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Energy and Environment

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Biodiversity Conservation in China

From the perspective of Access and Benefit Sharing (ABS)

As one of seventeen mega-biodiversity countries in the world, China harbors nearly 10% of all plant species and 14% of animals on earth, and is the birth place of important crops such as rice and soybeans, as well as many fruit trees[1].

In general, biodiversity refers to the variability of life on earth, especially regarding the variance in the species and ecosystem[2]. It not only helps maintain the productivity of ecosystem, but also supports food security, helps humans adapt to the climate change, and provides important resources for medicine.

Important as it is, the rapid social-economic development in China has put its biodiversity, and the genetic resources (GR) found within, under increasing pressures. The habitat loss and fragmentation, as well as excessive exploitation and utilization of wild species have resulted in the decreased abundance of many plants and wild animals. The loss of biodiversity has increased the vulnerabilities of ecosystems and the environment, which have increased health and food security risks.

Genetic Resources and Associated Traditional Knowledge (ATK)

Genetic resources (GR) refers to the actual or potential value of all living organisms that could be potentially useful to human[3]. It includes plants, animals and microbes, which can be utilized for medicines, cosmetics, as well as in the agricultural and environmental practices and techniques.

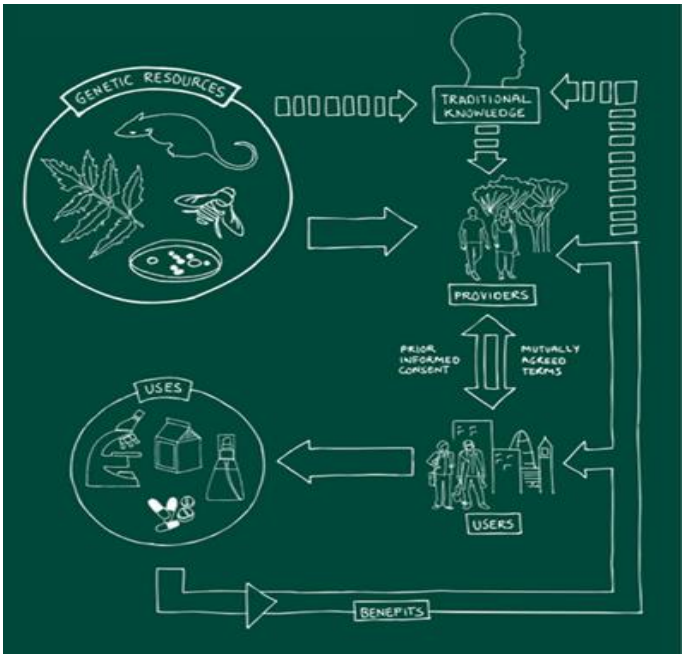
In China, as well as in other countries, ethnic minorities and local communities that reside in remote areas have accumulated the knowledge associated with local species and their genetic resources through generations. As such they are the guardians of the local traditional knowledge which have benefited many people. In today's society, the traditional knowledge and preserved genetic resources are not only benefitting the local communities but also the whole society at large, as the traditional knowledge and the genetic resources are used in research and for commercial purposes. While the rest of the society enjoy the benefits, the local communities rarely obtain financial or other benefits from such exploitation.

Access and Benefit-Sharing (ABS)

To ensure the "fair and equitable sharing of the benefits arising out of the utilization of genetic resources", which is one of the three overall objectives of the Convention on Biological Diversity (CBD), *the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Unitization* (NP)[4] was adopted on October 29, 2010 and entered into force on October 12, 2014. This international agreement aims at promoting the sharing of benefits arising from the utilization of genetic resources in a fair and equitable way, thereby contributing to the conservation of biodiversity and the sustainable use of its components.

The protocol lays a basis for legal certainty and transparency for both providers and users of genetic resources. It also lines out specific obligations for a country to provide legal or regulatory support to the providers of the resources. However, the Nagoya Protocol (NP) does not provide detailed contents and the concept of ABS has not been entirely clarified by work at the international level.

Graph1: Access and Benefit-Sharing Concept [5]



ABS's Adaptation in China

According to China's 5th National report to CBD (2014), China has no specialized law/regulations to address issues regarding access to genetic resources and benefit sharing. Yet, reference can be made to the management of genetic resources and the benefit-sharing in China's recent laws and regulations. The revision of the *2005 Animal Husbandry Law* specifies that the benefit generated from the use of exported genetic resources shall be shared. In its *National Biodiversity Conservation Strategy and Action Plan (CNBSAP) [2011-2030]*, China emphasizes the importance of collecting traditional knowledge in the ethnic minority area and establishing a database, undertaking studies and piloting projects focusing on benefit sharing. The Plan also suggests to establish regimes and

mechanisms of the conservation, and the access and benefit sharing of genetic resources and related traditional knowledge.

