Study on the Ownership of Genetic Resources Property Right

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Abstract: The value of genetic resources is specific information carried by biological materials, therefore, use of the real right system cannot effectively protect the genetic resources. The benefit sharing system of existing also unable to prevent the loss of genetic resources and plunder. Therefore, expanding the scope of object of the intellectual property system, using the intellectual property system to protect the genetic resources, and give ownership to genetic resources in the state or community aboriginal status, to balance the natives and the interests of the development of ik, genetic resources can be sustainable development.

Investigating genetic resources property right problem is to start from the protection of the genetic resources. Internationally, The protection of The genetic resources is derived from "Man and Biosphere program (The Man and The Biosphere Programme, MAB)", in 1970, The United Nations educational, scientific and cultural organization (UNESCO) in The 16th general assembly resolution to make 2, 313, formally proposed "Man and Biosphere program", "Man and Biosphere program" was held in October 1971, The first international coordinating council and began to implement a comprehensive study plan. MAB in the beginning of launch the identified 14 research and training projects in the field of 8 is the "natural areas and the protection of the genetic material contained".[¹] but, at this time the protection of genetic resources is based on the principle of common human heritage, the interests of the developed countries and on behalf of its research institutions and scholars draw lessons from the common heritage on the law of the sea system, advocating genetic resources for the common property of human beings. Developed countries use the principle of common human heritage, using the technology advantages through various means, and constantly from the rich biodiversity of access to genetic resources in developing countries. Developed countries since 1960 for plant patents and new plant species protection system, through the intellectual property system will plant genetic resources for your own, and force developing countries from developing countries it is based on the genetic resources and the formation of the recognition and protection of intellectual property rights.[²]

1. What is the genetic resource?

On the international law, the legal definition of the genetic resources from the "convention on biological diversity", the article 2 of the convention to define the concept of genetic resources, namely "genetic resources" refers to the genetic material of actual or potential value. "Genetic material" means from plant, animal, microbial or other origin of any material containing functional units of heredity. [³] it can be seen as the definition of genetic resources in international law.

In terms of domestic law, in the national standard of our country, also are defined for genetic resources. Of the biological genetic resources of our country hierarchy standard "(HJ626-2011) to 3.1 genetic resources under such a definition," biological genetic resources: with actual or potential value (including the economy, society, culture, environment and other aspects of value), from any plant, animal, microbial or other origin containing functional units of heredity material, including the classification of the species and the following unit (subspecies, varieties and forms, species,
strain, type), including the individual, organs, tissues, cells, chromosome, DNA fragments and gene and so on the many kinds of form."[4]

The implementation details of the patent law of the People's Republic of China the first paragraph of article 26 of the patent law, the term "genetic resources, it is to point to human, animals, plants or microbes such as containing functional units and the genetic material of actual or potential value; the patent law, the term" depends on genetic resources was made on the basis of refers to the use of genetic function was made on the basis of genetic resources ". [5]

In the above definition, has clearly identified genetic resources is to contain the genetic function of biological material, however, because of these definitions is not directly clear genetic resource is the genetic information carried by biological materials, so people tend to think that these definitions defined genetic resources directly attribute is biological material, is a kind of physical objects, not accused of genetic resources of information carried by itself. In fact, the key attribute is its informative genetic resources, genetic resources is reflected in the value of the information carried by biological materials, the information carried by genetic resources who belongs to, is the most basic problems of genetic resources protection, therefore, the author thinks that genetic resources is what? Genetic resources is the specific information carried by biological materials.

2. Why put forward genetic resources property right problem

Genetic resources is a kind of property, the property will bring benefits to the person, can also cause people.

A. For genetic resources of developing countries and developed countries

At present, about the main legal system of protection of genetic resources is the benefit sharing system. Adjust the genetic resources and related traditional knowledge acquisition and benefit sharing relationship is the most important international legal basis in 1992, the United Nations conference on environment and development, through the convention on biological diversity and the convention of the conference of the parties (10th) in 2010 passed the "convention on biological diversity on access to genetic resources and fair is fair to share the use of benefits generated by the Nagoya protocol (hereinafter referred to as the Nagoya protocol). By the Nagoya protocol negotiations, the negotiations every step of the way and the establishment of a system or clauses are embodies in the developing countries and developed countries. Group mainly includes: developing countries including China, 17 is rich in biodiversity special power group, the African countries group of 54 countries in Africa, South America and the Caribbean countries group, Asian countries (but not including South Korea and Japan). In developing countries is to provide the genetic resources. Developed countries group mainly includes: the European Union, Japan, the United States, Canada, Australia, New Zealand. Among them, the United States is not parties to the convention on biological diversity, however, has a great influence in the United States. [6] is the use of genetic resources in the developed countries.

