

Sustainability or Maintainability? Challenges and Tasks for the Future Generation

Anita Soós

Hungarian University of Agricultural and Life Sciences,
Doctoral School of Economics and Regional Sciences, Hungary

Abstract: We are facing a completely unprecedented test. We have never been faced with a test where if we cannot cooperate effectively on a global scale, there will be no solution to a problem. And if there is no solution to this problem, civilization as we know it may collapse. Such changes have started on Earth, in societies, that we have to give up some of what we are used to. Nowadays, some people are used to saying that it is about sustainability, not maintainability. In other words, for human civilization to essentially survive. Sustainable agriculture and the role of agriculture are popular topics among professionals again and again. Agriculture plays an important role in the survival of humanity. According to experts, we have about 10 years to make radical changes in how we live and how the economy works.

Key words: Wastes · Sustainability · Environment · Attitude · Youth · Dissemination of Knowledge

INTRODUCTION

What does sustainability mean? According to the UN report published in 1987: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". So the current generation "should" manage its resources in such a way that the future generation is not endangered by the use of resources and the destruction of the environment.

Sustainability has three legs. One is the economic leg, the second is the social leg and the third is the environment. If we take out any of them, the three-legged stool will fall over.

The economic one is obvious. For several reasons. One is that it requires a transition to a different mode of operation. Naive people believe that the transition does not need to be financed. You also need money to be able to save in the end. That's one thing. This is very hard to swallow. Governments generally do not like to hear this argument.

The second is the type of capitalism based on the consumer society in which we live, it must be ended. It is not the market that must end, there will always be a market as long as there is civilization. Unlimited waste and the reign of unlimited greed must end because it is clearly unsustainable.

Socially, this is important because this transition should only be managed in such a way that it does not further increase inequality between people and between countries. It will not work if the rich states say again that, for example, in Africa, or in the pariah, we will squeeze a bit, while we live at least as well, if not better, than before. This colonial approach is hidden in the subconscious of people in many developed countries, but it is also unsustainable. This is its social aspect.

The third is the environment. If we destroy our environment, it doesn't really matter what else we do.

If we destroy our environment, then the existence of humanity is in danger. According to forecasts, in 2050 we would use five times the current resource extraction. It is true that 60% of some ecosystems are already overexploited. By 2050, researchers predict a 30% increase in the human population, which means 9 billion people. More than 70% of the population will live in cities, which will take new areas away from natural habitats [1].

According to assumptions, with the growth of the world population, the habits formed in diets will also change, the demand for food will increase by 70%. All of this results in an increase in the feed demand of animal husbandry, which causes changes in land use [2]. We need to manage our natural resources much more efficiently. Furthermore, we must extract them in such a

