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Spatial Distribution Dataset Development of 266 National Industrial Heritage Items in China (2017–2025)

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Abstract: As an important carrier of industrial culture, industrial heritage requires standardized spatial and attribute data to support its systematic protection and management. Based on the lists of the 7 batches of National Industrial Heritage sites from 2017 to 2025 published by the Ministry of Industry and Information Technology of China, the authors obtained the geographic coordinates of the relevant administrative regions via the MAP WORLD retrieval service, and subsequently integrated attribute information, including the heritage names, applying organizations, core items, and administrative divisions, to construct the final dataset following rigorous data cleaning and standardization processes. This dataset can provide fundamental data support for the spatial analysis, value assessment, and digital preservation of industrial heritage, thus demonstrating significant value for both academic research and practical application. The dataset includes: (1) the spatial distribution data of the 266 National Industrial Heritage sites, including their respective provinces, municipalities, and counties; (2) the total number of sites within each province; and (3) the total number of sites within each municipality. The dataset is archived in .shp and .xls formats, and consists of 7 data files with data size of 1.16 MB (compressed into 1 file with 146 KB).

Keywords: National Industrial Heritage; national-level; spatial distribution; China

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The dataset supporting this paper was published and is accessible through the *Digital Journal of Global Change Data*

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1 Introduction

Amid the ongoing revitalization of old urban areas and urban functional renewal in China, the conservation, transmission, and adaptive reuse of industrial heritage have increasingly been recognized as a global research focus within the field of urban planning. By definition, National Industrial Heritage (NIH) is comprised of the significant remnants throughout China's industrialization. These remnants are evaluated and certified by the Ministry of Industry and Information Technology of China (MIIT), and are characterized by their core history, technology, society, and aesthetic values[1]. The core elements of NIH are defined as the comprehensive collection of all tangible and intangible assets that effectively illustrate their distinct industrial attributes. Specifically, tangible assets are primarily comprised of physical structures utilized for production, storage, and transportation, such as factories, workshops, mills, and mining sites. Furthermore, ancillary industrial buildings designated for administration, scientific research, and residential services are included, alongside physical resources such as industrial machinery, production tools, office equipment, manufactured goods, and historical archives. Conversely, intangible elements are categorized as immaterial industrial cultural resources. These predominantly encompass specialized production techniques, corporate management frameworks, and the local industrial ethos or corporate culture[2].

The historical imprint of industrial construction is preserved within industrial heritage, which is recognized as the core resource embodying the essence of local industrial culture and documenting the development trajectory of the sector. To standardize practices related to industrial heritage, multiple specialized policies have been successively introduced in China since 2006. Specifically, documents such as the Notice on strengthening the protection of industrial heritage and the Guiding opinions on promoting the development of industrial culture were issued, providing a systematic framework for the preservation, management, and operation of domestic industrial heritage. In 2017, with a focus on comprehensive surveys and protective preservation, a specialized notice was issued by the MIIT to officially launch the pilot application process for the certification of NIH. In 2023, the relevant institutional framework was further refined through the promulgation of the Measures for the management of NIH by the MIIT. Within this document, operational principles and implementation guidelines across various stages, including qualification certification, daily maintenance, development and utilization, and regulatory supervision, were explicitly defined[3]. As of 2025, 7 rounds of industrial heritage evaluation and certification have been completed at the national level, resulting in a total of 266 designated heritage sites. These significant remnants embody traditional cultural contexts and the revolutionary lineage of socialist industrialization, serving as comprehensive testaments to the entire trajectory of industrialization in New China from its inception to its development. Furthermore, scarce historical industrial resources have been substantially safeguarded through subsequent salvage-based conservation efforts. Consequently, through the enhancement of a standardized management framework for NIH, not only can an exemplary industrial ethos be transmitted and promoted to empower the long-term development of industrial culture, but crucial practical significance is also achieved in elevating China's industrial cultural soft power and bolstering the comprehensive influence of Chinese culture[4].

This dataset integrates spatial distribution data of all 266 NIH sites nationwide, with statistical parameters covering heritage names, applying institutions, core components, and geographic locations. It provides a solid foundation for industrial heritage research and supports the excavation, preservation, revitalization, and cultural inheritance of regional industrial resources, demonstrating considerable scientific and practical value.