Contains a large number of biological genetic resources in developing countries, but developing countries do not have modern advanced biotechnology. For example, our country has more than 30000 kinds of higher plants, second only to Brazil and Colombia, the third largest in the world. Vertebrate 06347 13.97% of the world of vertebrate species; 01244 species, accounting for 13.1% of the world's bird species. 03862 kinds of fish. 20.3% of the world's fish species. [7] In our country, the known eukaryotic microorganism about 10000 species, accounting for 11% of the world's known species, among them, about 02000 endemic species. [8] Modern western developed countries, although not rich in biological genetic resources, has the advanced biological technology. So, in the
reality, originally belong to developing countries since the ancient times is inherent in the residents' for the generations to come, developing countries possession and hold one of the natural resources of biological genetic resources, has been developed countries use their own high-tech means, light and easy to possess oneself of, this is a kind of naked plunder natural resources, has been widely discovered, are trying to find out appropriate methods to prevent, or to seek interests balance between developed countries and developing countries, for example, has been widely accepted is people set up the benefit sharing system of the genetic resources and related traditional knowledge) to be one of the legal system to protect.

Pointed out in "the convention on biological diversity" preface "reiterated that national sovereignty over its own biological resources rights", "recognize that many reflect the traditional lifestyle of indigenous and local communities with the dependence of biological resources is closely and traditional, should fair share from the use of and protect biological resources and sustainable use of their component parts related traditional knowledge, innovation and practice of benefits". "Aware of biodiversity protection and sustainable use to meet the world's growing population of food, health and other requirement is important, and for this purpose and sharing of genetic resources and genetic technology is essential". The goal of the convention's first has been clear about the convention, namely "the goal of this convention is in accordance with the relevant provisions of this convention in biodiversity conservation and sustainable use of their component parts, and a fair share is produced by the use of genetic resources and benefit; implementation methods including genetic resources appropriately to achieve and the proper transfer of the relevant technical but need to take care of all the rights for these resources and technology, and to provide appropriate funding."

In the convention also made clear the principle of genetic resources of national sovereignty, article 15 is about the provisions of the genetic resources of the first paragraph "confirm the sovereign rights of its natural resources, and thus can obtain the genetic resources of the decision belongs to the national government, and in accordance with the national law to exercise". This paragraph 2 "each parties use genetic resources provided by the other contracting party engaged in the development and scientific research, should strive to these parties to fully participate in, and within the territory of the contracting states to" during the may.

Countries and companies compete for direct purpose of genetic resources, not just because of genetic resources is an important means of livelihood, people rely on daily but also because of genetic resources is an important means of production, modern industry needs it can bring huge economic benefits for the occupant. Genetic resources is closely related to People's Daily lives, according to 2000 data show that on the basis of the genetic resources of products and processing accounts for 40% of the world economy, world 85% 90% the necessaries of life of the poor, such as food, medicine, fuel, shelter, transportation from the genetic resources and their products. Genetic Resources is an important means of production, according to 2000 data show that derived from Genetic Resources of commodities in The global market is worth about $500 billion - $500 billion (in different sectors of market value, see table 1).
Table 1. Based on the genetic resources of the size of the market.

<table>
<thead>
<tr>
<th>Industrial sector, The size of the market</th>
<th>a conservative estimate ($)</th>
<th>the size of the market - optimistic ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>750</td>
<td>1500</td>
</tr>
<tr>
<td>Plant medicine</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Agricultural products (note)</td>
<td>300+</td>
<td>4500+</td>
</tr>
<tr>
<td>Horticultural products</td>
<td>160</td>
<td>190</td>
</tr>
<tr>
<td>Crop protection products</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Healthcare and agricultural biotechnology</td>
<td>600</td>
<td>1200</td>
</tr>
<tr>
<td>Personal care and cosmetics</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>5000</td>
<td>8000</td>
</tr>
</tbody>
</table>

Note: special agricultural products supply chain determines the impossible to make accurate estimates. Despite the seed companies sell the data, but in the heart of the farm seeds into agricultural products calculated variables is not clear.

