International Journal of
Biological Engineering and Agriculture

ISSN: 2833-5376
Volume 2 | No 1 | January -2023

Requirements for Efficient Use of Genetic Resources and Revenue Sharing

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Abstract: this article provides valuable information on the conditions for the efficient use of genetic resources and the distribution of income. The article also describes the factors affecting the use of genetic resources.

Keywords: genetic resources, germplasm, biodiversity, selection.

Sustainable development of agricultural production in the conditions of globalization directly depends on the use of genetic resources of plants and their subsequent effective use in selection. The interdependence of countries and the need for full and free use of plant germplasm is reflected in Article 5 of the International Agreement.

Today, the era of "indiscriminate and free use" has come to an end, left in history, and a new era of "equal use and income sharing" is beginning. Table 1 below lists the main factors that are decisive for changing the conditions of use of genetic resources.

If the components of biodiversity are studied and analyzed, it can be seen that "a large complex consisting of interested agencies and organizations, issues and problems of fundamental and applied science, socio-economic and legal concepts" is expressed. In practice, it is shown that the task of achieving and implementing the well-defined goal of the Convention is complex and that its achievement depends on many environmental factors and mechanisms. The main components of these mechanisms are geopolitical aspects, international cooperation and regional cooperation. For this, taking into account the ideology of the Convention and creating its basic legal framework, the parties need to understand the chain of actions that must be followed in the field of biodiversity. This chain is based on the main criteria, the conditions for the use of genetic resources and the distribution of the income obtained as a result are determined.

Table 1. Factors affecting the use of genetic resources

International Agreement (1983)	Convention on Biological Diversity (1993)
Biodiversity is a public asset	State sovereignty over its genetic resources
Free and indiscriminate use of genetic resources	Controlling the use of genetic resources and the distribution of revenue derived therefrom
Use in state selection and scientific programs	Privatization and private collection: establishment of GMK
Lack of protection of intellectual property rights for genetic resources	Expanding opportunities to establish intellectual property rights and strengthen monitoring of their compliance

The first two links of the chain are complex, but with definition and explanation, the next links are becoming a more complex problem. Although the concept of "real or hidden value" of biodiversity (including genetic resources) is not yet clearly defined, it is important for decision-making about its use. Today, "real or latent value" means "ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic value" (Convention on Biological Diversity, 1992). However, according to approximate estimates, the annual turnover of products that depend to one degree or another on genetic resources in the world market is 500-800 billion dollars. Global market revenue from the use of biodiversity components in the pharmaceutical sector alone increased from $70 billion in 1981 to $317 billion in 2000 (Kalakutsky, 2001).

According to biologists, since human life depends on genetic resources, their value cannot be determined. Biodiversity conservation is therefore an important global priority, and biodiversity itself has significant value because of its many applications. Therefore, there are no criteria for evaluating biodiversity in terms of value. However, economists and breeders who know the "price" of the initial material believe that it is appropriate to define the criteria that allow to determine the advantages of genetic resources conservation, to reduce the costs of such conservation and to determine the payment for their use.

The problem of assessing the value of genetic resources is very important. Because this is directly related to each country's sovereign right to its resources and the need to determine the conditions for their use (Borring, 2000).

According to the conclusion of a group of researchers from Cambridge, genetic resources are divided into two categories: those that are used for direct income (use values) and those that provide indirect benefits (pop-use values) (Perrings, Barbier, Brown, 1995). These two categories are evident in the case of agrobiodiversity. For example, it is well known to use different types of plants or local old agricultural crops to prepare traditional tamas, to celebrate various national holidays and religious ceremonies. In all cases mentioned above regarding the direct use of genetic resources, its value is determined by the market. This category has an indirect value when additional funds are spent on the final product - using new methods and modern technologies, studying in the laboratory, field experience and scientific research.