2 Metadata of the Dataset

The metadata of Spatial distribution dataset of 266 National Industrial Heritage items across 7 batches in China (2017–2025)[5] is summarized in Table 1. It includes the full name, short name, authors, geographical region, year of the dataset, temporal resolution, spatial

resolution, data format, etc.

Table 1 Metadata summary of the Spatial distribution dataset of 266 National Industrial Heritage items across 7 batches in China (2017–2025)

Items	Description
Dataset full name	Spatial distribution dataset of 266 National Industrial Heritage items across 7 batches in China (2017–2025)
Dataset short name	NIH_China_2017-2025
Authors	Deng, Z. D., State Grid Customer Service Center, 13913864188@139.com Li, J. F., State Grid Hubei Electric Power Co., Ltd., 1607744@qq.com Duan, J. X., State Grid Customer Service Center, 150121565@qq.com Wu, F., SFMAP (Shenzhen) Co., Ltd., vance_woo@163.com Wang, H. L., SFMAP (Shenzhen) Co., Ltd., 1936637988@qq.com Chen, Y. Y., SFMAP (Shenzhen) Co., Ltd., 3150007286@qq.com Ye, P., College of Civil Engineering and Transportation, Yangzhou University, 007839@yzu.edu.cn Wang, S., Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, wangshu@igsnrr.ac.cn
Geographical region	China (currently unavailable for Hong Kong, Macau, and Taiwan)
Year	2017–2025
Temporal resolution	Year
Spatial resolution	County
Data format	.shp, .xls
Data size	1.16 MB
Data files	266 NIH projects and their spatial distribution in provinces, cities, and counties, the number of NIH projects in each province and city
Foundations	National Natural Science Foundation of China (42471503, 42301522); Chinese Academy of Sciences (XDB0740200-01); Ministry of Science and Technology of P. R. China (2022YFF0711601); State Grid (FT20240232)
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) *Data* are openly available and can be free downloaded via the Internet; (2) End users are encouraged to use *Data* subject to citation; (3) Users, who are by definition also value-added service providers, are welcome to redistribute *Data* subject to written permission from the GCdataPR Editorial Office and the issuance of a *Data* redistribution license; and (4) If *Data* are used to compile new datasets, the "ten percent principle" should be followed such that *Data* records utilized should not surpass 10% of the new dataset contents, while sources should be clearly noted in suitable places in the new dataset[6]
Communication and searchable system	DOI, CSTR, Crossref, DCI, CSCD, CNKI, SciEngine, WDS, GEOSS, PubScholar, CKRSC, OARL

3 Methods

3.1 Data Sources

The lists of 7 batches of NIH from 2017 to 2025 were comprehensively collected. These lists are sourced from relevant notices published on the official website of the MIIT[1], and the titles and release times of each notice are shown in Table 2.

3.2 Data Processing

Information such as heritage names, addresses, and core components is primarily included within the NIH lists published for each cohort by the MIIT. Because geographical coordinate information is omitted from these lists, the affiliated county-level administrative regions were determined based on the reported address of each NIH site. Geographical coordinates for the

[1] Ministry of Industry and Information Technology of China. https://www.miit.gov.cn/.

Table 2 Relevant notices on the lists of NIH

Batch	Notice title	Time	Number
1	Announcement of the MIIT on publishing the list of the first batch of NIH	Dec. 20, 2017	13
2	Announcement of the MIIT on publishing the list of the second batch of NIH	Nov. 7, 2018	42
3	Announcement of the MIIT on publishing the list of the third batch of NIH	Dec. 6, 2019	49
4	Announcement of the MIIT on publishing the list of the fourth batch of NIH	Dec. 17, 2020	62
5	Announcement of the MIIT on publishing the list of the fifth batch of NIH	Nov. 30, 2021	31
6	Notice of the MIIT on announcing the list of the sixth batch of NIH sites and the first and second batch of NIH sites that have passed the review	Oct. 22, 2024	37
7	Notice of the MIIT on announcing the list of the seventh batch of NIH sites and the third batch of NIH sites that have passed the review	Oct. 17, 2025	32

administrative seats of these county-level regions were obtained utilizing the retrieval service of MAP WORLD (National Platform for Common GeoSpatial Information Services). Consequently, spatial information for each NIH site was specified at the county level. To ensure the requirement of data currency, the county-level administrative regions to which the national heritage lists of each batch belong are based on the administrative division codes of China on the National Database for Geographical Names of China[7].

