unions, women,

sometimes children, people are not good enough of education and, respectively, low pay).

When decentralization merges with the idea of using global resources, it leads to the creation of a new labor distribution - production is transferred to the workforce from the third world, and the consumption of the finished product - to the population of the first world.

At that time, the governments of the First World maintain and reconstruct the industry in their countries, while at the same time exhausting other resources and polluting the environment elsewhere on the planet.

Despite the benefits that some local forms of globalization offer in certain regions, the logical framework of global capitalism and transnational companies is anti-thetic and occupational and directed against environmental stability because they are built to exploit nature and the workforce (O'Connor 1998).

Some terms are not definable. 'Sustainable Society', 'Sustainable Industry', 'Sustainable Agriculture' and others are one of them. In such a rapidly changing world, how can something be sustainable? What do we want to keep? How can we set such an ambiguous goal? Is not it too late? Controversies and issues lead to a critical view of our current nutrition system and a serious, worrying future assessment. If nothing else, the term "sustainable farming" creates at least "themes of conversation", a sense of direction and an urgency that sparks a lot of exciting and innovative thinking."

The word "I support," from the Latin *sustinere* (*sus-*, below *tenere*, hold), I maintain existence, means long-term maintenance, permanence. Concerning agriculture, the word "sustainable" describes agricultural systems that "can sustain sustainably their productivity and utility for society". Such systems ... "must be economical, socially oriented, competitive on the market and environmentally friendly".

The term "sustainable agriculture" means an integrated system of farming and livestock practices with a site-specific application in the long term that:

- satisfies human needs of food and tissues;
- improves the quality of the environment and the basis of natural resources on which agriculture depends;
- uses the most effective non-renewable sources and available resources and integrates, where appropriate, natural biological cycles and controls;
- maintain the economic viability of agricultural operations; improves the quality of life of farmers and society as a whole.

How do we rethink food and fiber production in the light of sustainability? What are the environmental, economic, social and philosophical issues related to sustainable agriculture? The long-term viability of our current food system is questionable for many reasons. The mass media regularly presents us with paradoxical pictures of starvation in an abundance of food, such as hungry children, along with supermarket ads. Possible negative environmental effects on the part of agriculture and a growing number of food-borne illnesses also need our attention. "Farm crises" happen with recurring regularity.

The prevailing farming system, termed in various ways, such as "conventional agriculture", "modern agriculture" or

"industrial farming", gives high results in terms of productivity and efficiency. Global food production has grown over the last 50 years; The World Bank has estimated that between 70% and 90% of the recently grown food production is the result of conventional agriculture rather than larger arable land.

Karl N. Stauber and colleagues point out that conventional farming systems are different for different farms and countries. However, they have many common features:

- accelerated technological innovations;
- large capital investments for the application of production and management technologies;
- large-scale farms;
- Orientation to single crops / row crops grown without interruption for many seasons;
- uniform high yielding hybrid crops;
- Extensive use of pesticides, fertilizers and external inputs;
- high labor efficiency;
- dependency on agribusiness.

In livestock farming, most of the production comes from limited, concentrated systems. Significant negative consequences have emerged with the abundance associated with industrial farming. Issues related to modern agriculture are presented below. When considering these issues, the following should be considered:

- the relationship between agricultural systems and soil, water, the organic world and the atmosphere are complex - there is much to learn about their dynamics and long-term influences;
- Most environmental issues are tied to economic, social and political forces external to agriculture;
- some problems are on a global scale, while others are being tested only locally;
- Many of these problems are solved by conventional and alternative ways of farming;
- the list is not full;
- The list is not ranked by importance.

3. Environmental problems of agriculture

Agriculture affects a whole range of ecological systems. The negative impacts of current practices include the following:

- Decreasing soil productivity due to wind and water erosion of the surface layer; soil compaction; loss of organic soil, water-retaining capacity and biological activity; salinisation of soil and irrigation water in irrigated agricultural areas;
- Agriculture is the largest non-listed source of water pollutants, including sediments, salts, fertilizers / nitrates and phosphorus /, pesticides and manure. Pesticides of all chemical classes are often found in soil waters under agricultural areas; they are widespread in national surface waters. Eutrophication and "dead zones" due to food expenditure affect many rivers, lakes and oceans. Decreased water quality has an impact on agricultural production, drinking water supply and fish production;
- Water scarcity in many places is due to the excessive use of surface and ground water for irrigation without thinking about the natural cycle that maintains stable water availability;
- Other environmental damage includes over 400 insects and worms and more than 70 fungal pathogens that have become resistant to one or more pesticides; harmful effects on pollinators and other beneficial species through the use of pesticides; loss of wetlands and natural animal environment; and reduced genetic diversity due to genetic diversity in most animal cultures;
- It is only now that the link between agriculture and global climate change is being assessed. The destruction of tropical forests and other local vegetation due to agricultural production plays a role in increased levels of carbon dioxide and other greenhouse gases. Some recent studies have shown that soils can be sources or receivers of greenhouse gases.

4. Economic and social issues

Economic and social issues related to agriculture can not be separated from external economic and social tensions. As obstacles to a sustainable and impartial food delivery system, however, problems can be described as follows:

- In economic terms, the history of Bulgarian agriculture includes relatively low government expenditure and corresponding participation of the state in investment decisions. Market competition is limited. Farmers have almost no control over agricultural production prices and do not receive any part of the buyer's money spent on agricultural products;
- The economic pressures have led to a huge loss of farms, especially small in size. This contributes to the disintegration of rural communities and localized market systems. Economically, it is very difficult for potential farmers to enter the business today;
- Impact on human health
Potential health risks are associated with the subtherapeutic use of antibiotics in livestock farming and water and pesticide contamination by pesticides and nitrates. Farmers are poisoned in the field, toxic residues are found in food, and some animal and human diseases have developed resistance to the antibiotics used.

5. Philosophical problems

Historic agriculture has played an important role in our development and national identity. Due to the last economic crisis, 30% of Bulgarians produce food for the whole population. Can sustainable and impartial food production be established when most consumers are almost unrelated to the natural processes of food production? What innate Bulgarian values have changed and will change with the decline of rural life and landslide? "Sustainable agriculture is a philosophy based on human goals and the understanding of the long-term impact of our activities on the environment and other species." The use of this philosophy guides the application of our past experience and recent scientific achievements to create integrated, sparing and impartial agricultural systems, Charles Francis and Gart Yongberg (1990) note that "These systems reduce environmental degradation, support agricultural productivity, support economic viability in a short period of time long-term and long-term, and maintain stable rural communities and quality of life.

"Sustainable" agriculture does not mean return to low yields or poor farmers in the 19th century, but rather, sustainability is built on modern agricultural achievements by adopting a sophisticated approach that can maintain high yields and farm profits without to undermine the sources on which agriculture depends. "

"The systematic approach" is important for understanding sustainability. The system is considered in the broadest sense, from the individual farm to the local ecosystem and the communities affected by this agricultural system both locally and globally. The systemic approach gives us the tools to explore the interrelationship between agriculture and other environmental aspects ".

"Environmental sustainability" means:

- Meeting the basic needs of all peoples as a priority, to satisfy the appetites of a small number;
- keeping the population density, if possible, below the region's eligibility;
- setting consumption patterns and setting up management systems to enable renewables to be restored;
- preservation, recycling and setting of priorities for the use of non-renewable sources;
- Maintaining the environmental impact below the level required by the affected systems to recover and continue to develop.

"Ecologically sustainable agriculture is what is compatible and consistent with the above-mentioned criteria."

To help identify these real issues, one can distinguish between shallow (short, symbolic) and deep (long-term,

fundamental) sustainability. Shallow resilience focuses on resource efficiency and substitution strategies. It usually perceives the leading goals in society unreservedly and aims to solve the problems through healing solutions. Deep resilience, on the contrary, reassesses the goals of higher values and processes the systems to achieve these goals so that it can be done within ecological limits.

Sustainable agriculture is a "way of farming that seeks to optimize the skills and technology to achieve long-term stability of the farm, environmental protection and consumer security, through management strategies that help the manufacturer to select hybrids and varieties handling soil conservation practices and pest control programs. The goal of sustainable agriculture is to reduce the harmful effects of the direct and bypass environment whilst ensuring sustainable level of production and profit. Robust resource conservation is an integral part of the means of achieving sustainable agriculture."

Today, sustainable farming practices usually include:

Crop rotation, which reduces weeds, diseases, insects and pests; provides alternative sources of nitrogen in the soil; reduces soil erosion; and reduces the risk of polluting water with chemicals for agriculture.

