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Agrobiodiversity in the Logic of Environmental Sustainability and Protection of Human Rights in the Context of International and European Union law

Agrobioróżnorodność w logice ekorozwoju i ochronie praw człowieka w kontekście prawa międzynarodowego i Unii Europejskiej

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Abstract
The origins of agriculture can be attributed, among others, to biodiversity. The emergence of new, more productive varieties and breeds resulted from combining the adaptation capacities of organisms with human intellect. Today, this component of cultural heritage requires special legal protection and sustainable use for the benefit of present and future generations.

Key words: agricultural biodiversity, protection of biological resources, environmental sustainability, human rights

Streszczenie
Początki rolnictwa uwarunkowane były m.in. bioróżnorodnością. Pojawienie się nowych, bardziej produktywnych odmian i ras wynikało z połączenia zdolności adaptacyjnych organizmów z ludzkim intelektem. Obecnie ten element dziedzictwa kulturowego wymaga szczególnej ochrony prawnej i zrównoważonego użytkowania z korzyścią dla obecnych i przyszłych pokoleń.

Słowa kluczowe: agrobioróżnorodność, ochrona zasobów biologicznych, ekorozwój, prawa człowieka

Introduction

Man began his adaptation activities, based on adjusting his environment to the growing needs of a social group, by adopting a sedentary lifestyle, cultivating plants and breeding animals. Therefore, the development of agriculture was based on the use of living organisms to produce food and to satisfy growing vital needs. As the introduction already suggests, the aim of the article is to present biodiversity and the problem of the progressive erosion of resources. To provide an extended view on the situation, the issue is analysed in the context of international and EU law.

For persons analysing the present situation, the former communities of farmers and agricultural ecosystems that they created provide the best example of sustainable development and the so-called *bioculture*. The first steps of man towards adjustment of the environment to his own needs included activities known today as domestication. Initially, it consisted in a selective choice of specimens that satisfied his expectations in subsequent generations. Later, man tried to preserve primitive features *forced* by nature, combining them with the new ones, which emerged during cultivation and breeding and which were attractive from his perspective. The consistency of such a procedure led to consolidation and enhance-

ment of those features. Nevertheless, it was not possible (simply because people did not know how) to obtain a population of entirely uniform specimens, as it is currently done. Although uniform cultivars are characterized by generally good yields, it can be achieved only in specific, favourable environmental conditions. However, a lack of genetic diversity effectively prevents other attempts to *prove* their capacities to adapt to constantly changing environmental conditions. Therefore, those *varieties* were preferred that unfailingly produced, perhaps not the highest, but a guaranteed yield every year, regardless of the conditions. Of course, we cannot talk about pure breeding lines in this context, but about certain genetic mix, *self-improving* through adaptive mechanisms (with an obvious role of anthropogenic factors, e.g. through the application of proper techniques for cultivation, regulation of air-water conditions or fertilization). Therefore, plants emerged which were adapted to local conditions, very often limited territorially, specific or even unique, e.g. in severe mountain climates, microclimates of valleys, plains, barren or wet lands, resistant to high or low temperatures or resistant to pathogens occurring in a given area. In an economy oriented towards self-sufficiency, selection was obviously carried out, primarily from the perspective of production efficiency. Nature itself *cared* about taking into account the requirements of places where selected plants and animals had to live and survive, with no external support. Consequently, they adapted, using the potential hidden in genetic variation. Thus, numerous, yet primitive (in contemporary terms used for evaluation of such methods of creation), local breeds and varieties were formed, which nevertheless were irreplaceable in specific environmental conditions.

Results of analysis and discussion

1. Importance of agrobiodiversity for the economy and for man

Food production thus became everywhere dependent on useful and natural varieties of plants and animals, with their encoded adapting capacities, together with methods and forms of farming passed down from generation to generation of farmers (Skubała, 2010). Those processes were most intense in places with a specific centre of origin (Art. 2 C). These were the areas where crossing specific breeds and species with other related species ensured huge diversity in future generations, since interspecies barriers in the first generations of cross-breeds are insignificant. Therefore, they could combine relatively well with initial specimens, thus additionally increasing the variety of this site. For organisms with new genetic combinations, they had to, of course, satisfy minimal existential needs and be conductive to the generation of further variability. Otherwise, the *inappropriate* adaptation features would disappear with the specimens that developed them. It was, among others, for these reasons that man used a huge variety of specimens and form variations, exactly in the places of origin of the species, intuitively selecting the ones that were most promising and demonstrated the best adaptation to the climate and places man was going to move to. It is not a coincidence that basic cereals spread in the Mediterranean Basin, maize in Central America and rice in Asia. This unusual concentration of varieties of individual species, despite inconceivable losses in biodiversity, can be observed even today. It is a characteristic feature of extensive farming sites mainly oriented towards self-sufficiency.

