

COUNTRY PAPERS:

Access to Genetic Resources and Traditional Knowledge for Biodiversity Conservation in China

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1.0 General

China is one of the richest countries in the world for genetic resources. It is also one of the main origin centres for crops and livestock. China has a farming history more than 5000 years old and during this long period a great deal of traditional knowledge and practice for biodiversity conservation and sustainable use have been created and accumulated. However, with the wider use of modern agricultural methods and unsustainable use, biodiversity is under serious threat. Genetic diversity and traditional knowledge are quickly being lost.

To conserve global biodiversity and ensure its sustainable use, China actively participated in the negotiations of the Convention on Biological Diversity (CBD). During the CBD's preparation, China expressed its concern on access to genetic resources and contributed to CBD Article 15. At the United Nations Conference on Environment and Development (UNCED) (Rio, 1992), Premier Li Peng, on behalf of the Chinese Government, signed the CBD on 11 June 1992. China became the sixty-fourth State to sign the Convention.

At the Earth Summit on 12 June, Premier Li Peng pointed out that China was aware of its responsibility and role in protecting the global environment and ecology and, therefore, from this perspective China attached great importance to and actively participated in the discussion on environment and development issues. He emphasised that China was willing to shoulder the international responsibility and obligation corresponding to its level of development. The National People's Congress supported ratification of the CBD. On 7 November 1992 the Congress examined and approved the CBD at the twenty-ninth meeting of its Standing Committee. On 5 January 1993, China submitted its letter of ratification and became one of the first countries to ratify the CBD.

Immediately after UNCED closed China began to take actions to follow the spirit of the Conference including the CBD's implementation. At the twenty-third Meeting of the Committee of Environmental Protection under the State Council

held on 2 July 1992, it was decided that the National Environmental Protection Agency (NEPA) would be the lead agency in China to implement the CBD. Early in 1993, an inter-ministerial co-ordinating group for CBD implementation, the National Biodiversity Unit (NBU), was set-up with the approval of the State Council. The NBU is headed by NEPA and joined by twenty governmental sectors under the State Council.

To materialise the spirit of UNCED, a ten-point strategy for environment and development, according to China's actual situation, was recommended by the Ministry of Foreign Affairs and NEPA. The State Council approved the Ten-Point Strategy in November 1992. The document pointed out that China will establish, in a planned way, centres to protect and breed endangered wild species and species and varieties of domesticated animals, crops and herbs. China will also take practical efforts to protect and use species and inherited genes and better manage the export of such species and genes, in order to fulfil the obligation under the Convention.

To fulfil its commitments under the CBD, China proposed to formulate its national action plan for biodiversity conservation even before the CBD negotiations were concluded. With the support of UNDP and the World Bank, ten ministries headed by NEPA worked together to formulate the China Biodiversity Conservation Action Plan. From 1995 to 1997, with the assistance of UNEP, NEPA brought together 14 ministries to conduct and formulate the China Country Report for Biodiversity. The State Council issued this report in December 1997.

2.0 Genetic Resources and Benefit Sharing

To conserve and manage biological resources, China has formulated and issued a series of laws and regulations. Some provisions for access to biological resources, especially genetic resources, are included in these statutes. Some examples are provided in Box 1.

**Box 1: Selected Laws from China that Apply to Access to
Biological Resources**

Wild Animal Protection Law (adopted by the Standing Committee of the People's Congress and enacted on 1 March 1989)

Article 3: Wild animal resources belong to the State.

Article 8: The State protects wild animals and their habitats, and any illegal hunting and destruction by any organisation or individual is banned.

Article 16: It is prohibited to hunt and kill the national protected wild animal species. When capture is needed for the demands of scientific research, breeding, exhibition and other species uses, it should be certified by the responsible department of provincial government for the species with second level.

Article 20: Selling and buying nationally protected animals and their products are banned. When the selling, buying and using are necessary for scientific research, artificial breeding, exhibition and other special uses, it should be approved by the responsible ministry of the central government or by the institution authorised by the ministry for the animal species with first-level for protection, and approved by the responsible department or its authorised institution of provincial government for the protected ones with second-level.