According to the world health organization, 2005 traditional Chinese drug sales were $14 billion. According to issued by the state administration of traditional Chinese medicine "career development" twelfth five-year "plan" of Chinese medicine, Chinese medicine industry in 2010 gross industrial output value reached 317.2 billion yuan, at the same time, is expected to more than 500 billion yuan in 2015.\[10\]

B. Access and benefit sharing system cannot prevent the loss of genetic resources rights and plunder

In the convention on biological diversity "and" the Nagoya protocol and other international treaty set the access and benefit sharing system is the main system of protection of genetic resources, it requires that the users of genetic resources shall make provider informed and agreed to beforehand, and for the use of genetic resources get interests to share, and to approach to contract in advance. Prior informed consent and benefit sharing system, however, cannot prevent biological plagiarism is rampant, biological plagiarism also known as biological piracy. The existence of bio piracy behavior makes the genetic resources loss of sovereignty and predatory become a reality. Xiaojie Wang and others around the world selected the 108 bio piracy cases conducted the study found that bio piracy areas include cosmetic, medicine, food, agriculture, horticulture, industrial and commercial, and other fields. Using traditional medicinal plant production, for example, in the treatment of incurable diseases such as diabetes, AIDS and cancer drugs, using traditional breeding high yield and good quality food crop germplasm resources. In 108 cases, from the view of field plagiarism, medical field (54%), the agricultural sector accounted for 20%, cosmetics sector accounted for 19%, accounted for 7% of industry and commerce and other areas. Look from plagiarism subject, accounted for 66%, of the multinational companies to participate in plagiarism university involved in plagiarism (17%), research institute involved in plagiarism (9%), the government departments involved in plagiarism accounted for 4%, 3% private participation of plagiarism. Look from plagiarism subject countries, the United States has 64, accounts for more than 50%. From the theft of origin of biological resources, Africa accounts for 44%, Asia accounted for 38%. In 108 cases, there are evidences of benefit sharing only in six cases lonely , the rest of the case is not benefit sharing of relevant information. Although some of the benefit sharing agreement, but the lack of substantial content, cannot realize the benefit sharing. Although some of the benefit
sharing agreement, however, share the interests of the little, for example, Phytera companies in the United States and the university of Lausanne, Switzerland, using iron Madagascar dal production of antifungal drugs and bacterial infections, benefit sharing is the main content of Phytera company will be paid 1.5% of the profit to Lausanne university, university of Lausanne, will be paid to the Zimbabwe national herbarium of 0.75%. In 108 cases, the case in China has 12, all did not benefit sharing of information. Therefore, in the present, and puts forward genetic resources property right problem is very necessary.

3. How to determine the genetic resources property rights belong to

Property ownership, how to determine the genetic resources involves two basic questions, one is for the department to determine the ownership of genetic resources; The second is to genetic resources confirm who owned the property.

First of all, based on the genetic resources of the attributes of information, the genetic resources as the objects of the rights belong to what department law adjustment, the academe discuss, the focus of the debate is that whether the genetic resources can be used as the object of intellectual property law.

Handong Wu professor says professor as information can be included in the object of intellectual property rights of knowledge category, and the existence of resource information, natural information, such as genetic information clearly cannot become the object of intellectual property rights protection. At the same time, however, professor Han-dong Wu also stated that the analysis of the connotation of the concept of intellectual property shows that intellectual property rights and ownership is the difference between traditional intangible property and functioning property rights form different expressions. Extension of the concept of intellectual property rights definition, adopts the enumerated type, may be difficult to tolerance range, and a brief description of the methods is more appropriate.

And Mr Zheng Chengsi argues "information property" is the expansion of "intellectual property", "information" is the nature of the object of intellectual property rights, in the new technology revolution as the characteristics of the "third wave" of the world, information has become higher than tangible assets such as land, machine type, the protection of information property and have to produce an "information property law", the door is the main part of the law, is the traditional intellectual property law. Mr Exhaustion also thinks that qualify for the protection of intellectual property rights object information innovation, both should have innovation also should be substantially in the form of the innovation.

Zhang Qin professor think that the object of intellectual property rights is "certain useful information". All intellectual property rights with information property right attribute, knowledge is the subset of information, information property right to use all possible now or in the future into the content of the intellectual property is the most scientific, but use the term "intellectual property" has become the habit of people, therefore, as long as you can accurately understand the information property nature of the intellectual property and boundary, it doesn't really matter what name. Zhang Qin, says professor "genetic information is not necessarily to be found in genetic resources and express it can become the object of intellectual property rights, as long as lawmakers think it may have potential use value, even don't know what is the genetic information, not to mention being a main body, can also be legislation will contain genetic information for genetic resources in
the scope of object of intellectual property rights (include genetic resources is to actually incorporated into genetic information). [16]

Associate professor of Fang Jiangning thought, knowledge is a description of the information, is a form of human. Information is abstract, and knowledge is concrete. As the objects of intellectual property information can only be cybernetics in the sense of information, rather than the information theory in the sense of information, they are neither genera and species, also the relationship between the whole and the parts, but the "standard" and "our" relationship. The two have nothing in common, are two fundamentally different things. Accordingly, those who think that academic knowledge is part of the information, intellectual property rights shall be the information property rights point of view was clearly not prudent. [17] called the object of intellectual property information, intellectual property is the so-called "information property" and so on is difficult to set up. [18]