The high-volume agriculture of industrialized states is completely different. In the second half of the 20th century, along with the growth of industrialization and economic development, man developed another way of thinking, leaving behind the logic of planning and taking up activities oriented only towards survival. Various factors contributed to the development and strengthening of the feeling of security, and the previous uncertainty of success in seasonal farming was replaced with the logic of profit and efficiency of long-term operations. Those, in turn, led to the conviction that if the only important objective from the point of view of economics was the production and sale of food products in the largest amounts possible, then there was no need for expensive and complex adaptation of plants and animals to all of those environments where the production took place, since this would involve dispersion of means and measures, the more so that science would be able to provide them with any features required by the market. The problem of maintaining and *forcing* a non-adapted variety to yield in any conditions and place was solved through the use of artificial fertilizers, pesticides, drainage and intensified agricultural procedures (Cebulak, 2010).

Therefore, the approach taken was towards the production of scarce (as compared to the initial potential), genetically uniform varieties and breeds. Properly *aided*, they obviously proved very effective, except that their productivity was not possible without increasing general expenses and external support of the chemical or pharmaceutical industry. The price for quantity effects was a loss of a capacity to adapt to soil conditions, climate, risk of diseases or non-acceptance by diversified cultures and rural communities where they were used. Financial inefficiency of small farmers proved the only barrier in dispersing *globalised* cultivars, dissociating those farmers from the potential offered by high-volume farming. Once again, it turned out that sacrificing diversity for the sake of productivity did not bring the expected results.

The errors of this approach became visible by the beginning of the previous century, yet remarkable changes in this regard were made in the period of the so-called green revolution in the second half of the 20th century. The answer to the problem of world

hunger was intensification of farming innovation which was already present in industrialized states. Restoration and research activities were undertaken in response to a decrease in the biodiversity of plants and farm animals observed at the same time. The assumptions were that the preserved diversity was to be used for improvement and creation of cross-breeds of high-volume plants, successively introduced also in developing countries. Thus, the introduction of new methods (yet foreign, for a given farming culture cultivation) based on chemistry and mechanisation, were forced along with the reproductive material.

Initially, green revolution investments in farming and breeding gave positive results in the short term. However, production costs began to increase over time. The reason was the need to supplement the soil impoverished with intensive production with larger doses of artificial fertilizers, the application of protective measures and energy demand. An immediate cause was therefore not a decrease in the diversity of agricultural crops and animals, but a progressive degradation of soil and pollution of water with excessive amounts of biogenic compounds reaching the fields and, consequently, also water bodies (Szwejkowska, Zębek, 2006). Significant changes took place in fauna and flora of the top layers of soil, significantly responsible for fertility and air-water conditions of soils in which the main root mass develops. Destruction or a serious quantitative reduction of microorganisms changes the soil structure. In consequence, precipitation waters, instead of accumulating, easily wash away substances determining soil fertility. A decrease in fertility and bioavailability of topsoil must be therefore supplemented with increased doses of artificial fertilizers, which involves unfavourable changes, particularly for farmers in the poorest states, in the cost and profit balance. Many of them are not financially able to cope with such a situation, so they quit agriculture and move to the poorest city districts. Therefore, rural local communities irreversibly disintegrate and, along with them, the achievements of their ancestors, the culture of previous generations and accompanying diversity of organisms, which *nolens volens* provided a basis and a guarantee of their existence. The reason for such a situation is that those who created and made use of those achievements, being unable to withstand the competition, are forced to depart from previous sustainable farming methods, and even more frequently, to leave their land.