In relation to genetic resources, the concept of "indirect product" has satisfied a country with a modern scientific and technical base and a good income, first of all, conducting research and selection work. Profitability of crops depends on the quality of the seed and the type of product. First of all, this applies to ornamental, some sorghum, vegetable, technical and fruit crops, and in the next ten years to some fodder crops (lawn grasses). This means that genetic resources can be divided into different categories, i.e. priority in terms of high risk of loss, income generating, economic importance, national, regional and global level of food security, social and cultural importance.

In order for the state to allow the use of genetic resources, it is necessary to have an appropriate legal framework that clearly specifies the conditions of use. One of the important conditions for determining the types of biodiversity conservation, i.e. ex citu and in citu use. Both of these types are well known to scientists and experts, and special standards, scientific methods, guidelines and guidelines have been developed, in which preservation measures and conditions are recommended, and in some cases clearly defined (Participatory approaches, 2000).

An organization entrusted by the government with the duty of ex citu biodiversity conservation is the owner of genetic resources. The affiliation of such organizations to any agency differs depending on the type of bioresources they store.

Botanic gardens and genebanks preserve and own a wide variety of plants, genetic resources of cultivated plants and their wild species (Engels, 2002). Most of them have the status of a national institution. Genebanks are an integral part of approved structural departments in the field of agrobiodiversity. In the central system of management of the national program, such a genebank is part of any specialized institution that collects and preserves the plant gene pool and ensures the long-term preservation of national collections. In a centralized system, which includes several

genebanks, such a status will be acquired by a reliable genebank that keeps the largest ex situ collection in the country.

After each country joins the FAO International Agreement, it is appropriate to assign the following tasks to the national gene bank: to represent the country in the FAO Global gene bank system, to carry out close cooperation related to in situ and on farm conservation, to collect the traditional knowledge of local and indigenous people about agrobiodiversity and conservation, providing local and commercial users with the necessary information about activities in the field of agrobiodiversity in the world, monitoring and providing the necessary information about intellectual property rights for bioresources.

The Convention recognizes only the state as the holder or donor of sovereign rights to genetic resources. Article 2 of the IPC is also important for determining the owner (donor) of genetic resources. It states that "ex citu, the country with the genetic resources shall be considered the country of their origin or origin." This means that in the development of legislation on the conditions of conservation and use of genetic resources, it is necessary to pay special attention to it in order to obtain equal income from the use of the country's own biodiversity.

The next step is to identify users or "future partners". This issue is extremely important. After all, the terms of use of genetic resources and, as a result, options for obtaining equal income depend on the category of users and their purpose. Environmental protection, tourism, business and trade, education, health, socio-economic problems of community protection, large-scale agricultural production, food supply, chemical and pharmaceutical industry products, science and new technologies and other areas have users with their own governing or decision-making bodies, goals and objectives. In a number of cases, their interests may coincide, complement each other, coordinate with each other, contribute to the sustainable maintenance of genetic resources and their rational use. Sometimes uncontrolled, unreasonable, illegal use of bioresources and "biopiracy" by some users can cause irreparable damage to the ecosystem and the state, and accelerate the process of genetic degradation and loss of biodiversity. Therefore, when solving the issue of state use, the category of users (private or public sector, national or foreign, farmer or breeder, businessman or scientist, non-governmental or international organization, etc.) collection, use in selection programs, scientific study, commercial use, etc.) should be taken into account.

The above-mentioned issues determine the legality of the terms of use of genetic resources and the mechanisms of their provision. Article 15 of the IPC allows the country where the genetic resources originated (the donor country) to determine its use in accordance with national legislation. This process is provided in accordance with mutually agreed terms and is regulated on the basis of a prior agreement for the joint use of research results and developments, as well as for obtaining a fair return from the commercial or other use of genetic resources. Therefore, the "advance agreement" presented to the user by the donor-country is the primary document that decides the use of genetic resources, the condition for obtaining the "material donation agreement". Any user (this also applies to the collector) may apply for permission to collect or make available genetic resources to the appropriate authority authorized to use genetic resources under national law. The donor country, in turn, provides information on the location of the genetic material, the existing database on this matter, sets storage and other conditions (ex citu/in citu/on farm). Such terms of use also include "mutually agreed upon terms" as required by the IPC. In some cases, when the genetic material has a hidden value, the donor country can hope not only to gain income from its use in the future, but also to receive it as a guarantee (Mugabe, Barber, Henne, 1996).