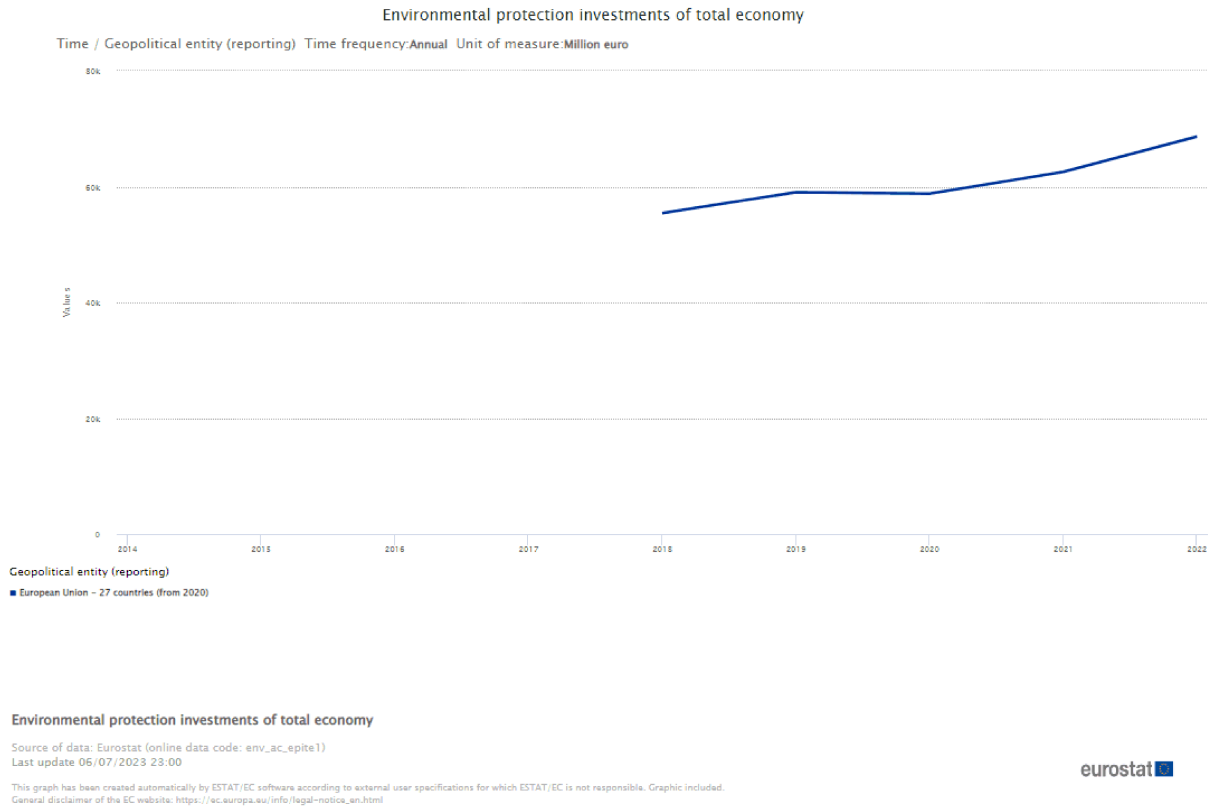


Figure 1: Environmental Protection Investments of the European Union (Source: <https://ec.europa.eu>)

way that we do not destroy the environment any further, and do not deteriorate its current state even further.

In the latter period, the total consumption of cereals (wheat, corn, rice, etc.) increased to 2.5 billion tons compared to 2.0 billion tons 10 years ago. In the past ten years, agricultural markets have experienced historic growth [3]. The challenge for agricultural land will become stronger.

The increase in agricultural production cannot be increased indefinitely, resources such as the available amount of water and soil must be taken into account, while at the same time attention must be paid to avoiding climate change and preserving biodiversity [4]. Biodiversity refers to gene, species, community and ecosystem diversity. All living things belong here, from viruses to the most advanced plants and animals [5]. Biodiversity is also vital for human health and the economy. Agriculture is one of the main causes of biodiversity loss [6].

The food industry accounts for about 30% of energy consumption, and 1/3 of greenhouse gases can be linked to agricultural activities [7]. The productivity of agriculture must be increased sustainably in order to meet the growing demand. Resource efficiency must be

achieved globally to halt and reverse degradation and meet growing food demands.

Investments in agriculture and funds for research must increase for development, especially in countries with a low standard of living. For this, the acceptance and knowledge of sustainable production systems and practices must be prioritized. Integrated crop production and agriculture are closely related to this. Together, these can help ecosystems adapt to the challenges caused by climate change, both locally and globally. The existence of natural resources must also be ensured sustainably. According to forecasts, the agricultural area will shrink to 100 million hectares by 2050 [8]. Presumably, the agricultural area will decrease in higher income countries, while it will increase in lower income countries. In fact, the growth of agricultural land is limited by the fact that the land that is still available is difficult to access due to lack of infrastructure or distance from the market. Furthermore, the available land is concentrated in only a few countries.

Disadvantages Caused by Globalization:

Proliferation of Pests: In addition to the countless advantages of globalization, we have to face its

disadvantages more and more often. Agriculture is threatened by animal and plant pests and diseases that spread across borders. Non-native pests and diseases may appear in some areas, to which the explosion of globalization has contributed significantly. Effective measures must be taken against foreign plant pests and diseases.

Global Water Shortage: Global domestic water use has increased 3.7 times over the past 60 years [9]. Water scarcity is one of the most pressing problems on Earth, so alternative water saving solutions are needed. One of the most promising alternatives is the reuse of treated wastewater in agriculture. Treated wastewater is one of the most important sources of water in particularly dry regions [7]. The protection of a sustainable environment is also prioritized through properly treated wastewater. In fact, the pollutants in wastewater vary depending on the source of the water. The source can be, for example, agricultural, industrial or domestic wastewater. Various wastewaters can also contain microorganisms, organic substances, nutrients and radioactive substances [10].