Article 24: Approval must be obtained from the responsible ministry or the State Council itself for exporting national protected animals and their products and for importing and exporting wild animals limited by the international conventions to which China is a party. Additionally a permission certification for exporting or importing must be obtained from the national administrative office for exporting and importing the endangered species. Based on the permission certification, Customs will let the animals pass.

Article 26: Field surveys or taking photos, movies and videos by foreign people within the jurisdiction of China should be approved by the responsible ministry or its authorised institution. Establishing hunting resorts open to foreigners will be subject to ratification by the responsible ministry under the State Council.

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Box 1: Selected Laws from China that Apply to Access to Biological Resources

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Wild Plants Protection Regulation (issued by the State Council and enacted on 1 January 1997)

Article 9: The State will protect wild plants and their living environment, and prohibit illegal collection for wild plants or any destruction to their living environment.

Article 16: Collecting the national protected plants with first grade is banned. When it is necessary to collect the first-grade protected plants for scientific research, artificial breeding and other special uses, the collector must apply for collection permission from the responsible ministry under the State Council or from the institution authorised by the ministry. Additionally, and before the collector submits his application to the responsible ministry, it should be signed by the responsible department of the local provincial government. For the second-grade protected plants, the collection should be permitted by the provincial corresponding institution with an advanced signature by the authority of the local county.

Article 18: Selling and buying first-grade national protected wild plants are prohibited. For the second-grade protected wild plants, selling and buying should be approved by the responsible department of the local provincial government or by the institution with an advanced signature by the authority of the local county.

Article 20: Exporting the national protected wild plants, or both exporting and importing the wild plants limited by the international conventions to which China is a party, should be examined by the responsible local provincial department and then approved by the State Council. Additionally, a permission certification for exporting or importing from the national administrative institution for endangered species should be obtained. Based on the permission certification Customs will let the plants pass. The export of unnamed or new wild plant species with important values is banned.

Article 21: Foreigners cannot be permitted to collect or buy the national protected wild plants distributed inside China. For field investigations to the habitat of national protected plants inside China, application should be made to the responsible local provincial department for its first examination and then submitted to the central responsible ministry for approval.

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Box 1: Selected Laws from China that Apply to Access to Biological Resources

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The Regulation for Seeds Management (issued by the State Council and enacted on 1 May 1991)

- Article 2:** Seeds are the reproductive materials that can be used in agriculture and forestry production, such as seeds, fruits, nuts, roots, stems, seedlings and shoots.
- Article 8:** Germplasm resources are protected by the State. The State, in a planned way, selects, organises, identifies, preserves and utilises the germplasm of crops and trees.
- Article 9:** Organisations or individuals that introduce germplasm from abroad should register in the responsible administrative institution, and provide with appropriate amount seeds for preservation and utilisation.
- Article 10:** Organisations or individuals that exchange germplasm with foreigners are subject to the rules issued by Ministry of Agriculture and Ministry of Forestry.

The Detailed Enforcement Rules of the Regulation for Seeds Management on Crop Seeds (issued by Ministry of Agriculture and enacted in June 1991)

- Article 12:** Crop germplasm is wealth belonging to the State and it is protected by the State. Any organisation or individual cannot damage the germplasm that is listed for national protection.
- Article 16:** The exchange of crop germplasm between countries and the introduction of a small amount for research experimentation will be administered uniformly by The Institute of Crop Germplasm Resources, Chinese Academy of Agricultural Sciences.
- Article 17:** The State encourages actively organisations and individuals to introduce crop germplasm from abroad; the introduced crop type, variety name, source, origin place, introduced time and other information is to be reported to the Institute of Crop Germplasm, Chinese Academy of Agricultural Sciences. A small amount of the introduced seeds is needed for attachment to the report for identification and preservation.