A significant decrease in agrobiodiversity was initiated much earlier, but its serious acceleration was recorded only in 1950s, in populations of both plants and animals. Without appropriate means for the creation of new, and the development of existing, germplasm banks or gathering still available (but not classified yet) genetic material, free provision of improved seeds by commercial companies to poorer countries may prove impossible. Economic crises and the social effects of a policy of forceful industrialization of agriculture cannot possibly be compensated for by a collector's motives to restore varieties of plants which still preserve their adaptation potential. Even assuming a nostalgic willingness, or – which is equally probable and may be caused by various reasons – a need to restore the previous state, it would certainly be difficult to restructure the currently prevailing model of agriculture in view of the absence of quantitative and qualitative diversity of the reproductive material, which would be necessary for this purpose and which, unfortunately, has been largely lost. This proves that prosperity achieved at the expense of diminishing biological resources, jeopardizes, in the longer term, economic development and causes impoverishment of the human environment (Pink, 2016).

An example of the alarming changes in agriculture, breeding and natural environment caused by irreversible damage to the genetic potential should be used as an argument for rejecting the apparently erroneous concept of the relationship between man and the environment. First of all, we must not accept that degradation of the environment and of its components should be treated only as a problem of an ethical nature. Such a view has not much to do with the reality of everyday life, with the economy or our chances of existence. Therefore, activities aimed at maintaining (and if it possible, also reconstructing) diversity cannot be received only as noble initiatives for the benefit of other creatures and the environment. Those aims, with their ambitions, should not be depreciated, since nature (particularly living organisms) offers value in its own right, which cannot be overestimated. But the issue is not only of a purely sentimental significance, since its economic and business importance cannot be disregarded. Contrary to appearances, discussions concerning this subject serve both to raise the ecological awareness of society and promote models of sustainable development. Perhaps this latter aspect is more significant, as it is unavoidable.

Elements of the natural environment of man, just like nature itself, present an important, although not always measurable, economic value (Marino, Piotto, 2010). The need for a real and comprehensive look at the problem requires accounting for the potential, future value, apart from a direct value. For living organisms which, unlike industrial products, are characterized by the ability to *self-reproduce*, one can talk about their comprehensive economic value only after taking this factor into account (and even then not so obviously). From the economic point of view, it is actually easier to evaluate those goods (the volume of the resources of those goods) that have already entered the market and have their price, e.g. water or food produced on the basis of natural diversity of organisms (e.g. game). It is much more difficult to be achieved with natural and agricultural biodiversity, understood as a phenomenon, a key ele-

ment of a continuous process, which is not a product, but has a direct effect on the product. It cannot be predicted how, and to what extent, this biodiversity will influence at least the food safety in the nearest and farther future. Perhaps this value can be estimated only in case of its shortage. Then, in face of a deficiency caused by a decrease in productivity or a reduced access to primary resources, it will also be possible to evaluate the losses. Production costs will grow due to additional expenditures on artificial fertilizers, agricultural chemistry and energy. Therefore, decisions on ensuring food safety to the contemporary generation at any cost – at the expense of significant reduction of agricultural biodiversity to subsequent generations – may prove disastrous, in spite of being financially attractive. It also seems ethically doubtful to clearly place short-term economic profits above the logic of aware and prudent distribution of benefits derived from entering the path of sustainable development.

2. Agrobiodiversity in the logic of sustainable development

Agricultural biodiversity is the total of all components of biological diversity of importance for agriculture and farming ecosystems, which include crops and farm animals as well as some useful insects (e.g. bees, silkworms) and microorganisms (e.g. actinomycetes, yeast, bacteria, fungi). Having a large group of plants is important for fodder crops and provides a basis for animal production. Apart from them, a range of other cultivated and wild plants is used, providing fibres, medicinal substances, dyes, construction materials and fuel. About 40 species of mammals and birds have been domesticated which, by way of selection, gave rise to over 5,000 various breeds – being a source of e.g. meat, milk, skin, manure and draft force. Fish also make up an integral component of some farming ecosystems, e.g. in traditional rice cultivation system, where they provide about 70% of protein. Microbiological diversity supports plants in using chemical compounds, reducing pathogens and, above all, in creating irreplaceable humus. Additionally, the continuous interaction between harmful microorganisms and higher plants led to the development, through evolution, of resistant species, which were used for developing many cultivars.

