

Dataset Development on Changes in Social Value for Ecosystem Services on Qionghai National Wetland Park (2009, 2019)

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Abstract: The planning and construction of Qionghai National Wetland Park has caused the relocation of residents and land use changes. Focusing on changes in the social value for ecosystem services perceived by community residents is important for the sustainable management of wetland ecosystems and the enhancement of residents' well-being. The semi-structured interview, participatory mapping and grounded theory method were used for data collection and its spatialization in Qionghai National Wetland Park. The dataset includes the following data in Qionghai National Wetland Park: (1) questionnaire and interview outline of community residents; (2) social and economic characteristics of respondents; (3) types of social value for ecosystem services before construction of the park in 2009; (4) types of social value for ecosystem services in the park in 2019; (5) spatial point data of social value for ecosystem services before construction of the park in 2009; (6) spatial point data of social value for ecosystem services in the park in 2019; (7) the land use and main residential data. The dataset is archived in .xlsx and .shp formats, and consists of 29 data files with data size of 991 KB (compressed into one file with 190 KB).

Keywords: social value for ecosystem services; participation mapping; wetland park; Qionghai

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Dataset Availability Statement:

The dataset supporting this paper was published and is accessible through the *Digital Journal of Global Change Data Repository* at: <https://doi.org/10.3974/geodb.2024.03.04.V1> or <https://cstr.escience.org.cn/CSTR:20146.11.2024.03.04.V1>.

1 Introduction

As one of the most diverse ecosystems, wetland ecosystems provide humans with a variety of ecosystem services such as water conservation, climate regulation, biodiversity main-

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tenance, and cultural education^[1]. National wetland parks play an important role in protecting and restoring wetland ecosystems, maintaining and sustainably utilizing wetland resources, and are also an important measure in the construction of national wetland protection system^[2]. As a special type of suburban wetland ecosystem located in the urban fringe, Qionghai National Wetland Park is more susceptible to disturbances from various factors such as policy, economy, and society^[3].

In the context of land space optimisation and ecological protection, the planning and construction of Qionghai National Wetland Park have triggered land acquisition and relocation. Community residents are important stakeholders, and analysing changes in the spatial patterns of social value for socio-ecosystem services is crucial for the sustainable management of wetland ecosystems and the enhancement of residents' well-being. However, the current value assessment of wetland ecosystem services mostly uses methods such as energy assessment, material quality and value assessment^[4,5]. As an important stakeholder, community residents have not received enough attention and have limited understanding of their perceived changes in ecosystem service value.

The evaluation of social value for ecosystem services, which emphasises the participatory processes of communities, can bridge the gap of materialisation and monetisation of existing evaluation methods. Consequently, the research focused on the residents of the surrounding communities of Qionghai National Wetland Park, and adopted the methods of semi-structured interview, participatory mapping, and grounded theory for data collection and the spatialization of qualitative data^[6-8]. This dataset focused on the changes in the social value for ecosystem service perceived by the community residents before and after the construction of the national Wetland Park.

2 Metadata of the Dataset

The dataset on changes in social value for ecosystem services on Qionghai National Wetland Park (2009, 2019)^[9] is summarized in Table 1. It includes the dataset full name, short name, authors, geographical region, year of the dataset, spatial resolution, composition of the dataset, data publisher, and data sharing policy, etc.