- Pest control strategies that do not harm natural systems, farmers, their neighbors, or consumers. This includes integrated pest management techniques that reduce the need for pesticides through practices such as pre-research, the use of resistant cultivators, precise sowing time and biological pest control;

- increased mechanical / biological control of weeds; more practices for soil and water protection; and strategic use of livestock and green manure;

- use of natural or synthetic additives in a way that does not pose a serious threat to humans, animals or the environment.

This approach encompasses the whole farm by relying on farmers' knowledge, interdisciplinary teams of scientists and public and private sector specialists.

- Sustainable agriculture is a model of social and economic organization based on an impartial and committed vision of development, which recognizes ecological and natural resources as the basis of any economic activity. Agriculture is sustainable when it is environmentally sound, economically viable, socially just, culturally appropriate, and based on a holistic scientific approach;

- Sustainable agriculture supports biodiversity, soil fertility and water purity. It preserves and improves the chemical, physical and biological properties of the soil, recycles natural resources and preserves energy. Sustainable agriculture produces high quality food, tissues and medicines in a variety of forms;

- Sustainable agriculture uses local renewable resources, suitable and cost-effective technologies, and reduces the use of external and purchased supplements, thus increasing local self-sufficiency and self-sufficiency and providing a source of permanent income for peasants, their families, small farmers and rural communities. This allows more people to stay on the ground, strengthens rural communities and integrates people with their environment.

Sustainable agriculture respects the ecological principles of diversity and interdependence and uses the insights of modern science to refine and not to replace the traditional wisdom accumulated over the centuries by an endless number of farmers around the world. Sustainable agriculture does not use prescribed practices. Instead, it induces manufacturers to think about long-term implementation of practices and the broad synergies and dynamics of farming systems. It invites consumers to take an active part in farming by learning more and becoming active participants in their food systems. The main objective is to understand agriculture from an ecological point of view - from the point of view of nutrients and energy dynamics, as well as the interaction between plants, animals, insects and other

organisms in the agroecosystem. All this has to be balanced with profits, public and consumer needs.

Sustainable agriculture is a holistic-systemic attitude towards food, nutrition and other tissue industries that balances ecological stability, social equity and economic viability across all sectors of society, including international and age groups. Inherent in this definition is the notion that sustainability needs to be expanded not only globally but also for an unlimited period of time, and to reach all living organisms, including humans. "Sustainable agro-ecosystems" maintain their natural resource base, rely on minimal extra-farm benefits, fight pests and diseases through internal regulatory mechanisms, and recover from harvesting and harvesting disturbances.

6. The Future of the Sustainable Agriculture Concept

Many representatives of the farming community have realized the urgency and direction outlined by the concept of sustainable agriculture. The lack of a precise definition has not diminished its authenticity.

Sustainability has become a major component of many government, commercial, and non-economic efforts for agricultural research. It is becoming an integral part of agricultural policy. An increasing number of farmers take on their own paths towards sustainability, including related and innovative approaches in their own businesses.

Critical discussions on the concept of sustainable agriculture will and should continue. Understanding will deepen; will continue to give answers. Continuous dialogue is also important for another reason: with more participants, each with their own agenda entering the "tent", only continual concentration on real issues and goals will prevent sustainable agriculture from turning it into such a comprehensive idea that it will become meaningless. Yongberg and Haru's 1989 assertion still sounds true: "We are still far from knowing what methods and systems at different locations will bring sustainability ... In many areas of the country, however, as well as many cultures, the specific combination of methods that will allow to limit the use of harmful chemicals or to create a variety of crops, thus ensuring economic success, is still unclear, and challenges have been prepared not only for practitioners but also for researchers, lecturers agricultural industry. " Sustainability is both extremely important and practically unnecessary. It consists of a set of ideas that are fundamentally different in nature. Therefore, until now, there has been no success in giving a single definition of sustainability. There can not be a satisfactory definition that is not varied. This poses serious difficulties for the practical application of sustainability as an objective in the actual decision-making process.

To conclude: A number of researchers (David Panell and Steven Shilliy (1999)) suggest that these difficulties should be addressed by focusing on the specific aspects of sustainability that the decision-maker considers important and providing information on the replacement of these aspects within the decision-making formula with multiple criteria.

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