In agroecosystems, the richness of the primary agricultural biodiversity ensures:

- sustainable production of food and other agricultural products, as well as the development of genetic resources used in the creation of new cultivars;
- biological enhancement of production through increasing soil fertility (nitrogen, diastrophic bacteria), pollinating, competition and pest control;
- supplementing activities and improvement of farming ecosystems, i.e. protection and improvement of physical and chemical properties of soil, beauty of the landscape, purity and quality of air as well as surface and deep water.

An increase in the production and productivity of farming ecosystems in the last decades of the 20th century was achieved through the use of genetically improved plants and animals. This resulted in a loss of a huge majority of local breeds and varieties. Since the beginning of the 20th century, 75% of the genetic diversity of plants and animals used in agriculture have been irreversibly lost. In China, about 10,000 wheat varieties were cultivated before 1949, while in 1970 there were only about 1,000. Out of all maize cultivars known in Mexico before 1930, only 20% have been preserved. In the Philippines, local farmers cultivated thousands of rice varieties, while in 1980, only two varieties were cultivated in 98% of the fields. New rice cultivars, introduced more than fifty years ago, during the so-called green revolution, today occupy more than a half of the acreage of this cereal.

Globally, there are between 7,000 and 10,000 species of edible plants, of which only one hundred account for the food safety of most countries of the world and only four – maize, rice, wheat and potatoes – provide 60% of the food energy. The situation in animal husbandry is not much better. The departure from low efficiency breeds gives rise to concern. This partially results from a growing demand for meat, eggs, milk and other products of animal origin. An increased demand for protein in developing countries is accompanied by a dramatic decrease in the population of diversified local breeds and replacement with foreign, but economically viable, breeds. This biological homogenisation carried out all over the world poses many problems for breeders, even in relation to the impossibility of efficiently opposing dissemination of previously unknown or not present parasites, diseases and results of climatic changes. Without intensive support of pharmacology and veterinary medicine, animal production at the expected level would not be possible. Thinking oriented exclusively towards a quick increase in production quantity has inevitably led to irreversible damage. In the last century, about one thousand (i.e. about 15%) of all breeds of cattle and sheep irreversibly disappeared, of which 300 vanished within the last fifteen years. This phenomenon is now occurring at an intensified rate, mainly in developed states, where the process of industrialization is rapid. Only in Europe, more than a half of the local agricultural breeds were irreversibly lost in the last century, and more than 40% are now endangered (E).

Protection of genetic diversity provides a basis for food safety. Each one of its elements, each genetic combination, is required to construct this entirety, which may be used for supplementing and restoring

the *used up* production potential. Thus, even the richest states, in order to create new cultivars resistant to pests and diseases, have an incessant need to reach for genetic resources *dispersed across the land.* With this aim in view, the latest technologies of genetic engineering use the genes of cultivated, bred and wild organisms occurring on the local level (ZĘBEK, SZWEJKOWSKA, 2007). Taking into consideration the limited possibilities of maintaining a low – in the relation to the needs – number of specimens and the actual efficiency of conserving plasma in existing gene banks, maintaining a variety of plant and animal species *in situ* is recommended as the best method for their duration in time, and additionally, as the best method for their protection against destruction, degeneration or even sabotage. It is highly important, for example, due to the fact that genetic diversity is not of a high value for modern and industrialized farming, which uses a much reduced gene pool, efficiently supported by agricultural chemistry. Therefore, it is not so much interested in its protection. Such thinking in short-term categories of economic profits is obviously erroneous, although prevailing. Maintaining *by force* uniform and genetically stable monocultures may bring results, but it is against nature and must lead to failure.

The researchers analysing the problem of risk propose various initiatives, with emerging movements attempting to stop this alarming phenomenon. In India, for instance, the Navdanya organisation counteracts the loss of biodiversity caused – as they claim – by the activity of multinational concerns introducing seeds protected under patents. The protesters are, in principle, concerned with maintaining local cultivars, cataloguing them and assigning them the status of shared property. At the same time, seed deposits and banks, owned by local population, are being established. Apart from these initiatives, the so-called *freedom zones* are created, i.e. villages in which farmers reduce or reject artificial fertilizers, crop protection chemicals and, in this way, handle the issue of genetically modified seeds protected by property rights. All of these activities result from the fact that people have become convinced that the diversity of varieties and species to a lower extent make the yield dependent on cost-consuming protection measures and, at the same time, contributes to an increase in crop resistance to unfavourable weather conditions, protects them against massive pest infestation and diseases and, in short, improves the level of food safety and self-reliance of local communities. Apart from this, farmers, targeting their production towards the local market needs (not for export), somehow automatically diversify the group of their customers, which in turn (based on feedback), stimulates them to increase species and quality diversity of products of plant and animal origin offered by them. Thus, forced by market demand, crop diversity enhances the self-sufficiency of local communities and stabilizes the market, not to mention the numerous biological and environmental advantages.

