Resource Mobilization Information Digest N° 218 September 2013

Governance of Biodiversity Conservation in China[1]

Contents

[1] This note was prepared by Ms. Ning Liu, as an intern under the guidance of David Coates, Oliver Hillel and Andre Mader at the CBD Secretariat. Ms. Liu was pursuing a M.Sc. degree in Integrated Water Resources Management at McGill University. She holds a Masters degree in Applied Ecology from Kiel, Germany and a Bachelor of Engineering in Environmental Engineering from the Beijing University of Technology, China. She worked on the collaboration and management of national scale cooperation projects in the area of environment and energy between the European Union and China.

1. Introduction

China ranks the 8th in biodiversity richness and is believed to hold 10-13 percent of the world's known species, thanks to its large geographical range, diverse physical conditions and its ancient position as centres of evolution and dispersion and as Pleistocene refugia during the species decimations of the Ice Ages (Yu 2009, MacBeath & Leng 2006). However, the enormous pressure of population and economic activities put its species and habitat of wildlife under severe threats. In terms of ecosystem, nearly 40% of China's area has degraded; in terms of biodiversity, the loss rate of wild species is between 15 to 20%, which is much higher than the global average of 10%. Moreover, around 15 to 20% of higher flora species are severely endangered, which could threaten the existence of up to 40,000 species in upper trophic level (Yu 2010).

2. Historical trend of China's biodiversity conservation

Chinese traditional philosophies such as Confucian, Taoist, and Legalist, and their interconnections, have formed a rich realm of ethical theories about the relationship between humans and nature. Being regarded as orthodoxy, Confucianism holds an anthropocentric view towards the environment and other creatures: it believes the existence of other species was to serve the needs of the humanity. On the contrary, Taoist, as a complementary philosophy to Confucianism throughout China's imperial history, stresses the supremacy of the natural order, to which humans should submit instead of fight against. In the first to third centuries AD, the introduction of Buddhism to China blended in a belief of fundamental equality of all forms of life to Chinese attitude towards nature. This synergy of the aforementioned philosophical, religious and ethical thoughts in general public and scholars urges a non-intrusive style of management by the rulers, which was followed in the governing system of early imperial dynasties. However, the natural environment in late imperial China degraded due mainly to the population growth and land encroachment of agriculture. In Song Dynasty (AD 979 – 1279), extensive conversion of lake and wetland areas into arable land in the Yangtze River delta area damaged the ecological balance of the area and leads to frequent flooding events. Deforestation, over-cultivation became continuously severe, which causes worsened situations of soil salinization, erosion, mudslides, and flooding in the following dynasties.

The Soviet-influenced China during the Maoist era has adversely impacted the biodiversity of the ecosystem, which was followed by the massive economic development under the reign of Deng Xiaoping and his successors in the last decade of the 20th century. The intensive and extensive industrial and agricultural activities, and massive construction of hydroelectric and

diversion projects, among many other factors have contributed to the dire situation of ecosystem degradation and biodiversity loss.

Since the late 1990s, the central government of China started to realize the significance of ecosystem goods and services and the economic benefits biodiversity can bring to the human well-being. Legislations and regulations have been developed to alleviate the degradation of the ecosystems (see Section 3). Various actions have also been taken to build up capacity of biodiversity governance and restore essential ecosystems (see Section 5). Although environmental awareness is growing amongst governmental officials and general public, most national and subnational initiatives and incentives have not given top priority to environmental problems than other issues such as unemployment, poverty, short-term commercial profit.

3. Legal and institutional framework

Environmental conservation began to be addressed in national law of China since the Deng's reform in 1978, consummated by the Article 26 of the 1982 revision of the National Constitution acknowledging that:

> *"The state protects and improves the environment in with people live and the ecological environment. It prevents and controls pollution and other public hazards. The state organizes and encourages afforestation and the protection of forests."*

Besides the Constitution, the legal framework of environmental protection in China is established through the laws enacted by the supreme legislative body (i.e. National People's Congress), and the regulations (fagui) issued by the paramount administrative body (i.e. the State Council).