Climate Change: Changes in the parameters of climate change significantly affect water resources, and thus the livelihood of mankind, especially in countries with water shortages. As the availability of fresh water is crucial for ensuring a sustainable future, there is a critical link between water management and climate and climate change policies [11]. This is a challenging task as it depends on many factors, such as the rate of warming and its consequences for hydrological resources.

Excessive Use of the Soil: Until now, traditional agricultural activity has been characterized by high costs and heavy strain on the natural environment.

In order to increase food production, researchers are creating new, higher-yielding varieties that grow faster but use up more and more of the soil's nutrient supply. Thus, more nitrogen- and phosphorus-containing fertilizers are used, larger areas are cultivated and irrigated, but the use of pesticides has also increased significantly [12].

Excessive Pesticide Use: Pests and pathogens develop a kind of resistance to commonly used plant protection products. In addition, most insecticides not only affect a specific species, but often also affect other non-pest invertebrates, and can also kill natural enemies of pests, which would play an important role in the natural control of that pest [12].

Agroecological methods, such as biological conservation, can increase the value of the agricultural ecosystem while reducing negative impacts from the use of pesticides, fertilizers, and fuels [13].

Modern agricultural practices, such as tillage and intensive use of insecticides, are highly associated with biodiversity loss in agroecosystems. Tillage leads to the frequent transformation of the agricultural landscape and increases the problems arising from soil erosion [14].

The History of Sustainability in Brief: A brief overview of the history of sustainability helps to recognize the knowledge of the past. The problem of our time is that our

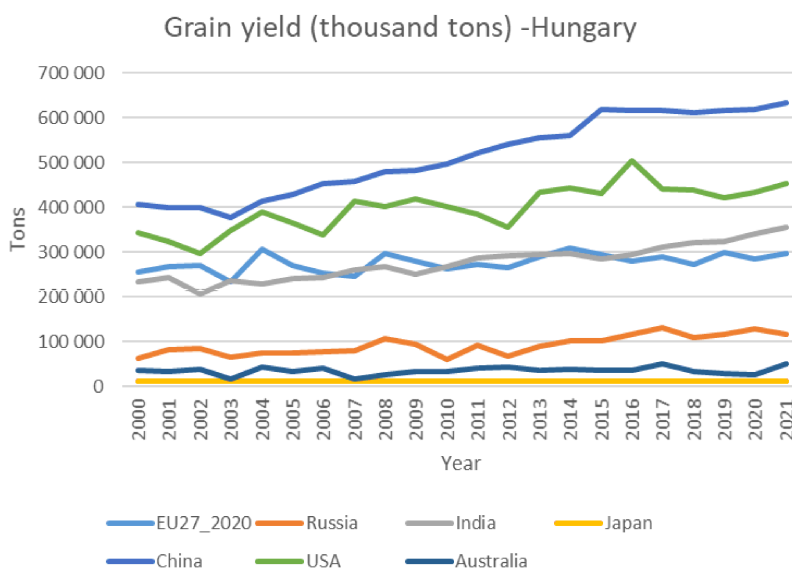


Figure 2: (Source: <https://ksh.hu>)

Stable manured floor area, hectare -Hungary

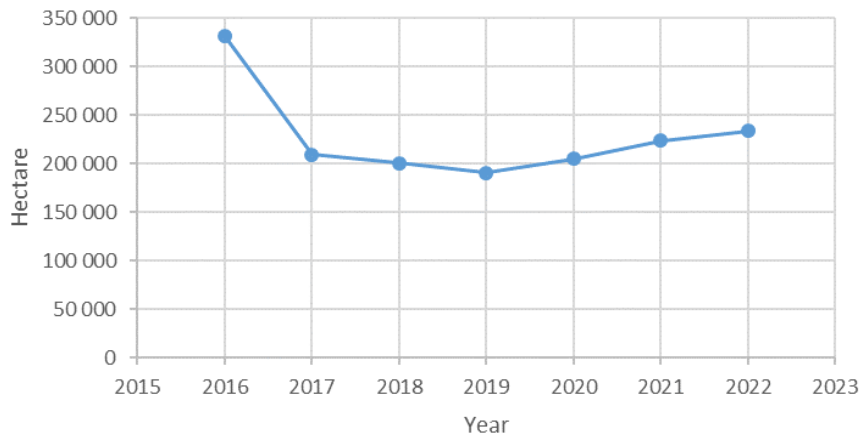


Figure 3: (Source: <https://ksh.hu>)

