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Abstract

The diverse types of wetlands found in China range from those found in cold temperate to tropical zones, from plains to mountainous regions or plateaus, and from coastal to inland areas. The second wetland resource census of China indicates that the total area of Chinese wetlands is 53.6 million ha (excluding 30.06 million ha of paddy fields which are additional to this area), accounting for 5.58% of the national territorial area. Within this total area of wetland, the area of offshore and coastal wetland is 5.80 million ha, the area of river wetland is 10.55 million ha, the area of lake wetland is 21.73 million ha, and the area of constructed wetlands is 6.75 million ha. Significant change has occurred throughout history in Chinese wetland conservation and management policy. In the 1950s, due to the lack of food production, the Chinese government introduced a food production-oriented policy which led a large amount of wetland conversion into farmland. In the east-south region of China, the large-scale activity of reclaiming farmland from lakes resulted in rapid shrinkage of wetland extent while, in the coastal region of China, large amounts of mud flats have been

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converted into salt ponds, aquaculture ponds, and farmland. However, since 1992 when China joined the Ramsar Convention on Wetlands, the Chinese government has started to pay increasing attention to wetland conservation and has established strategic targets and supporting administrative departments and support mechanism, introduced a large number of action plans, planning processes, rules, regulations and laws, and operated national-level wetland conservation and restoration projects. By January 2014, China had 577 wetland nature reserves and 468 wetland parks, among which 46 had been listed as Ramsar wetlands of international importance.

Keywords

China · Conversion · Food production · Conservation · Intertidal · Mountain · Desert

Background

The diverse types of wetlands found in China range from those found in cold temperate to the wetlands of tropical zones, from plains to mountainous regions or plateaus, and from coastal to inland areas. The second wetland resource census of China indicates that the total area of Chinese wetlands is 53.6 million ha (excluding 30.06 million ha of paddy fields which are additional to this area), accounting for 5.58% of the national territorial area. Within this total area of wetland, the area of offshore and coastal wetland is 5.80 million ha, the area of river wetland is 10.55 million ha, the area of lake wetland is 21.73 million area, and the area of constructed wetlands is 6.75 million ha. There are 4220 types of wetland plants that belong to 438 biomes, and 2312 types of vertebrates that include 231 types of wetland birds.

Significant change has occurred throughout history in Chinese wetland conservation and management policy. In the 1950s, due to the lack of food production, the Chinese government introduced a food production-oriented policy which led a large amount of wetland conversion into farmland. A typical example is the Sanjiang plain wetland, the total area of which reduced by 60%. The Sanjiang plain wetland is now the most important grain production base in China. In the east-south region of China, the large-scale activity of reclaiming farmland from lakes resulted in rapid shrinkage of wetland extent while, in the coastal region of China, large amounts of mud flats have been converted into salt ponds, aquaculture ponds, and farmland. However, since 1992 when China joined the Ramsar Convention on Wetlands, the Chinese government has started to pay increasing attention to wetland conservation and has established strategic targets and supporting administrative departments and support mechanism, introduced a large number of action plans, planning processes, rules, regulations and laws, and operated national-level wetland conservation and restoration projects. By January 2014, China had 577 wetland nature reserves and 468 wetland parks, among which 46 had been listed as Ramsar wetlands of international importance.

The Strategic Targets of Chinese Wetland Conservation

Under its general targets of wetland conservation and wise use, the Chinese government gives priority to wetland conservation. In wetland conservation, priority is given to the conservation of natural wetland ecosystems (prevention first), supplemented by demonstration-scale ecological restoration and reconstruction of degraded wetlands, as well as the establishment of demonstration zones of wetland wise use.

As a matter of public interest, the Chinese government promotes policies to reduce the further degradation and loss of natural wetlands. The number of wetlands is expressly stated in the national ecological conservation system. The Chinese government has also strengthened supervision on the utilization of natural wetlands based on the principles of sustainable management of ecological systems and the practice of catchment management. Another important target is the operation of national key wetland protection projects (NWKCPs). Additionally, the Chinese government advocates the importance of public awareness of wetland conservation and the need for greater respect for the values and benefits provided by wetlands, in order to achieve the coadministration of wetland resource between the community and wetland managers. Key stakeholders in this coadministration include government departments, social organizations, private institutions, and international organizations.

In order to achieve the strategic targets of national wetland conservation, the NWKCPs place differential emphasis on different levels of governance: (1) at regional level, NWKCPs particularly support the coadministration aspects of community wetland conservation and wetland resource, including wetland restoration through changing local people's intensity of resource utilization; (2) at national level, NWKCPs particularly support wetland co-administration including the involvement of the provincial government level, including improvement of the capacity of provincial wetland conservation agencies and the establishment of regional integrated conservation mechanisms; and (3) at global level, NWKCPs particularly support the Ramsar Convention on Wetlands and the associated conservation needs of migratory water birds.