Unquestionably, agriculture has made huge progress. Nevertheless, at least some successes of genetic engineering in the field of production should be considered ambiguous, as they are related, e.g. to the feeling of continuous threat – or at least a risk – related to biotic and human factors (Sengur, Atabeyoglu, Erdogan, Erdem, 2015). Large farms and industrialized agricultural enterprises, which have begun using genetic monocultures, have actually already caused a loss. Large farms of breeding animals, unlike small and diversified family farms, regardless of the level of advanced technical means they use, are much more exposed to losses caused by an outbreak of epidemics or diseases. A lack of genetic diversity significantly reduces the chances for survival of at least a part of the herd, particularly selected breeds of low populations. Therefore, they are much more susceptible to devastating natural or man-induced factors, including criminal and/or terrorist acts, e.g. in order to weaken the competition or to destabilize the market. Some infectious diseases, either as *spontaneous* natural pathogenic factors or a biological weapon, can decimate populations of animals concentrated in small areas. Balanced cultures, based on maximum diversification, demonstrate much higher stability in similar situations.

3. Legal logic of biodiversity protection

Destruction of species diversity and ecosystems (agricultural and natural) in some cases leads to serious economic losses that can be predicted and determined to some extent. Their consequences will be suffered, first of all, by the societies in developed states that have reached their status, e.g. by exploiting the natural resources of Third World Countries in a way that certainly would not be referred to today as sustainable. For various reasons, not many people realize that changes are taking place, and only few of them want, or are interested in, changing the situation[1]. Worse still, even institutions competent in this regard do not demonstrate a determined will to effectively implement measures established by international agreements (mainly the Convention on Biological Diversity). The difficulties observed result from the fact that it is virtually impossible to start improvement of ecological conditions (therefore, also protection of biodiversity) without taking into account (quite often much excessive, Cirtina, Gamaneci, 2015) the living standard expectation of man, economic conditions and, above all, the involvement of significant means. The concept of the

[1] *Grass-roots* initiatives of farmers and non-governmental organizations oriented towards protection of agrobiodiversity and promotion of *alternative* agriculture are worth noting in this regard (Priwieziencew, Sieniarska, 2013).

future of the world, perceived through the prism of so-called international environmental treaties, is based on principles which apparently clearly contrast with those determined by the current rules of world trade (the WTO in general). More-or-less direct references to the principle of the *common good* (and the need to protect both the achievements of past generations and provide for generations to come) are generally covered by international environmental treaties. Therefore, because this good [biodiversity] is for all humanity, it becomes indispensable, so its use requires rules to guarantee, at the international and local level, the fair division of profits resulting from its use. At the same time, this division (unlike for other goods) not only has to be fair, but it also has to fit quite narrow limits of sustainable management. In turn, this sustainability, which is not completely specified by itself, quite clearly indicates its objectives. The most important of them is to ensure the genetic diversity of plants and animals important for nutrition, health and satisfaction of various other needs of people living in equally diversified social and civilization conditions. Consequently, it should not be surprising that the list of tasks assigned to contracting parties to the Convention, which through international treaties expect to obtain certain advantages, is quite long, especially with the awareness of an increasing value (also economical one) of the remaining resources of the living world. Unfortunately, many states, particularly those of poorer economic status and not well-established international position, are not able to maintain control over the resources in the territory under their jurisdiction. Apart from that, not being able to exert any impact on the global economy, they are forced to submit to the concentration of scientific potential by international capital which usurps unlimited rights, both to the biological research material and human knowledge and experience gathered by generations of indigenous populations and local communities.