Due to inconsistencies in the content of the released lists of NIH for each batch, special processing is required in the following 3 aspects:

(1) In the official announcements for the first through fourth batch of the NIH list, applicant institutions were not specified. However, in the notification of the fifth to the seventh batch of NIH list, as well as the notification of the first to the third batch of NIH list that passed the review, the application unit was specified. Consequently, within the final consolidated dataset, the "Declaring Agency" field is populated for heritage sites in the first, second, third, fifth, sixth, and seventh batch. Conversely, this field is designated as "Not available" for sites within the fourth batch.

(2) Only a single designated name was provided within the NIH lists for the first through fifth batch. However, in the sixth and seventh batches of NIH lists, both the application name and the approved name are included. Therefore, in the dataset, the names in the notification are used as the heritage project names for the first to fifth batch of NIH, while the approved names in the notification are used as the heritage project names for the sixth and seventh batch of NIH.

(3) Concurrently with the announcement of the sixth and seventh batches, the lists of sites from the first through third batches that had successfully passed reassessment were released by the MIIT, thereby indicating that a dynamic management system for these sites had been initiated. Consequently, based on the content of the aforementioned notifications, fields for "Review Approved" and "Review Time" were incorporated into each site entry within the dataset. Furthermore, because the "Longjiang Forest Industry Huanan Forest Railway" (third batch) failed to pass the reassessment conducted by the industry and information technology authorities, the "Review Approved" field for this specific site was designated as "No" within the dataset.

4 Data Results

4.1 Dataset Composition

The Spatial distribution dataset of 266 National Industrial Heritage sites across 7 batches in China includes 2 parts: (1) Vector data of the spatial distribution of NIH (.shp); (2) Attribute data of NIH, including heritage name, declaring agency, core items, and administrative divisions (.xls). The field names and examples of the dataset are shown in Table 3.

4.2 Data Results Analysis

At the provincial level, the distribution of NIH exhibits a distinct regional agglomeration effect (Figure 1). Sichuan Province ranks first with 22 sites (8.3%), while Jiangxi, Shandong, and Liaoning Provinces tie for second place with 16 sites (6.0%) each, followed closely by Jiangsu (15 sites, 5.6%) and Beijing (15 sites, 5.6%). Furthermore, provinces in the central

Table 3 Attribute fields of the dataset

No.	Field	Description
1	Index	1, 2, 3, ...
2	Batch	First batch, Second batch, Third batch, ...
3	Name	Zhangyu Wine-Making Company, Anshan Iron and Steel Plant, Lüshun Dockyard, ...
4	Provincial Administrative Division	Shandong Province, Liaoning Province, Jiangxi Province, ...
5	Municipal Administrative Division	Yantai City, Anshan City, Dalian City, ...
6	County Administrative Division	Zhifu District, Tiexi District, Lvshunkou District, ...
7	Core Items	Dock, wood workshop, lifting warehouse, dock authority, telegraph office, pump house, 1 dock gate, 3 bench vices, ...
8	Declaring Agency	Silk Road Holding Group Co., Ltd., Chongqing Industrial Museum Real Estate Co., Ltd., ...
9	Release Time	2017, 2018, 2019, ...
10	Review Approved	Yes, No
11	Review Time	2024

and western regions, such as Hubei, Shaanxi, and Guizhou, each possess 11 to 13 heritage sites, accounting for 4.1% to 4.9% of the total, and this reflects the unevenness and diversity in the regional distribution of industrial heritage, indicating an equal emphasis on both the central and western regions and the eastern coastal regions. This pattern is highly correlated with the course of modern industrial development, as the provinces with a larger number of heritage sites are predominantly key regions in the history of China's industrial development. Specifically, Sichuan, acting as the core area of the Third Front Construction, has retained a substantial amount of heavy industrial heritage, while Jiangxi and Shandong have formed heritage clusters due to the emergence of modern national industries and resource-based industries, and the quantity of heritage sites in traditional industrial bases like Jiangsu and Liaoning also corroborates their historical industrial status. Consequently, the quantity of heritage sites is directly related to the timing of local industrial initiation, the industrial scale, and the historical status, thereby embodying the spatial imprint of industrial heritage as a "living fossil of industrial civilization".