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Box 1: Selected Laws from China that Apply to Access to Biological Resources

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Article 19: Any organisation or individual who provides crop germplasm to foreign countries must apply and get approval pursuant to the classified germplasm resources management rules.

Article 55: Organisations that export and import commercial seeds must report regularly on such things as the imported or exported crop types, variety names, amounts, qualities and production locations.

The Detailed Enforced Rules of the Regulation for Seeds Management on Tree Seeds (issued by the Ministry of Forestry and enacted in September 1995)

Article 10: Tree germplasm is the basic material with various genetic substances that can be used for tree breeding, including all reproductive materials involved in any individual or group of tree species or taxons under species.

Article 11: Tree germplasm is protected by the State.

Article 13: The introduction of tree germplasm resources by any organisation or individual should be registered with the authorised institution for tree seed administration and a small amount of introduced seeds is to be attached for identification and preservation.

Article 14: The exchange of tree seeds with foreign countries should be approved by the institution of tree seeds administration authorised by the Ministry of Forestry.

The Regulation of Breeding Stock and Poultry Management (issued by the State Council and enacted on 1 July 1994)

Article 2: Stock and poultry are the domestic animal and poultry that can be used in breeding, including for example domestic pig, cattle, sheep, horse, ass, camel, rabbit, dog, chicken, duck, goose and pigeon, and their genetic materials including eggs, semen, and embryos.

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Box 1: Selected Laws from China that Apply to Access to Biological Resources

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Article 6: The State protects stock and poultry germplasm resources in a classified way and formulates the germplasm list for protection and the specified protection methods.

Article 7: The Livestock Administration under the State Council and provincial government will establish, in a planned way, stock and poultry germplasm resource protected areas (on farms), gene pools and monitoring stations, in order to enforce special protection for some valuable and endangered stock and poultry.

Article 9: Importing breeding stock and poultry from abroad or exporting them to foreign country will be subject to the national rules concerned.

3.0 Traditional Knowledge and Benefit Sharing

China is a multi-national country consisting of fifty-six different nations or nationalities. Han nation is the major nation, while the others are minor. Sixty percent of the territory is occupied by minority nationalities that make up only ten percent of the total population. In these areas communication is usually inconvenient and biological resources are usually abundant. The unique culture and traditions, and the styles of life and production play an important role in nature and biodiversity preservation.

3.1 Forest ecosystem protection

Nearly all nationals have their own “fengshui (geomantic) forest”. Especially in the regions where Dai, Miao, Buyi and other ethnic groups live, there are always “holy mountains”, “holy trees”, “dragon mountains” and other specially delineated mountains and forests, together with all animals, plants, and other landscapes in these areas. All are subjected to strict protection.

For example, in the “Ba” areas where Dai people live in Xishuangbanna, Yunnan Province, the “Dragon Mountains” around their villages are believed to be the place where their God lives. All the animals and plants are companions of the God or members of his homeland. It is prohibited to cut, hunt, destroy, graze, or

reclaim in the “Dragon Mountains”. This practice has existed for a thousand years.

In the area of Xishuanbanna, there are more than 400 “dragon mountains” with a total area of 30,000 - 50,000 ha. The dominant vegetation in the area is seasonal rain forest. Most of the forest has been destroyed but some forest has been preserved in the “Dragon Mountains”.

Similarly, Dong people are distributed in the remote mountainous regions contiguous to the provinces of Hynan, Guangxi and Guizzhou. Fengshui (geomantic) forests, ranging from 7-8 ha. exist in most of the mountains of the Dong villages. Despite the destruction in some during the last decades, many mountains have been well preserved owing to the worship of the fengshui forests. Fengshui forests have multiple ecological functions such as soil and water conservation, local climate adjustment, tourism, and species protection.