Representatives of different sectors may be users of genetic resources, so the Agreement on the provision of material for their provision is drawn up in each specific case. This is related to the need to agree on the terms of presentation, the rights and obligations of each party. What kind of material, for what purpose it will be given, who is its legal "owner", terms of giving it to a third party, intellectual property rights, possible income when using the material for commercial or other purposes are the main clauses of the contract.

In order to create a legal basis for the use of genetic resources, to determine the state policy, to properly manage and effectively manage it, it is necessary to take into account the following issues related to biological diversity: to determine the competent national body that will allow the use; identification of categories of genetic resources; identify institutions/organizations with the status of custodians of ex citu collections according to genetic resource categories; determining the possibilities and reasonable conditions for the conservation of genetic resources (ex citu/in citu/on farm); determining the conditions and mechanisms for the use of biodiversity and the procedures for regulating their use according to each category and conservation conditions; determine where each category of genetic resources has real or hidden value; determination of the rights and opportunities to protect intellectual property and related information in the field of genetic resources; is to establish measures of responsibility for the conservation of relevant categories of biodiversity and to develop measures of compliance among all stakeholders who are owners of genetic resources.

The process of regulating the use of biodiversity should be controlled at the state level with the direct participation of the government.

Because the issue of access to genetic resources is related to the solution of many existing problems, most countries follow approaches based on the choice of intersectoral governmental bodies. These bodies are coordinated by the National Biodiversity Committee.

And the state should pay special attention to the aspects of obtaining appropriate income or compensation for the use of its genetic resources on a fair basis. Of course, users are primarily interested in genetic resources of real value. If equal revenue sharing in this category is understood one way or the other, a complex dispute over potential value may arise between the donor and the user of the genetic material. Since several interested organizations and/or countries can be donors and users, the issue of use can be resolved on the basis of bilateral and multilateral agreements. Each of these approaches has several advantages. However, the bilateral agreement provides for the commercial use of genetic resources. The multilateral agreement, first of all, envisages preservation of biodiversity for the present and future generations, joint study of its potential value and its use.

Distinctive features of the approaches to solving the issue of use based on a bilateral agreement are as follows: the obligations undertaken by the two partners allow to agree on the income obtained from the study of bioresources and their use; the possibility to modify the contract based on mutual agreement if necessary; the partners are well aware of their capabilities and can unite in order to achieve the final product faster, to effectively distribute their capabilities and resources; quick adaptation to new conditions or changes in the situation; that the two partners conduct joint research to create the final product to help maintain confidentiality; a narrow study using a limited amount of germplasm allows obtaining high-level evaluation data and reducing the repetition of such behavior.

Payment in cash can be made after authorization of use. Non-monetary payments are generally considered compensation.

Therefore, at the beginning of the third millennium, the problem of collecting, preserving and studying genetic resources became not only of international importance, but due to a number of reasons, it can be solved without the participation of the state. However, taking into account the wide range of tasks and the variety of problems, the involvement of intersectoral interests in their solution, the main task of the state is to develop a national strategy for the conservation of genetic resources, a national program for biodiversity based on international agreements (IFC, FAO XB, etc.) and in accordance with their articles. development, management of own bioresources, and creation of a legal framework, conditions and structure that allows effective and rational use of scientific achievements, bioresources and new technologies for national interests.

In this regard, we think that it is appropriate for the state to carry out the following tasks related to biodiversity in the context of globalization: to accept the priority directions of biodiversity conservation developed by the scientific community and to ensure their support with the help of resources; determine the basic rules that ensure the effective preservation and rational use of bioresources, commercialization of scientific research and intellectual property rights protection systems, taking into account the innovation policy in the economy; is to create in the public mind the

need for rational use of biodiversity and its guaranteed preservation as a strategic source of improving the standard of living, well-being and food security.

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