The 2011 Intangible Cultural Heritage (ICH) Law has included the traditional knowledge associated with genetic resources into the range of protected culture heritage. China also plans to ratify the NP in 2016 and implement its obligation. However, like many other countries, China has not yet adopted the necessary ABS implementing legislation, nor has it any functional experience with the application of ABS to ensure the benefits from this mechanism.

Existing Barriers for ABS Implementation in China

China is in need of a national regulatory framework on ABS, which can ensure equitable distribution of the benefits arising from both the users and providers of the genetic resources and associated traditional knowledge, as the first step to implementing ABS. Yet, the barriers listed below hindered such progress:

- *Policy and Legislation Support*

Currently, China lacks concrete and operational policies and mechanisms to ensure the ABS adaptation. There is neither specific national framework for ABS which can provide legal nor institutional support to ensure the implementation of ABS in China.

- *ABS implementation system*

While robust methodologies for ABS implementation are available (table 1 being an example of this), China has no experience in facilitating the ABS implementation. Because of this, an effective operation of such a mechanism cannot be guaranteed.

Table 1: Key Components for ABS System

PIC processes	The process of relevant authorities grant consent or rights towards the persons or communities with established rights to the genetic resource or ATK;
ABS contractual instruments:	Tools that grant access and require benefit-sharing;
ABS permits:	Permits authorize and regulate bio-prospecting and/or prevent particular resources from research and utilization;
Field Procedures	Process of bio-prospecting and other harvesting or collection;
Monitoring and Awareness	Long-term monitoring and awareness of the progress of utilization of genetic resources or traditional knowledge after it has been accessed or collected ;
Legislative Measures	Laws about Chinese users of Genetic Resources or associated traditional knowledge sourced in other countries
Enforcement and Compliance Processes	Ensure the initial PIC, contractual and permit activities follow requirements, and the benefit-sharing obligations are met;
Reporting and Certification	National and global reporting and certification of ABS agreements and processes;
Data Management	Inventories, databases and data-management systems;
Discovery Program	Active discovery programs of GR and ATK;
Distribution Mechanism	Benefit distribution mechanism.;

In addition, challenges arise from the intricacy nature of ABS agreements, where the development, negotiation and implementation should be conducted in the contexts of the multiple industries that uses genetic resources and traditional knowledge. Without understanding of the process, it is hard to realize realistic benefit-sharing commitments that will result in actual shared benefits.

- *Awareness and Capacity*

To realize the adaptation and recognition of ABS concept in China, stakeholder awareness and understanding needs to be vastly expanded. However, key stakeholders like governmental agencies, genetic resource and knowledge providers and users, are barely familiar with ABS. Furthermore, the lack of platforms and resources have prevented the preparation of ABS related studies and promotional activities.

Suggestions for ABS implementation in China

To implement ABS in China and ensure the benefits for both of the users and providers of the genetic resources and the associated traditional knowledge, the following suggestions are made:

A national framework on ABS with clear and consistent regulations, administrative mechanisms, as well as technical supporting system should be established to help develop functional and implementable ABS mechanisms. To develop the framework, solid policy recommendations need to be formulated based on international research on current ABS practise which are aligned to the "on the ground" realities in China.

Furthermore, it is also important to formulate an operational ABS framework implementation plans to help tackle practical issues. A national-level institution should be established to implement the plans. Guidelines and proposals for the benefit-sharing financial mechanism shall be developed to motivate stakeholders to preserve the ecosystem and natural resources.

In addition, workshops and consultations for key decision-makers should be held to help them obtain in-depth understanding of the ABS concept to help the legal and practical implementation of ABS.

Increasing the capacity of the management institutions at the national and provincial levels is also critical for the implementation of the ABS framework. It is suggested that ABS related training materials and platforms are developed for knowledge sharing, as well as raising the awareness of the general public.

Building upon the above mentioned activities, demonstration pilots should be established to test how the ABS can be effectively implemented on the ground. The Information on the effectiveness, benefits and feasibility of the ABS procedures from the pilot areas, as well as lessons and experiences, should inform nationwide replication and scale up, which can contribute to the progress of ABS implementation at the global scale.

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1. China Fifth National Report to CBD.
2. *"What is biodiversity?" (PDF). United Nations Environment Programme, World Conservation Monitoring Centre.*
3. *Genetic Resources. World Intellectual Property Organization.*
4. *"Nagoya Protocol", Convention on Biological Diversity.*
5. Source of Photo: Introduction to access and benefit-sharing information kit, Convention on Biological Diversity: ABS.