3.2 Individual species protection

Many of the minorities believe in primeval religion that recognises that “everything has its spirit” and they adore mountains, waters, forests and other matters. For example, Tibetans used to hang scriptures on trees. The trees, and the forests that they make up, are strictly protected from felling and destruction. Consequently, trees ranging from several hundred to even a thousand years old are still seen in these areas. The Kirgiz people revere snow leopards and oxen. In the worship rites of the Gaoshan people it is popular to revere trees, bamboo, bottle gourds, stones, soils, snakes, birds, insects, eggs and the sun. All of these worship rites undoubtedly contribute positively to biodiversity preservation.

The Dai people believe in Hinayana Buddhism. Its doctrine has a clear feature of nature worship. It is stipulated that fifty-eight species of ornamental plants should be planted in their temples, including *Corypha umbraculifera*, *Ficus religiosa*, *Mesua nagassarium*, and *Dipterocarpus turbinatus*. Among these *Ficus religiosa* is the most important.

The Han people also have traditionally treasured old trees and rare woods that spread throughout the whole country in huge number. For example, the “ancient Xuanyuan juniper” (*Platycladus orientalis*) in the Xuanyuan temple, Shaanxi Province, is more than 4000 years old. A ginkgo tree, more than 3000 years old, is found in the Dinglin temple of Ju County, Shandong Province. The junipers in Jinci temple of Shanxi Province are also more than 3000 years old.

In addition, it must be mentioned that herdsmen in vast pastoral areas have preserved various strains of horse, cow, sheep and other livestock. Hundreds of upland rice strains are preserved among the people of minorities in Southwestern China instead of in the National Crop Germplasm Bank.

3.3 Lifestyles and social customs contributing to biodiversity preservation

Jinuo people living in the mountain region of Yunnan Province practice a rotating fallow (slash and burn) system. Land is divided into thirteen lots. Each year, only one lot is used to ensure a thirteen-year fallowing period for each lot. With favourable tropical conditions, after 13 years it is covered again by dense forest. Biodiversity is not necessarily decreased due to land use, but may even be enhanced, with some species adapting to the farming system to a certain extent.

The tea gardens of the Jinuo people also play an excellent role in biodiversity preservation. Tea (*Camellia sinensis* var. *assamica*) is cultivated within natural forests. The forest cover provides important shadow for tea and this contributes to increased quality and yield. In turn, forests are preserved especially when they have additional cultural or economic values.

Dong people deliberately open a few forest gaps and use them as “cattle-grazing slopes”. The cattle are bounded so those young trees in the forest are saved from gnawing.

The Dai people used to cultivate artificial *Cassia siamea* forests around their villages for firewood. *Cassia* grows and branches very rapidly. Pruning only promotes its growth. *Cassia* has become the main firewood resource in this region. Consequently, the destruction of natural forests is greatly alleviated.

Mongolian, Kazak and other minorities in the arid and semi-arid regions of Northern China have practised nomadic systems. They move around vast areas in different seasons looking for the best range or grazing conditions for their animals: alpine and sub-alpine meadow ranges in the summer; lower altitudes in the fall and piedmont and basins in the winter. This helps to relieve the burden on and speed up range restoration and contributes to the goal of rational use of range resources.

Settled grazing has become popular in recent years. A new system of “Kulun”, or enclosed pasture, has been created to accelerate range restoration and to raise range carrying capacity. These techniques all play a splendid role in biodiversity preservation.

4.0 National Access and Benefit Sharing Planning

Currently, China has no specific national policy or planning process to deal with access and benefit sharing. But the Chinese Government has paid attention to it. Some policy and planning to enforce access and benefit-sharing management has been initiated. This has been recognised in two State documents: the China Biodiversity Country Study Report and First China National Report to the Convention on Biological Diversity.

4.1 China Biodiversity Country Study Report

The State Council issued the China Biodiversity Country Study Report in December 1997. Chapter 6 (National Strategy of Capacity Building for Biodiversity Conservation and Sustainable Use) stresses that China is a big agricultural country and frequently introduces and exports genetic resources. Therefore China should formulate a specific law or regulation and develop suitable planning to manage access and benefit-sharing, as well as traditional knowledge. Several paragraphs dealing with these issues are provided in Box 2.