The broad objectives of the wetland conservation policy environment are to form a natural wetland conservation system through the protection of biodiversity, control of pollution, and adjustment of land use types, in order to maintain the natural characteristics and essential functions of wetland ecosystems, reversing the historic trend of shrinking wetland area and degrading wetland function. Implementing restoration and improved management of degraded wetlands in key ecological regions is a priority, serving systematically to restore natural wetlands and their ecological functions. So too is putting in place processes for assessing and consenting wise use of natural wetlands, with associated regimes appropriate for wetland monitoring and ecological risk assessment. It is also necessary to strengthen surveillance monitoring of the wetland resource and to improve capacity building for

wetland advocacy, education, research, and technology promotion. This also necessitates the establishment of a robust wetland conservation management system, legal system, and research system. The ultimate objective is to improve the level of wetland conservation, management, and wise use in China; to form a complete natural wetland conservation network such that 90% of wetlands can be maintained in good status; to achieve the “virtuous circle” of wetland conservation and wise use; and to maintain and develop the various functions and benefits provided by wetland ecosystems, so enhancing their contribution to sustainable economic and social development.

The Management Agencies and System of Wetland Conservation

In order to fulfill the clause of the Ramsar Convention that “...all Parties have responsibilities and obligations to protect, manage and wisely use the wetland” since China joined the Ramsar Convention on Wetlands, the State Council has established a wetland management system in which State Forestry Bureaus take the lead. In this, they are assisted by related departments such as the Water Conservancy Bureau, Agricultural Departments, the Land Resource Management Bureau, Environmental Protection Departments, the Development and Reform Commission, the Oceanic Administration, and the Shipping Department. The State Forestry Bureau Wetland Conservation Management Centre (The Ramsar Convention Compliance Office of the People’s Republic of China) was established in 2005. Subsequently, Forestry Departments in each province founded provincial management offices or centers for wetland conservation, and a proportion of counties (cities), wetland nature reserves, and wetland parks have also founded special wetland management agencies. In 2007, the State Council approved the National Ramsar Convention Compliance Council that was composed by 16 departments.

Currently, a wetland management system that incorporates wetland nature reserves, wetland parks, wetland protection areas, and multifunction zones has taken shape in China.

- A “wetland nature reserve” is an area delimited for special protection and management of the land, water, or ocean as it is representative of a particular natural ecological system; contains a significant concentration of rare and/or endangered wildlife species; or contains some other special natural feature designated under the law. Thus, a wetland nature reserve is the highest level of designation within the wetland management system.
- A “wetland protection area” is a region designated as a means to strengthen wetland resource protection. This is to ensure the health of the wetland ecosystem, to achieve comprehensive benefits for the wetland, and to contribute to overall regional ecosystem structure. Compared with a wetland nature reserve, a wetland protection area is a lower-level management unit, emphasizing its importance to local ecosystem structure.

- A “Wetland Park” is an area of wetland landscape, or a wider landscape of which wetlands are important constituent units, the protection of which demonstrates ecosystem services and functions, serves as an advocacy or educational resource, demonstrates the wise use of wetlands, contains specific cultural and/or aesthetic value, and may also provide a place for scientific research and ecotourism.

Laws and regulations for Wetland Protection

Before China joined the Ramsar Convention on Wetlands, concepts such as “mud flat,” “river,” “lake,” “ditch,” and “reservoir” were scattered in laws, regulations, policies, and plans. After China joined the Ramsar Convention in 1992, the concept of “wetland” was referenced in “the People’s Republic of China Natural Reserve Regulation” in 1994. Subsequently, “wetland” generally appeared in 15 laws and regulations such as the “Marine Environment Protection Law,” the “Forestry Law,” the “Wild Animal Protection Law,” the “Environment Impact Assessment Law,” the “Administration of the Use of Sea Areas,” the “Water Law,” and the “Law on Prevention and Control of Water Pollution”.

Since 1998, the National Forestry Bureau started the legislative work for wetland protection, and provincial governments started their work in formulating regulations for wetland conservation. The publication of “Heilongjiang Province Wetland Conservation Regulation” provided provincial legal safeguard for wetland management for the first time (Li 2000). Up to 2004, a total of 19 provinces (municipalities) had issued and implemented provincial wetland conservation regulations, including Heilongjiang, Gansu, Hunan, Shaanxi, Guangdong, Inner Mongolia, Liaoning, Ningxia, Jilin, Jiangxi, Sichuan, Tibet, Xinjiang, Qinghai, Yunnan, Zhejiang, Shandong, Beijing, and Hebei. Regulations from city and county levels have also appeared progressively. However, despite this plethora of legislation, there is at present no nation law specifically focused on wetland conservation.