3 Methods

Qionghai National Wetland Park is located in the southeastern suburbs of Xichang City, Liangshan Yi Autonomous Prefecture, Sichuan Province. It not only has high ecological value as a plateau wetland nature reserve, but is also the largest urban wetland park in China. The research and development data for this dataset comes from semi-structured interviews and participatory mapping conducted by the research team in April 2019 in Qionghai National Wetland Park and parts of the surrounding Xijiao Township, Hainan Township, Daqing Township, Daxing Township, Gaoxiang Township and Chuanxing Town. The study used a combination of stratified sampling and convenience sampling to select residents from the communities around Qionghai National Wetland Park as the research objects, using annotated high-definition satellite map images of the study area (scale: 1:37,500) and self-adhesive stickers, questionnaires and semi-structured interview forms that record the basic information of the respondents for data collection. The content of the semi-structured interview involves three aspects: (a) Where do you think Qionghai has changed the most in the last 10 years or so (since the construction of the national wetland park)? (b) Why do you think it has changed so much? What did this place look like before (2009) and now (2019) respectively? (c) Do you think the changes are for the better or for the worse? Why? The methods and technical route for producing the dataset on changes in social value for ecosystem services on Qionghai National Wetland Park are shown in Figure 1. Specific steps

are as follows.

Table 1 Metadata summary of the dataset on changes in social value for ecosystem services on Qionghai National Wetland Park (2009, 2019)

Items	Description
Dataset full name	Dataset on changes in social value for ecosystem services on Qionghai National Wetland Park (2009, 2019)
Dataset short name	QionghaiWetlandParkSocialValue
Geographical region	Qionghai National Wetland Park
Year	2009, 2019
Spatial resolution	1 km
Data format	.xlsx, .shp
Data size	991 KB
Data files	The dataset consists 29 data files in 7 parts: (1) questionnaire and interview outline of community residents; (2) social and economic characteristics of respondents; (3) types of social value for ecosystem services before construction of the park in 2009; (4) types of social value for ecosystem services in the park in 2019; (5) spatial point data of social value for ecosystem services before construction of the park in 2009; (6) spatial point data of social value for ecosystem services in the park in 2019; (7) the land use and main residential data
Data computing environment	ArcGIS
Foundation	National Natural Science Foundation of China (41971227)
Data publisher	Global Change Research Data Publishing & Repository, http://www.geodoi.ac.cn
Address	No. 11A, Datun Road, Chaoyang District, Beijing 100101, China
Data sharing policy	(1) <i>Data</i> are openly available and can be free downloaded via the Internet; (2) End users are encouraged to use <i>Data</i> subject to citation; (3) Users, who are by definition also value-added service providers, are welcome to redistribute <i>Data</i> subject to written permission from the GCdataPR Editorial Office and the issuance of a <i>Data</i> redistribution license; and (4) If <i>Data</i> are used to compile new datasets, the ‘ten per cent principal’ should be followed such that <i>Data</i> records utilized should not surpass 10% of the new dataset contents, while sources should be clearly noted in suitable places in the new dataset ^[10]
Communication and searchable system	DOI, CSTR, Crossref, DCI, CSCD, CNKI, SciEngine, WDS/ISC, GEOSS

(1) The participatory mapping method was used to collect spatial point data^[11–13]. First, after stating the purpose of the interview, the researcher showed the prepared satellite map images to the interviewees and helped them identify landmark features to establish a sense of spatial orientation and enhance the accuracy of subsequent mapping. Secondly, the researchers asked the interviewees questions about semi-structured interview (a). Finally, with the assistance of the researcher, the interviewee used self-adhesive stickers to post the places that have changed greatly in Qionghai in the past 10 years. Meanwhile, the investigators asked the interviewees about the reasons for posting points in the semi-structured interview questions (b) and (c) and recorded the interviews in the semi-structured interview form.

(2) Collection of basic information from respondents. After completing the participatory mapping and semi-structured interviews, researchers used questionnaires to collect basic

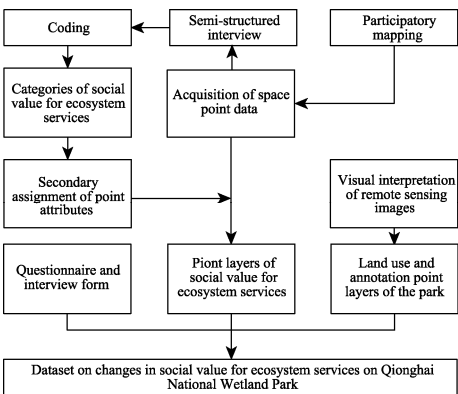


Figure 1 Technical route for the dataset development

information about the respondents.