Among of fertilizer sold in active ingredient -Hungary

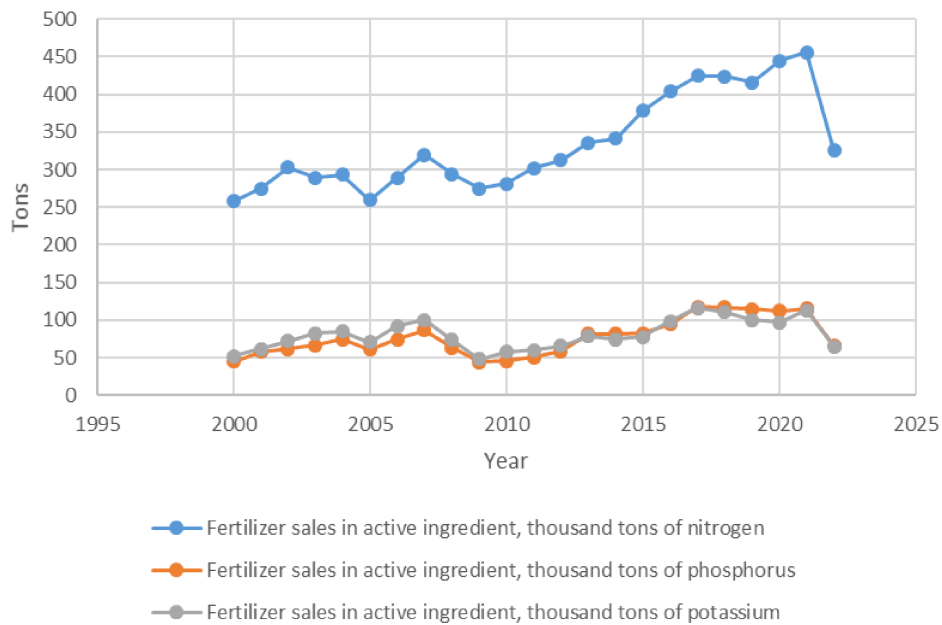


Figure 4: (Source: <https://ksh.hu>)

coexistence with nature has changed to such an extent that it threatens the existence of humanity.

In terms of content, the roots of sustainable development go back to the age of ancient societies. The peoples living in harmony with their natural environment developed rules for the use of their own environment at a level that ensured the maintenance of appropriate living conditions. If they exceeded this, they could count on disasters for the community, even its destruction (Easter Island). For this reason, the vast majority of communities

developed rules that ensured their survival and the continued existence of their ecological environment.

The II. After World War II, a pioneering but now little-known book was published that revealed the environmental consequences of the rapid post-war boom in the chemical industry. Thus, the author is an early fighter of sustainability at the beginning of the last third of the 20th century. Rachel Carson's work "Silent Spring" (1962; 1994) shocked the world at the international level to the problem of environmental pollution. At the beginning

Quantity of plant protection active substances placed on the market (ton) -Hungary