Plans and Related Policies of Wetland Conservation in China

Since joining the Ramsar Convention in 1992, China has put in place a wide range of legal instruments and policy directions to protect and restore its wetland resource. Examples include:

- In 1993, The State Council approved the “Action Plan of China Environmental Protection (1991–2000)”, which set the establishment of oceans, wetlands, grasslands, deserts, and natural heritage wetland as important targets, confirming the content of wetland conservation in national plan.

- In 1994, China included wetland conservation and wise use in “21st Century Agenda – China’s population, environment and development white paper in the 21st century” and “China Biodiversity Conservation Action Plan.”
- In 1995, the Ministry of Forestry implemented the first national wetland resource census.
- In 1996, the State Council identified “wetland conservation” as one of the essential areas of natural conservation in “The ‘ninth five-year plan’ and 2010 vision of state environmental protection.”
- In 2000, the National Forestry Bureau and another 17 governmental departments jointly released the “Chinese Wetland Protection Motion Plan.”
- In 2003, the National Forestry Bureau drew up the “The national wetland protection engineering planning (2002–2030)” and implemented the “Grain for Wetland Project.”
- In 2004, the State Council published “the notice of General office of the state council on strengthening the management of the wetland protection.”
- In 2005, the State Council approved “the national wetland conservation project implementation plan (2005–2010),”, investing 3.1 billion Yuan for recurring conservation on important wetlands.
- In 2009, the State Council launched the second national wetland resource census and implemented the pilot of “the wetland ecological benefit compensation.”
- In 2010, the State Council published “the implementation opinions on wetland conservation subsidies in 2010” with an emphasis on “wetland conservation well” in the “On the twelfth five-year plan for national economic and social development program.”
- Between 2010 and 2011, the National Forestry Bureau issued the “National wetland park management approach (trial),” “National wetland park planning guide,” and “National wetland park pilot acceptance method (trial)” successively.
- In 2012, the State Council approved the “Twelfth five-year national wetland conservation project implementation plan” drawn up by the National Forestry Bureau.
- In 2012, the No. 32 regulation published by National Forestry Bureau in the “Wetland protection regulations” confirmed the contents of wetland conservation, planning, monitoring, restoration and wetland park construction, assessment, and management.

Over the past twenty years, the historic trend of wetland shrinkage and degradation has been reversed through the concerted efforts of all levels of government and their relevant departments. This has encompassed a wide range of wetland conservation measures, pollution control, and land use adjustment, as well as major restoration projects, including “Grain for lake” and “Grain for wetland,” that have contributed significantly to the conservation and restoration of formerly degraded wetlands.

Challenges of Wetland Conservation

Despite these significant achievements, wetland-specific laws are still absent at national level to support wetland conservation work in China. Aside from the “Nature reserve ordinance,” the majority of laws and regulations do not yet emphasize the integrated conservation of wetlands and biodiversity, which creates some difficulties for wetland resource conservation.

The conservation and management of Chinese wetlands requires the involvement of multiple government departments. However, the diversity of wetlands and the complexity of their functions span jurisdictional boundaries and can create conflicts. Where responsibilities remain unidentified, this can seriously restrict the performance of wetland conservation agencies. Wetland conservation in China mostly depends on the strength of government, lacking effective participation pathways for local residents, communities, and non-government organizations (NGOs). This deficit in public participation acts contrary to the efficient resolution of conflicts between environmental and economic benefit.

The conservation and management of wetlands in China also faces a shortfall of financial support necessary for wetland resource investigation, establishment of conservation areas and demonstration areas, and to put in place pollution control, law enforcement, and effective management teams. In the majority of situations, government is the single source of finance, with no other options for diversifying investment. In response to the challenges of wetland conservation and management, China should in future take the following measures:

- Based on the principles of sustainable development, publish a specific law on wetlands that incorporates ecological protection, resource development, and pollution control according to nationally consistent conditions
- Confirm the jurisdiction of different departments and types of wetland ownership
- Complete the coverage of wetlands across the legal system, and manage wetlands according to this more integrated legal framework
- Achieve “one district one law” in some important wetlands

In order to integrate wetland ecosystem protection, it is necessary to:

- Strengthen coordination both within and between departments to enforce the overall protection and efficient use of wetlands
- Reform responsibilities to bring about improved coordination of wetland resource management, confirming the core duties of wetland management agencies as a means to protect the integrity of wetland ecosystems
- Establish mechanisms of “community co-management” and “public participation,” build information-sharing platforms for wetlands, and encourage public participation in wetland conservation

- Establish and complete ecocompensation systems for wetlands. This includes integrating wetland conservation into the national economy and social development plan, enforcing financial investment in wetland conservation, building a financial safeguard system that guides and encourages investment by enterprises, the public and NGOs, and promoting the conservation and sustainable development of wetlands; and
- Launch technological innovation to strengthen scientific understanding of wetlands and to better inform wetland conservation and restoration.

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