Since early 1980s, some dozens of statutes have been launched in relation to biodiversity conservation, which can be classified in four categories, i.e. *general environmental protection*, *pollution prevention*, *ecosystem protection*, and *species protection*. The first category contains the basic environmental law – the Environmental Protection Law, adopted in 1979 and amended in 1989, which stresses the establishment of natural reserve by all levels of the government to protect important habitats and endangered and rare species. It also stipulates the mandatory policy of environmental impact assessment for all large and medium-sized projects, which was concretized in the Environmental Impact Assessment (EIA) Law, taking effect in September 2003. The pollution prevention category mainly consists of three statutes: the Water Pollution Prevention Law of 1984 and its revision in 1996, the Solid Waste Pollution Prevention Law of 1995, and the Air Pollution Prevention Law of 1987 and its revision in 1995. Laws to protect various ecosystems include the Forest Law of 1985 and its revision in 1998, the Grassland Law of 1985, and statutes on the marine environment, fisheries, water and soil

conservation, and land management. Species protection and conservation was legislated in 1988 as the Wild Animal Conservation Act (WACA). WACA establishes categories of protection for endangered or valuable species and impose penalties for killing or trading banned species, which could be long prison terms and even execution. Around 1,300 species are listed as key under WACA either as category I or II, both of which are considered in great need for protection with the former more urgent than the latter.

Regulations take a less authoritative position than legislation in that they do not go through a public review process but are issued as an administrative order by the State Council. For the implementation of WACA, the State Council issued regulations on Terrestrial Wild Animal Conservation in 1992, on Aquatic Wild Animal Conservation in 1993, and on Wild Plant Conservation in 1996. These regulations stipulate the protection and management of wild animals and plants as well as prohibitions of killing and trading of protected species. Protected Areas (PAs) are the most concrete and direct action to address the biodiversity conservation. The legal basis of PAs is hinged on the regulation issued by the State Council in 1994 – the Regulations on Nature Reserves. An overview of the status of PAs in China will be presented in Section 4.

Although with many legislation and regulations on biodiversity and ecosystem conservation in place, the legal framework of China in this regard is criticized to display many overlaps and gaps, for example, the species preservation laws address little about the protection of plant species and less economically significant species such as insects and coral reef are left out. Commentators also criticizes that the laws and regulations have insufficiently linked species with their critical habitats.

China became an active and willing participant in international conventions related to biodiversity conservation since 1980s that it has ratified more than 30 multilateral environment treaties and agreements. China has joined the Convention on the International Trade in Endangered Species (CITES) in 1981, which was followed by China's banning of the sale of threatened species in traditional Chinese medicine in 1993. China joined the International Convention for the Regulation of Whaling in 1980, the Convention Concerning the Protection of the World Cultural and Natural Heritage in 1985, the International Tropical Timber Agreement in 1986, the Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat in 1992. China agreed to the Montreal Protocol on Substances that Deplete the Ozone Layer and eliminated the ozone depleting substances in 2010. China is also a participant of the Convention to Combat Desertification, the Unite Nations Convention on the Law of the Seas (UNCLOS), the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the Stockholm Convention on Persistent Organic Pollutants (SCPOPs).

4. Protected areas (PAs)

The establishment of protected areas, or Natural Reserves as called in China, is one of the main measures to protect and conserve biological diversity in China. Since the establishment of the first natural reserve, the Dinghushan Nature Reserve in 1956, China has largely expanded the number and range of protected areas. By the end of 2011, there are 2640 PAs, which cover around 15% of the country's area (149 Million hectare). Among them, 6 Million hectare covers marine areas. Table 1 and 2 illustrate the jurisdictional and administrative distribution of PAs respectively. Although only 13% of PAs falls in the national jurisdiction, they occupy over 60% of all protected areas in the country.