Xiang Bo think, information property right is bigger than the extension of the intellectual property rights, the legitimacy of the legitimacy of intellectual property is insufficient to explain the information property right, information property right, and there is no corresponding legitimacy foundation. [19]

Dr Zhang Haiyan thought, although genetic resources is refers to the genetic material of actual or potential value, however, genetic resources emphasizes on "genetic information" as the core, highlight the genetic resources is information, intangible, and the combination of physical characteristics of special resources. [20] "long ignored by law of genetic information, should be a place in the intellectual property law". [21] Dr Zhang Haiyan chapter in his book, also used the two of the legitimacy of intellectual property protection of genetic resources made a special discussion. [22]

The author thinks that the genetic resources can become the object of intellectual property rights protection, because of genetic resources has the attributes of information, however, the protection of genetic resources rights, no protection period should be set, because of genetic resources is a kind of natural resource property, it has the property of natural resources, and in accordance with the principle of natural resources of national sovereignty, genetic resources, without the consent of the state cannot enter the public domain.

Secondly, the author pay more attention to, is not genetic resources which department shall apply to the problem of empowerment, but genetic resources belong to whom all the problems. The author thinks that genetic resources property rights shall be given its natural holders, namely or give local indigenous collective genetic resources, or give genetic resources country, ownership by the whole people as to whether it belongs to the collective or the state, this is a country's internal affairs, belong to domestic law problems, by genetic resources of the host countries legislation can be confirmed or government. No matter how, also cannot give the property right of genetic resources, person that use development or connive development ik genetic resources property rights, rights to true, this article mentioned the property rights of genetic resources, it is to point to in front of the development and utilization, who exist in nature, enjoy the ownership of genetic resources, who exists in nature of genetic resources shall enjoy the right of exclusive monopoly.

4. Clear the significance of genetic resources property rights

A. Balance the natives and the interests of the development of ik

From different perspectives, view genetic resources in different level, will involve different interest subjects. If, the genetic resources just as tangible "objects" to look at, cannot effectively protect the interests of the genetic resources providers, obtain biological material property
developers monopoly to exploit and utilize the genetic resources acquired all interests, is taken for granted, seems to be no development on the property law level ik monopolize the interests of the genetic resources unfair. Provider of genetic resources, however, as a natural holders, their interests in the property law level, but can't get a fair and effective protection. Thus will damage the enthusiasm of the protection of genetic resources, genetic resources providers that will not conducive to the sustainable development of genetic resources.

Only by establishing the resource of natural holders ownership system, to resolve to protect the interests of the indigenous genetic resources community problems, to balance the conflict of interest between stakeholders and genetic resources. If the level of genetic resources protection in intellectual property law, and it is not only will depend on the result of exploitation and utilization of genetic resources protection in intellectual property law, the law system focus on the object is not genetic resources outside the tangible "biomaterials" "content", but "biomaterials" of the genetic information carried by the or biological information the invisible "content", it is because the value of genetic resources attribute is its informative, so only suitable for need of protected in the form of intellectual property system.

At present, using the intellectual property system to protect the genetic resources, giving the natives (or the country) for genetic resources ownership status, can make up for lack of benefit sharing system, effectively balance the interests of the relationship between aboriginal and development ik.

**B. To be conducive to genetic resources and sustainable development**

Clear genetic resources property right, to arouse the genetic resources of natural preservation state and the enthusiasm of the aboriginal community protection of genetic resources, here is to be able to be reflected "noticeable realistic perseverance" jurisprudence.

Ecological problem is the human survival and development, one of the major problems facing the ecological environment is constantly deteriorating, fast in natural resources, which pose a threat to human survival and development. The natural resources such as mineral belongs to the non-renewable resources, the day always has dried up, and, if unchecked, mining in the near future, human will no mineral mining. Biological resources belong to the renewable resources, however, as long as there is the species, people can recycle, can be repeated mining, therefore, as a future human survival and development rely on genetic resources such as biological resources, the need to protect human generation, from generation to generation, has been clear about the genetic resources property rights, to avoid "tragedy of the Commons" phenomenon, genetic resources to continue to be protected, human beings can sustainable survival and development.

**5. Summary**

To sum up, in the development of human society at present, countries still exists, the genetic resources and other assets also can't be all public property, the ownership of the property will still belong to different subject, instead of all mankind. However, from the genetic resources is the human survival and development rely on perspective, genetic resources sustainable existence, and is important for all mankind. Therefore, we need to establish a can protect the genetic resources sustainable development system, the author thinks that give genetic resources in the state or community the natives to ownership, the genetic resources benefits natural state and save the people, is a reasonable choice.
Reference