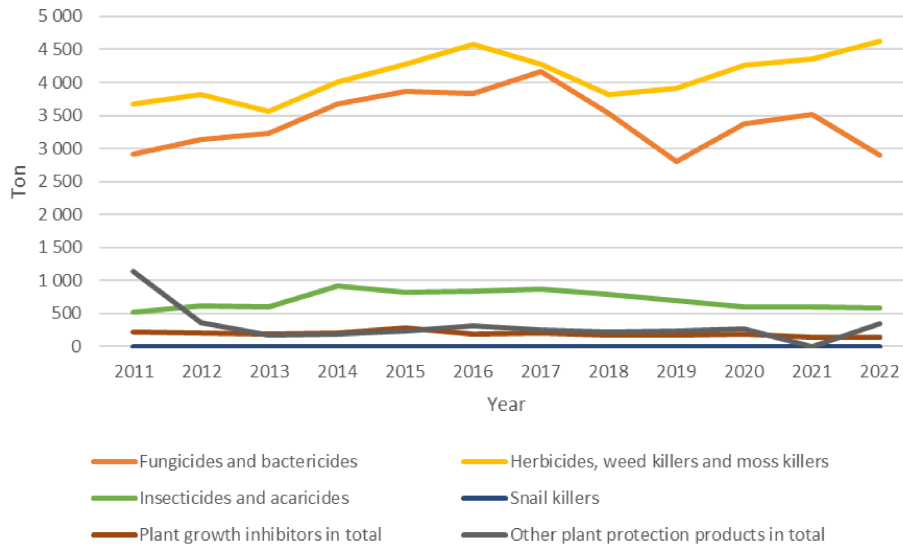


Figure 5: (Source: <https://ksh.hu>)

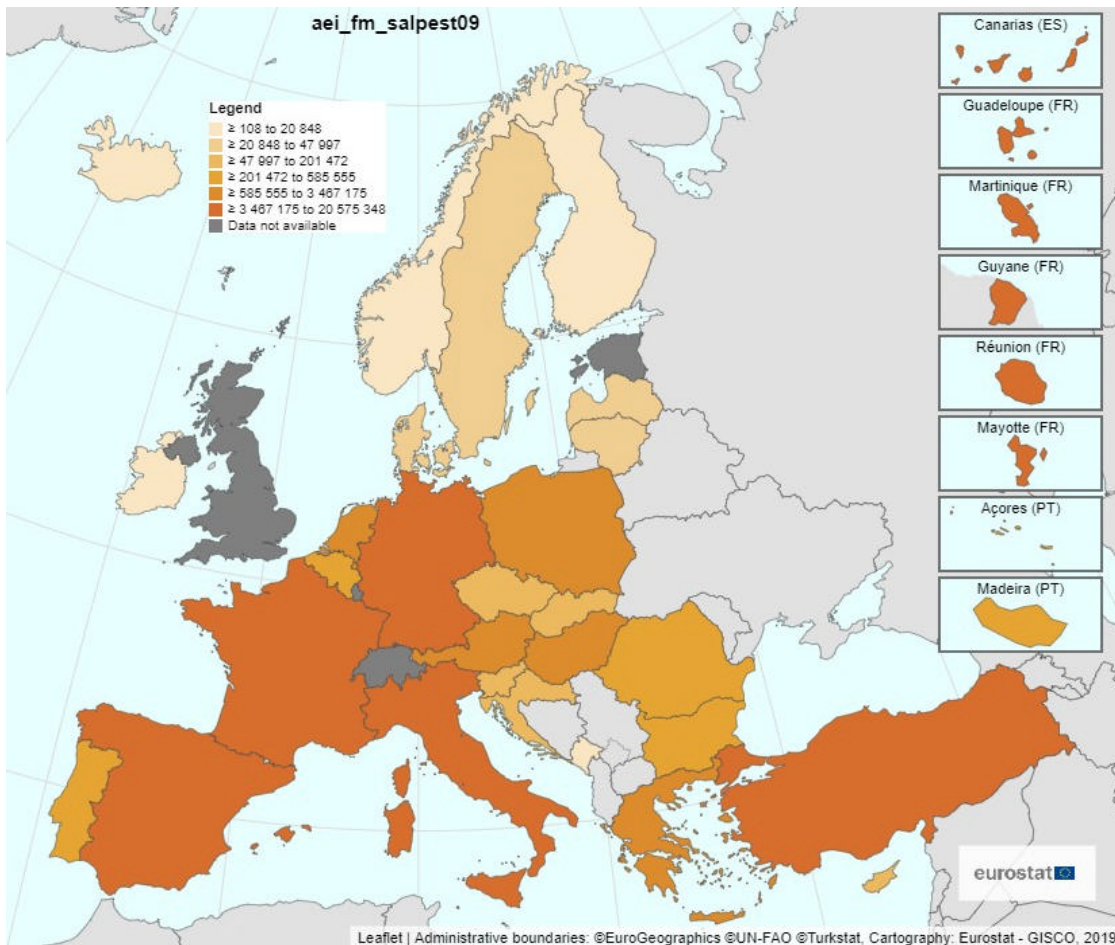


Fig.6: Sales of plant protection products, (insecticides and algacides) 2021, kg (Source: <https://ec.europa.eu>)