Most activities of those states are therefore reduced to obtaining at least short-term benefits, with simultaneous marginalization of risks concerning the future occurrence of unpredictable, uncontrolled changes in nature. To cover current expenses, pay debts and improve living standards of inhabitants, some of them dispose of their natural resources or resign from exercising control over them. This happens against the assumptions of the Convention on Protection of Biological Diversity, as profits generated by external entities from the use of local resources do not go to the communities that are their actual owners, and sometimes also creators (as in the case of agricultural biodiversity) (Salerno, 1996). Consequently, there is no discussion about executing any sanctions for unauthorized appropriation of resources, impoverishment of ecosystems or exploiting the accumulated experience of generations. Such behaviour is also against any suggested legal forms of protection and maintaining the *in loco* achievements of the inhabitants of the given region, including traditions, customs, cuisine, food, etc. fully in line with local production capacities (Marfoli, 2012).

A certain symbol of pressure exerted by the economically, technologically and scientifically developed North on the South which is lagging behind, but still having resources at its disposal, are changes in the scope of patent law, derived from purely technical solutions and extended into biological processes, living organisms and their parts. The boundary between living and dead matter, between physiology and mechanics, is becoming blurred – from the legal perspective, differences in their nature have almost disappeared. Intellectual property rights, covering both the final result of the idea, as well as the process used for its production, cover all materials from which the product was obtained, including any other (products) emerging as a result of the application of a given method. Of course, the patent also covers the method itself, which was used, e.g. for isolating the gene or substance. This means that any use of the product or the method by a third party must be always preceded by appropriate payments to the discoverer of the gene, molecule or method. Since most patents are in hands of biotechnological concerns requesting significant amounts for the transfer of rights, individual persons, or even less affluent institutions, have practically no chance to start research into the possibilities of using diversity offered by nature. Thus, limited access to the initial material for further experiments makes it impossible to genetically improve plants or animals (by selection led by farmers, classical cultivation of plants or using modern biotechnology) or find new methods to adjust crops to unpredictable environmental changes to meet future human needs. The limitations go even further, since they eliminate not only the poorest states, but also affect those of medium potential – jeopardizing their scientific and technological potential to improve food production through adaptation of organisms to the local requirements of the environment. An increasing dependence on external producers is one of the economic effects of this process (Marino, Piotto, 2010).

The current international legal situation therefore encourages so-called *biopiracy*, i.e. unauthorized appropriation of biological material and the rights to agricultural and wild biodiversity. In consequence, this leads to another alarming phenomenon – *bioprospecting*. It consists in financing biological research in sites of outstanding diversity of utility and other species by interested corporations. A later consequence of the thus obtained material is the patenting of an element which is important, e.g. for pharmacology, agriculture or the processing industry. In the next stage, this leads to obtaining rights to the entire plant and components included in this plant (Lucchi, 2014). For useful organisms, this typically occurs without any knowledge or awareness of inhabitants, farmers or healers preserving the accumul-

ated experience for generations, being their actual discoverers and, at the same time, custodians. Generally, they are also passed over in the distribution of profits obtained in this way.

A specific response to such abuse is the International Treaty on Plant Genetic Resources for Food and Agriculture, which clearly specifies that the contracting parties establish (apart from the primary objective, which is protection of agricultural biodiversity) measures protecting and promoting farmer's rights. It also indicates the need to sustain traditional knowledge important for the protection of plant resources and food production (Art. 9.2 (a) C), the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture (Recitals 8 and 14 of the Preamble, Art. 1.1; 9.2 (b), 10.2, 11.1, 13 Point 2 (d) (ii) C) and the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture (Recital 8 of the Preamble, Art. 9.2 (c) C).

The treaty, although it repeatedly emphasizes the ecological and civilization importance of biological resources for local communities and humanity (Art. 5.1 (c), 9.1 C) (including future generations (Recitals 4, 13 B)), actually only supports the objectives significant for the contemporary economy. Just like the Convention on Biological Diversity which, in spite of demonstrating noble objectives,[2] protects the interests of biotechnological corporations, without protecting existing resources against their improper or unfair use or enforcing sanctions for breaching the regulations. It therefore comes as no surprise that none of the parties fully meets its obligations, and the system of treaty protections has hardly changed anything in the legally and morally questionable procedure for patenting biotechnological solutions. The failures are equally experienced by local communities and states that still have high diversity at their disposal which, in the light of the effective law, are deprived not only of the basis for their existence, as well as of a multi-generational experience that allows them to stay in harmony with the surrounding environment (Miceli, 2008).