	National*	Subnational			Total
		Provincial	Prefectural	County-level	
By number	335 (~13%)	870 (~33%)	421 (~16%)	1014 (38%)	2640
By area	~62%	~28%	~3%	~7%	149Mha

Table 1 Jurisdictional distribution of PAs in China (Not including Taiwan, Hongkong and Macau)

The distribution of mandates and responsibilities among Central Ministries are overall unclear and in the process of evolvement. Although almost three quarters of PAs is managed by State Forestry Administration (SFA), the leading institution on biodiversity conservation is Ministry of Environmental Protection (MEP). The Division of Nature Reserves and Species Management, Department of Nature and Ecology Conservation, of MEP supervises and monitors the overall ecosystem protection of the country with the collaborative efforts of other ministries and sub-ministries: PAs of forest, wetland, and desert are administered by SFA; of grassland by the Ministry of Agriculture (MOA); of natural heritage, paleontological reserves and marine reserves by the Ministry of Land Resources (MLR); of reservoir, source water area and some wetland, rivers and lakes by the Ministry of Water Resources (MWR). The enforcement of laws and regulations pertaining to endangered terrestrial species and ecosystems is governed by SFA, whilst those pertaining to inland aquatic species by MOA, and those to marine species by the State Oceans Administration (SOA) of MLR.

Agency	Percentage (number) of PAs
SFA – State Forestry Administration	74.2 (1958)
MEP – Ministry of Environmental Protection	9.6 (253)
MLR – Ministry of Land Resources (incl. SOA-State Oceans Administration)	6.6 (71+103)
MOA – Ministry of Agriculture	3.8 (99)
MWR – Ministry of Water Resources	1.5 (40)
Uncategorized	0.4 (10)
Others (CTM medicine, scientific research & education, tourism etc.)	4 (106)

Table 2 Administrative distribution by area of PAs in China (Not including Taiwan, Hongkong and Macau)

National parks are not included in the nature reserve system of China. Ministry of Housing, Urban and Rural Development (MOHURD) supervises all national parks registered with the UNESCO natural heritage sites. MOHURD also regulates the zoo system of China that all city zoos are under its control.

The general management framework is that National level PAs are funded by the national government, whilst the subnational one by provincial, municipal or county governments. However, in practice, all PAs are managed at subnational level, except that the national government will allocate one-time-only funding at the establish stage of the PAs primarily for construction of facilities. Proposals, plans, strategies about PAs are put forward by local administrative department. Then, the local government can render approval for the subnational PAs, however, if it is a national PA, they have to be approved by relevant national administrative authority (e.g. SFA, MOA, etc.). The incurred expenses for personnel and activities are borne by local governments under the guidance given by SFA, MOA, etc. For example, in Guangdong Province, the financing for national and provincial level PAs are borne by provincial government.

The existing PA system define a protected area to three zones – core, buffer, and experimental. In the core zone, no entry of outsiders is permitted except with special approval; in the buffer zone, only scientific research is allowed; and in the experimental zone, the scientific experimentation, educational activities, survey work, tourism, and domestication and reproduction of rare and endangered wildlife are permitted to be conducted.

5. Current Status of Species and ecosystems

The Country Report of China Biodiversity published by MEP (named SEPA at the time) in 1998 reported 22% mammals, 2.5 amphibians, 4.5% reptiles, 15% birds, 28% gymnosperm, and 13% angiosperm were in endangered status. The China Species Red List published in 2004 adapted the IUCN framework and revealed much more severe situation that 40% of mammals, 7% of birds, 28% of reptiles, 40% of amphibians and 3% of fish are at risk, and a greater percentage of endemic than non-endemic species appear in the threatened column (MacBeath & Leng 2006).

The national government of China implemented a policy to convert farmlands into forests and grasslands in 1998, which results in a total of 26.86 million hectare forests and grassland restoration by 2008. Figure 1 depicts land use changes of China from 1980 to 2000 and from 2000 to 2005, which shows an overall trend of increase in the area of cultivated land, inland waters and residential quarters, whilst a decrease in afforested land, grassland and unused land.