of the 1970s, part of the biological and physical research turned towards environmental problems. At the same time as the latter, the growth paradigm of economic growth and consumption was questioned. The economic role of environmental costs and externalities was defined [15]. The Club of Rome's report, *The Limits to Growth* [16] had a worldwide impact with its dramatic vision. The leading actors of the prosperous economies immediately criticized the research that simply extrapolated exponential processes. After all, the Meadows model counted on the exponential growth of the population and the economy. Based on this, the demand for non-renewable natural resources and the level of pollution caused by production are constantly increasing. Since supplies of food (water) and non-renewable resources are finite, exponential growth depletes resources and this leads to the collapse of societies in the finite earth system.

The Activities of the United Nations: The gravity of the worldwide problem is indicated by the UN's environmental protection activities, marked by the conference held in Stockholm in 1972. In 1987, the Brundtland Commission (World Commission on Environment and Development), which was established to find a solution, published its report entitled "Our Common Future", which represented a decisive step forward in the contradiction between the growth paradigm and the finiteness of resource use. Although according to many, the report was a turning point in the management of environmental problems, there are those who do not even accept the "existence" of the concept of sustainable development formulated in it. It is clear that the concept of sustainable development was formulated with groundbreaking significance in the report of the UN World Commission on Environment and Development on December 11, 1987, and its true roots go back to 1972. According to the wording contained in the original document accepted at the international level: "sustainable development is development that meets the needs of the present without jeopardizing the chance of future generations to be able to meet their needs" original English text: "...sustainable development, which implies meeting the needs of the present without compromising the ability of future generations to meet their own needs..." [17]. In addition to the concept of sustainable development, the "Our Common Future" report also emphasizes responsibility on a global level in relation to environmental issues. The complementary nature of economic growth and environmental protection can be read from the document. However, there is no separation from economic growth and its environmental

consequences. It was not possible to find a common denominator for the relationship between economic growth and well-being, or sustainable development [18]. The UN World Conference held in Rio de Janeiro in 1992 was a turning point in the activities of the UN. The result of the meeting on Environment and Development, which focused primarily on climate change and the loss of biodiversity as fundamental problems, was the Agenda 21 action plan, which included the principles of policy actions related to sustainable development, with a projection of further steps. One of the main messages of the conference was the question of the responsibility of developed countries. Based on this, more developed countries must play a leading role in solving environmental problems [19]. Agenda 2030 is the current document for solving global problems, unanimously adopted in New York in September 2015. Its official name is: *Transforming our World: The 2030 Agenda for Sustainable Development*. The focus of this is the Sustainable Development Goals [20]. The 17 target groups cover society and the economy as a whole and aim to create a humane, just and sustainable world.

The Needs of the next Generation: Based on the UN (Brundtland) concept, we should know and at least estimate the needs of future generations in order to be able to guarantee their satisfaction in a certain sense. The basic needs of future generations can be outlined with relative precision.

The Time Dimension: Sustainability is for the future. The determining issue of taking the interests of the future generation into account is the time dimension. In what time frame should we consider endangering the chance and ability to satisfy their needs? Looking ahead 30 years, 50 years or more?

The State of Sustainability Today: In today's use of the term, "sustainability" has mostly appeared in an incredibly wide range of topics. It is surprising what role these terms, previously denied by some and not accepted, have been given. It is also surprising in what contexts and with what frequency sustainability and sustainable development arise nowadays. They have really become a buzzword. In practice, the buzzword of the last decades of the last century, "environmental protection", has mostly been replaced by the terms "sustainability" and "sustainable". They became market value. The saleability of a product or service is helped if the consumer believes that, compared to other products and services, he is

acting responsibly by purchasing them for the benefit of future generations. Meanwhile, quite often these are actually just marketing tools that cover activities that do not correspond to the essential content that can be derived from the original wording. Of course, on a principle level, it can be evaluated positively if an activity meets the criteria of sustainability better than before, but there may be much more favorable alternatives. It also does not correspond to sustainability if there is a specific improvement, but the result decreases due to the increase in volume. (For example, while some companies report environmental protection efforts in the field of climate protection, their greenhouse gas (GHG) emissions from their core activities increase significantly.) If we take this idea further, we can come to the conclusion that with our economic activities in the developed world today, almost at every moment against it, we do what is contained in the Brundtland definition. Because the exploitation and consumption of traditional or limited resources beyond their renewable capacity – moreover, increasing – almost certainly endangers the living conditions of the future generation.