BOX 2: References to Access to Genetic Resources in the China Biodiversity Country Study Report

Section 6.1.3. Formulate corresponding laws and regulations for implementing international conventions

1. Formulate domestic laws and regulations on access to genetic resources

Article 15 of the Convention leaves to the law of the nation who supplies the resources, the determination of access to genetic resources. This requires the genetic resources supplier to examine its legislation in this field to see if it is sound. China is one of the richest nations in the world in terms of genetic resources. As a major genetic resources supplier, China must work out her own national laws and regulations in conformity with her interest, in line with the Convention's obligations and the national conditions. This will protect her genetic resources and ensure a favourable share of benefits with the user of the genetic resources. Meanwhile the law and regulations can also serve as the legal basis for the other Convention Contracting Parties to acquire genetic resources from China.

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BOX 2: References to Access to Genetic Resources in the China Biodiversity Country Study Report

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2. Set up and perfect a patent protection system

Article 8(j) of the Convention provides that each Contracting Party shall, subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity and promote their wider application.

China is a nation with a long history of civilisation. It has accumulated abundant traditional knowledge and technology in her thousands of years of agricultural practice. China is also a multi-national country, where in their regions some minority nationalities still keep their traditional eco-farming technology and medical knowledge, and are considered conducive to conservation and sustainable use of biodiversity. According to Article 8(j), this traditional knowledge and technology must be respected by the national legislation. Nevertheless, the Patent Law in China has not yet touched upon the protection of traditional knowledge and technology. China has joined in the Treaty of the World Intellectual Property Organisation and the Paris Treaty on Protection of Industrial Properties. Therefore it is essential to strengthen legislation to protect this type of intellectual property as soon as possible, so as to harmonise with the international patent laws.

Section 6.4.4. Intellectual property right protection policies

Among the fields under the protection of China's current national patent system, there are still some inventions and innovations that have not received any patent protection, for example animal breeds and plant varieties, including crop varieties, poultry and livestock breeds, created with various technologies. In addition, the several thousand years of agricultural practices have left in the hand of farmers many native fine crop varieties and fine breeds of poultry and livestock. These contain a huge amount of genes of fine quality, disease resistance and pest resistance, and precious materials for modern genetic breeding. Consequently the patent system in China needs to be perfected to put crop varieties and animal breeds under its umbrella.

In China, minority nationalities often have a huge variety of traditional knowledge, innovations and practices that are suitable to their own region. It is desirable to work out a proper patent system and policies to encourage good preservation and application for the local and indigenous fine germplasm resources and to promote the inventory, application, protection of the traditional knowledge and technology, and sharing fairly the benefits from using them.

4.2 China's first National Report to the Convention on Biological Diversity

In Chapter 5 of the China First National Report to Convention on Biological Diversity (Further Actions to Implement CBD Article 6), there is a section on Legal Construction for Biodiversity Conservation. It particularly refers to the issue of access to genetic resources and benefit sharing.

It was pointed out in the section that genetic resources conservation legislation is rather weak. It points out:

although the State Council has already issued the Regulation of Seeds Management and Regulation of Breeding Stock and Poultry, they are neither sufficient nor detailed. In these regulations, the targets to be protected, measures to be taken and the management system are not elaborated. In particular, there are no detailed regulations for genetic resources collection, storage, introduction, transportation and benefit sharing. In this regard, the present Regulation should be modified according to the international situation and the requirements of the CBD.

In light of the analysis above, the section also proposes that a new genetic resources regulation for access to genetic resources and benefit sharing should be drafted. The content of the regulation is considered as follows:

The under-considered projects of drafting national genetic resources laws or genetic resources management regulations should clearly state: the type of classification and annex a list of names; the principle of prior to consent; benefit sharing and how to achieve the distribution of genetic resource development; rules of intellectual property rights, etc. In addition, the relevant regulation should also be worked out, which might include the report system for introduction and export of genetic resources; a reviewing system and a quarantine system for the imported and exported genetic resources, etc.

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