(3) Semi-structured interview texts were coded to form the categories of social value for ecosystem services. Based on the grounded theory, the interview text was coded step by step in the qualitative analysis tool NVivo11, and the categories of social value for ecosystem services before and after the construction of Qionghai National Wetland Park were extracted.

(4) The 2019 remote sensing images of Qionghai National Wetland Park were visually interpreted in ArcGIS to obtain the park's land use and annotation point layers.

(5) The secondary assignment of point attributes forms a point layer of social value for ecosystem services. When vectorizing the spatial point data obtained through participatory mapping in ArcGIS, the coding category name is input into the attribute table of the point layer as a new attribute of the spatial point according to the affiliation of the coding category, interview text, and spatial point, forming a social-ecological system service point layer to provide a basis for subsequent spatial analysis.

4 Data Results and Validation

4.1 Data Composition

Dataset on changes in social value for ecosystem services on Qionghai National Wetland Park consists of seven parts, namely: (1) questionnaire and interview outline of community residents; (2) social and economic characteristics of respondents; (3) types of social value for ecosystem services before construction of the park in 2009; (4) types of social value for ecosystem services in the park in 2019; (5) spatial point data of social value for ecosystem services before construction of the park in 2009; (6) spatial point data of social value for ecosystem services in the park in 2019; (7) the land use and main annotation point data. Among them, parts (1) to (4) and parts (5) to (7) of the dataset are archived in .xlsx and .shp formats respectively.

4.2 Data Results

Through participatory mapping and semi-structured interview, 1,254 and 2,805 social value for ecosystem services points were obtained before and after the construction of Qionghai National Wetland Park, respectively. Clarifying the spatial pattern changes of social value for ecosystem services can provide important prerequisites and a basis for sustainable ecosystem management. Referring to existing studies^[11–13], kernel density mapping was used to analyze the changes in the spatial pattern of social value for ecosystem service points before and after the construction of Qionghai National Wetland Park (Figure 2). The output grid size and search radius were set to 150 m and 1,200 m respectively. The darker the raster color, the higher the density and the more concentrated the distribution of social value for ecosystem service points perceived by community residents.

Before the construction of Qionghai National Wetland Park, Mengxunhuahai Wetland and Qinglong temple were the highest value areas, while Menglishuixiang Wetland, Xiaoyu village, Moon Bay and Menghuitianyuan Wetland were the second highest value areas. Among them, Mengxunhuahai Wetland covers the largest area. Before the construction of the wetland park, the farmland in Mengxunhuahai Wetland was distributed continuously, and it was one of the main places for local community residents to carry out agricultural production. Qinglong Temple, as a famous local tourist attraction, had farmland and residents settled nearby before the construction of the wetland park. Local resident could enter and exit Qinglong Temple freely and carry out various activities, such as fishing, swimming, boating, setting up stalls, and farming. Therefore, the social value for ecosystem service perceived by residents were the most concentrated.

After the construction of Qionghai National Wetland Park, the high-value areas of social value for ecosystem services perceived by residents are mainly distributed near Qinglong Temple. The social value for ecosystem services of Mengxunhuahai Wetland has changed from the high-value area to the second-high value area, and the remaining second-high value areas are mainly distributed in Menglishuixiang Wetland, Guanniaodao Wetland and Hetao Village. After the construction of Qionghai National Wetland Park, the Qinglong Temple was renovated and nearby communities and farmland were included in the scope of the wetland park for unified management. The ecological environment around the Qinglong Temple was improved and Jinlin Beach was developed nearby. As a new attraction, the social value for ecosystem services perceived by local community residents still forms a high-value area. Due to the change in land use type after the construction of the wetland park, the agricultural production value of Mengxunhuahai Wetland has been significantly reduced. Therefore, the land has changed from a high-value area before the construction of the wetland park to a second-highest value area. Overall, the spatial distribution of social value for ecosystem services before and after the construction of the wetland park has changed from dual-core and multi-point distribution to single-core and multi-point distribution.