The Foundations of a New Kind of Approach: Despite the fact that countless problems, criticisms, and controversial issues have arisen, there are still some conceptual foundations on which the concrete implementation and investigation is/can be built.

Some Elements of the Approach:

- C Consideration of the needs of future generations
- C Consideration of limitations (conservation of resources, frugal lifestyle)
- C Living together with the natural environment
- C Need preference
- C Cycle approach
- C Cause management

The determining basis is the longer-term outlook, which means taking the future generation into account. Resource conservation applies to all resources in the broadest sense and spectrum, in all production and service sectors. Sustainability can only be realized if, instead of subjugating nature, coexistence with nature is the basic principle. Need preference means that one should not succumb to the temptation of the consumer society, the attraction of possession as power. We satisfy our actual needs, not our wants. It is necessary for the economy and production processes that the development

of circular processes is characteristic. Which can be compared to the functioning of the biosphere. Cause management means that it is not necessary to find solutions to solve the cause of the problem and to make efforts to do so, but rather to eliminate and mitigate the causes.

The Importance of a Paradigm Shift: The timeliness of changing the paradigm of today's economic systems has been expressed in countless cases. His predecessors were the English XIX. can be considered representatives of anti-industrial movements of the 20th century [21]. The work that researched not the "usual" purely economic, social, but moral foundations of the paradigm shift is innovative. The ethical foundations and actual possibility of implementation, of the paradigm shift, were described by Baritz Sarolta Laura OP in her book published in 2016, from a religious ethics approach [22]. It presents the possibility and positive correlation of the virtue ethical value system and the accompanying virtue ethical profit approach. According to his hope, the demand for a virtue-ethical economy that he has expressed is desirable and his idea will hopefully become more and more widely known and accepted.

Many more ideas would need to be explained, such as what is meant by the basic premise that material and energy-saving solutions correspond to sustainability. In the implementation of sustainable development itself, countless new questions and problems to be solved arise, which can be called sustainability paradoxes.

MATERIALS AND METHODS

On a theoretical level, the research aims to clarify the fundamental essence of sustainable development, as the most accepted direction of development nowadays. It is worth laying the deeper roots that should be the determining basis for actions and activities aimed at sustainable development. This is actually a necessity and not a wish. The reason for this is that the results of sustainability-related studies can provide the actors of society with decisive frameworks for action, with which they truly represent the interests of future generations. The research is therefore able to outline its proposals based on the literature and the work of renowned authors.

RESULTS

The agricultural sector faces the challenge of increasing efficiency to provide food and energy for an

ever-growing population. From the point of view of sustainability, every innovation and forward-looking solution is important, which contributes to the amount of safe food produced and also serves social sustainability. There is a lot of research on how to solve global problems both agriculturally and biologically. We must ensure the natural sustainability of the Planet, by providing food for the growing population, while reducing the environmental footprint of agricultural production, creating prosperity for present and future generations. Sustainability, living together with nature is our historical heritage. Western civilization has gradually lost this ability since the industrial revolution. In order to solve the problems that arose, the formulation of sustainable development was completed in 1987 following the work of the UN. It follows from the UN definition that today's societies and their economies must be planned, operated and developed with regard to future generations. In practically the entire spectrum of human activity. However, which action corresponds to sustainability is not easy to determine by itself.

CONCLUSION

The development of technology and knowledge can be a solution to curbing or eliminating global problems, but this knowledge alone is not enough if people are not willing to change "in their heads".

In my opinion, a lot depends mostly on the young people. They can very easily run into a situation where civilization collapses in front of them, under them, above them, around them, and even in them. This will not be a pipe dream. Think about how our current civilization is organized with supply lines and trade. There are very conservative estimates that if the supply routes really collapse, people in the big cities will start killing each other for food after about 10 days. In order to avoid this, it would be very important for the youth to understand that the game is playing on their skin. What's more, they have to be actively involved in changing this. Dissemination of knowledge plays a very important role. These things need to be talked about all the time. Calmly, but clearly. The specific actions to be taken must be discussed in various circles and an agreement must be reached.

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