At the municipal level, the distribution presents a characteristic pattern that is driven by core cities and supplemented by small and medium-sized cities (Figure 2). Among prefecture-level cities, Jingdezhen (5 sites, 1.9%) and Kunming (5 sites, 1.9%) stand out prominently, as the former has formed a characteristic cluster relying on its ceramic industrial heritage, while the latter has retained heritage imprints due to the inland relocation of industries during the War of Resistance Against Japanese Aggression. In addition, more than 10 cities, such as Changzhou, Ganzhou, and Zunyi, each possess 4 heritage sites (1.5%), most of which are important regional industrial hubs. Over 80% of the cities possess only 1–2 heritage sites, and these locations span small and medium-sized cities across more than 30 provinces nationwide, indicating the extensive distribution of industrial heritage at the municipal level, which encompasses both resource-based cities (such as Daqing and Karamay) and traditional handicraft cities (such as Jingdezhen and Weifang), thereby reflecting the diverse forms of industrial civilization across different regions.

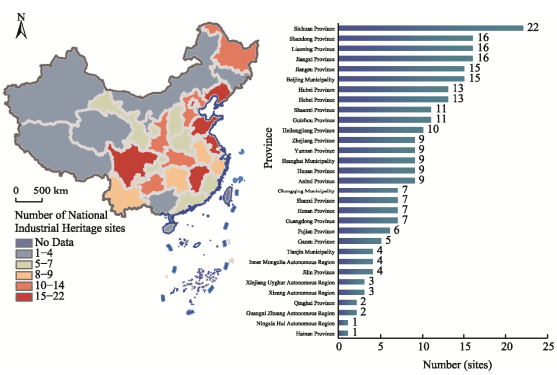


Figure 1 Spatial distribution map of NIH by provinces of China

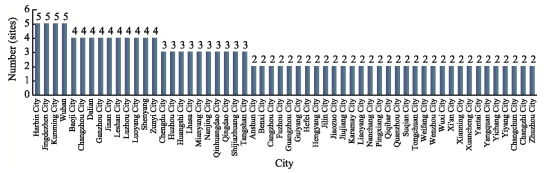


Figure 2 Statistical chart of the number of NIH sites in some cities of China

Taken together, the distribution of NIH not only continues the historical trajectory of modern industry spreading from coastal areas to inland regions, but also reflects the profound impact of national strategies, such as the Third Front Construction and resource development, on the overall industrial layout. The combination of concentration at the provincial level and dispersion at the municipal level constitutes a three-tier distribution system consisting of core provinces, key cities, and characteristic small and medium-sized cities, which provides clear spatial guidance for the preservation and utilization of industrial heritage as well as the inheritance of regional culture.

5 Discussion and Conclusion

NIH comprises valuable remnants accumulated during industrialization, encompassing significant historical, technological, social, and artistic value. Consequently, the systematic preservation and dynamic continuation of these assets are heavily reliant upon standardized data. To construct this resource, data pertaining to the 7 batches of NIH designated between 2017 and 2025 were systematically compiled and standardized. Key attributes including heritage names, declaring agencies, core items, and administrative divisions, were incorporated, thereby generating a comprehensive dataset integrating both vector and tabular formats. Furthermore, this dataset can provide fundamental data for quantitative research in fields such as industrial heritage preservation planning, the integrated development of culture and tourism, and the inheritance of the industrial spirit, and it simultaneously supports practical applications including GIS spatial analysis and the construction of heritage value assessment models, ultimately aiming to achieve the desired effect of facilitating the rescue-based preservation and sustainable utilization of the "living fossil of industrial civilization".

Author Contributions

Deng, Z. D., Li, J. F., and Duan, J. X. designed the algorithms of dataset. Wu, F., Wang, H. L., and Chen, Y. Y. processed and analyzed the data. Wang, S. made data validation. Ye, P. wrote the data paper.

Conflicts of Interest

The authors declare no conflicts of interest.

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