As results from the foregoing, the apparently monothematic issue of agrobiodiversity becomes a global problem, and actually covers practically all sectors of individual and collective life, concerns vital issues of culture (Sadowski, 2019) and economy, and in various ways violates the human rights of each of the three generations. Therefore, it requires and demands relevant changes to legislation, education and funding. A significant role in implementation of numerous measures aimed at dissemination of knowledge and awareness of the need to perform the necessary tasks must be provided by mass media (Mikłaszewski, 2010).

Conslusions

Today, we already realize that we are the only species able to change and destroy ecosystems all over the Earth. This results more from intellectual and technical rather than biological abilities. Therefore, it has not much to do with the strategy applied by any other living creatures, which owe their adaptive capacities to the diversity of emerging genotypes. This method – obviously in relation to the ambitions and expectations of man – could be assessed as quite *primitive* and certainly slow. But ever since life emerged on our planet, it was entirely sufficient – efficiently ensuring the reproductive process, emergence of new species and their expansion in time and space. Moreover, this model performed and functioned well for several billions of years, and all disasters in the past resulted in even larger diversity of forms.

This was the situation before man started to lead a sedentary life and took up farming. By breeding animals and cultivating plants, man initiated changes in the environment, in a more-or-less aware way. Gradual intensification and then industrialization of production through innovation and the introduction of new technologies strengthened the belief that the environment – just like the production of tools, construction of equipment or technological lines – can also be first designed, then constructed and finally controlled. This led to implementation of the idea of creating the world to suit the needs of contemporary man, a world which can be predicted and, more importantly, controlled. The idea itself was tempting, since such a world would not need the diversity of living organisms. Their *stable* nature would make management easier. However, the reality is slightly different, as nature is an open system, dynamically changing, in which events with unpredictable effects, intensity, place and time continuously occur. This forces living creatures to incessantly search for methods of surviving as a species through geno- and phenotypic varieties of individual specimens. Meanwhile, contemporary man, treating the environment as a source of goods that belong only to him, encounters significant limitations in the quantity of natural resources and the access to those resources. In most cases, he is the very cause of the problem. What might cause some optimism is the fact that the destruction of wild and agricultural diversity does not take place at the same rate everywhere. To some extent, a growing ecological awareness in societies and

[2] Principal aims of the Convention of Biological Diversity are specified in Art. 1. They include: *conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies and by appropriate funding*.

legislation channelling organized activities of states provides a hindering factor. Unfortunately, those measures do not always prove effective enough, particularly against market principles. The need to satisfy (real and imaginary) requirements has led to a growing divide, schematically-speaking, between the rich North and the poor South. Tensions caused by the economic gap have caused wasteful exploitation of natural resources, sometimes only minimally improving the living conditions of the inhabitants of exploited areas[3], but have resulted in the destruction of the most susceptible ecosystems and caused rapidly progressing erosion of species. Although it directly and indirectly affects the quality of the living environment and existence conditions (clearly violating the rights of the so-called third generation), for certain reasons the fact that the very existence of man becomes jeopardized is neglected. Perhaps for this reason, we should also apply an extended interpretation to the human rights of the so-called first generation.

Today, the wealth of the state is still not measured by the amount of indispensable natural resources, purity of water and air, soil fertility, natural and agricultural diversity, or the ability to use those resources without infringing a fragile equilibrium. The significance of this equilibrium consists in the fact that as long as it exists, the system can be substantially predictable. It is this predictability that is precisely at stake here – this is what man has been always attempted to achieve. Predictability means the possibility to control, and, in consequence, to manage and exploit in a planned manner. Sustainable use of natural resources is, therefore, important not only for purely philosophical and ecological reasons, but also for economic ones. This is the truth that nobody can afford to ignore today.

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[3] It happens despite numerous regulations of the international law indicating the need to protect the environment and biodiversity, with respect for real rights of creators and depositaries of this particular heritage located all over the world, in particular in the poorest regions and with an extensive farming model. It was specifically emphasized in the Convention on Biological Diversity (Dz. U. of 6.11.2002), in the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity or in the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Dz. U. of 2004, No 216, item 2201).