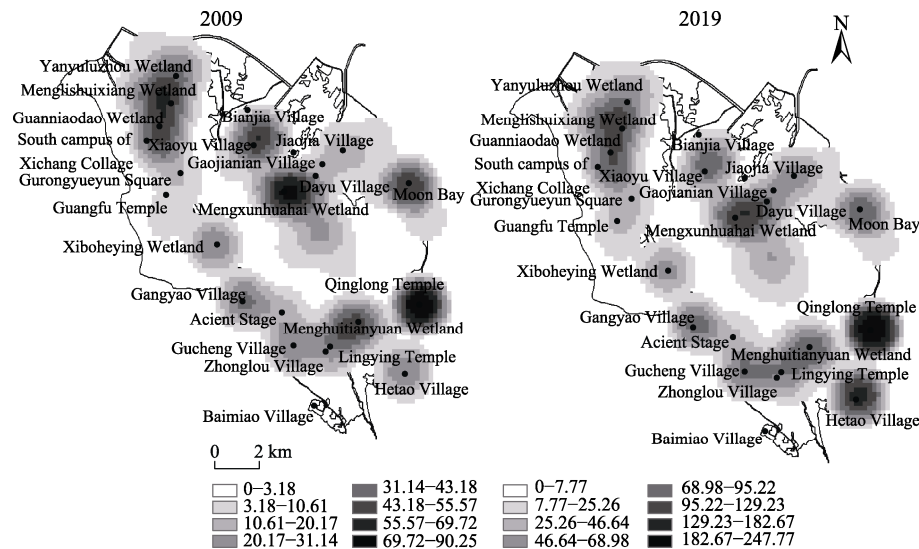


Figure 2 Kernel density maps of social value for ecosystem services before (2009) and after (2019) the construction of Qionghai National Wetland Park

5 Discussion and Conclusion

The dataset on changes in social value for ecosystem services on Qionghai National Wetland Park has designed a dataset development method suitable for the collection of ecosystem service value point data and the spatialization of qualitative data at small and medium scales in multiple stakeholders and communities based on high-definition map satellite images, semi-structured interviews and participatory mapping data. The dataset development method integrates participatory mapping, grounded theory, and secondary assignment of point attributes. Compared with objective structured data, such as large and medium-scale remote sensing data and statistical data, which are often used in traditional methods to measure the value of ecosystem services, it provides a method reference for accurately identifying and characterizing the changes of social value for ecosystem services perceived by community residents, as well as deeply mining and processing complex unstructured qualitative data.

The assessment of social value for ecosystem services takes community residents as

important stakeholders and focuses on their perceived ecosystem service value. It provides a community perspective for ecological protection and tourism development impact assessment and helps to understand the social effects of protection as well as development activities. This dataset provides kernel density mapping of social value for ecological system service points, revealing the changes in social value for ecosystem services and spatial patterns perceived by community residents before and after the construction of Qionghai National Wetland Park, which makes up for the shortcomings of the existing evaluation methods of ecosystem service value. The results of the dataset can provide data support and useful references for community residents to participate in the protection and management of Qionghai National Wetland Park and enhance their well-being. Subsequent studies can conduct thematic mapping of various social ecosystem service values based on this dataset to further explore the changes in the social value for ecosystem services perceived by community residents before and after the construction of Qionghai National Wetland Park, or expand the research on the social value for ecosystem services of the region or other similar regions based on the developed methods of this dataset.

Author Contributions

Zhao, Z. B. designed the development of the dataset; Zhang, Y. Q. contributed to the data collection and processing of changes in social value for ecosystem services on Qionghai National Wetland Park; Feng, X. conducted data verification; Li, Y. and Feng, X. wrote the data paper.

Conflicts of Interest

The authors declare no conflicts of interest.

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