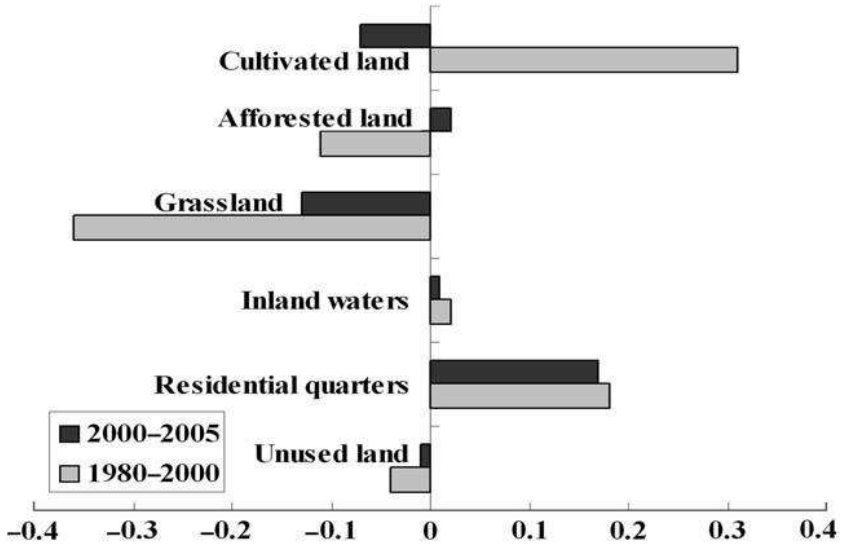

Figure 1 Percentage change of land cover in total land area in mainland China from the late 1980s to 2000, and from 2000 to 2005 (Xu et al, 2009)

Rapid increase in the area of PAs is witnessed since the 1990s with its coverage reaches 15% of the country area as reviewed in Section 4. There are also 250 bases for wildlife saving and breeding and over 400 centres for wild flora cultivation and conservation by 2005. However, development of PAs is uneven, many PAs locates in hinterland are underdeveloped. According to Yu (2010) that among China's 2,531 protected areas in 2010, for example, 41% have yet to set up any type of management or research system. Moreover, the establishment of PAs is disproportional to the richness, endemism, or threat of biodiversity: provinces rich in biodiversity but with less than 10% coverage of PAs including Guangxi, Guizhou, Guangdong, Hainan, Jiangxi, Fujian, Hunan, Hubei, Zhejiang, and Shaanxi (Xu et al 2009). In terms of annual

operation and construction funds, national reserves receive only US$113/km^2: provincial and local reserves receive not more than US$53/km^2. These figures are much lower than the world average (US$893/km^2) and even lower than the developing countries' average (US$157/km^2) (Yu 2010).

Invasive species is one of the biggest contributors to biodiversity loss globally. Along with its rapid growth of trade and tourism and environmental change, China has encountered increasing rate of alien species invasions and hazards to native ecosystem. At least 283 alien species have been reported in China, among which more than 50 ones are enlisted in the 100 World's Worst Invasive Alien Species compiled by the IUCN Species Survival Commission (Yu 2010). More 46% of the reported exotic species have invaded the country's PAs (ibid.).

6. Concluding remarks

As one of the first countries ratified the Convention on Biological Diversity, Chinese central government has demonstrated its attention and commitment to reduce biodiversity loss and to conserve the ecosystem. This could be exemplified by the reforestation and afforestation programs of the late 1990s, in which the state mobilized millions people to plant unheralded number of trees in human history, as well as the fishing bans in the East China Sea since 1995 and in the South China Sea since 1999. Nevertheless, various policy gaps and implementation deficiencies have impaired the efforts, most salient ones of which include the lack of strategic and integrated conservation planning, as well as the insufficient environmental monitoring network and capacity. The devolution of power and authority to subnational government of recent years further adds uncertainty to its future development. Efforts to mainstream biodiversity conservation to national strategies and action plans and to build up the capacity of subnational authority will be imperative.

7. References

McBeath, G. A., & Leng, T. K. (2006). *Governance of biodiversity conservation in China and Taiwan*. Edward Elgar Publishing.

McBeath, J & McBeath, J. H. (2006). *Biodiversity Conservation in China: Policies and Practice*. Journal of International Wildlife Law & Policy, 9(4), 293-317, DOI: 10.1080/13880290601039238

Xu, H., Tang, X., Liu, J., Ding, H., Wu, J., Zhang, M., Yang, Q., Cai, L., Zhao, H., & Liu, Y. (2009). *China's progress toward the significant reduction of the rate of biodiversity loss*. BioScience, 59(10), 843-852.

Yu, X. (2010). *Biodiversity conservation in China: barriers and future actions.* International Journal of Environmental Studies, 67(2), 117-126.