

Research Article

Building the Governance to Conserve and Utilize Industrial Heritage in East Asia: The Cases of Japan and Taiwan

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This study examines the difference between Japan and Taiwan in building governance for the conservation and reuse of industrial heritage. Japan started paying attention to industrial facilities as heritage due to the neglect of heritage, regional decline, and awareness of asset conservation in both cases. In contrast, conservation projects in Taiwan started because under policy of disposing of public properties, the abandoned heritage was at the risk of redevelopment. Japan's policy goal was to conserve assets in both cases, while Taiwan aimed at regenerating modern industrial heritage and revitalizing the region. In all three cases, we found that there was a promotion organization which consisted primarily of residents and citizens. In Japan's case, local governments played a more prominent role than the central government; in Taiwan, both the central and local governments did their part appropriately. These differences between the two countries are also observed in the process of decommissioning industrial facilities and citizens' awareness of industrial heritage.

1. Introduction

Industrial cities, located around industrial facilities at the helm of the modernization in the West throughout the Industrial Revolution since the eighteenth century, declined in the postindustrial era. The Western society that has experienced postindustrialization earlier has made diversified efforts to revitalize cities since the 1970s, with an aim to convert abandoned industrial facilities into heritage. However, in East Asia, such as Korea, industrialization focused on the creation of logistical bases for continental invasion during the colonial period; here, industrial facilities were perceived as a trace to be erased rather than being conserved as a proud heritage. Against this backdrop, this study aims to examine Japan and Taiwan, the two East Asian countries that inevitably have two different perspectives, regarding how they look at industrial heritage and whether they are using industrial facilities for urban regeneration or place marketing.

In East Asia, particularly in Japan and Taiwan, the conservation of cultural heritage presents minimal difficulty. However, industrial heritage such as factories, warehouses, railroads, and mechanical facilities are valuable in terms of

technology, structure, and function, but one of the major challenges is that it is difficult to judge the value of design elements compared to cultural heritage, so re-evaluation is necessary. In addition, a major challenge for both countries is how to utilize their recent industrial heritage for urban revitalization.

What East Asian nations share in common is a historical period of colonization by Japan, during which modernization and industrialization unfolded. The contemporary industrial heritage of East Asia bears the dual significance of being both a relic of colonial rule and a testament to industrial progress. While many remnants of the colonial era persist, they are often viewed as symbols of coercion and economic exploitation, complicating efforts to ascertain their value. Consequently, numerous industrial heritage sites were lost during the modernization era due to international pressures. In contrast, Taiwan stands out among East Asian countries by framing the Japanese colonial period as an "Industrial Revolution" and actively integrating industrial heritage into urban regeneration initiatives from an early stage. Conversely, Japan's industrial heritage is termed "Modernization Industrial Heritage" owing to its pivotal role in driving modernization efforts. Since

2007, Japan has implemented policies designating certain sites as “Modernization Industrial Heritage,” numbering 33 in total. This policy aims to identify, conserve, and leverage multiple heritage sites based on their significance in industrial and regional history, with the objective of utilizing the value of Modernization Industrial Heritage for regional revitalization endeavors.

In 2002, the Ministry of Culture in Taiwan adopted the term “Industrial Cultural Heritage” to designate industrial heritage sites. Subsequently, it spearheaded the “Industrial Cultural Asset Regeneration Plan” in collaboration with local governments, historical research groups, civic organizations, and others, aimed at fostering regional revitalization and community development across various regions. On the other hand, in Japan, the Ministry of Economy, Trade and Industry officially termed industrial heritage as “Modernization Industrial Heritage” in 2007. Concurrently, under the “Small and Medium Enterprise Regional Resource Utilization Promotion Act” passed in April 2007, Modernization Industrial Heritage sites, identified as assets contributing to regional development, were designated as regional assets. These sites were acknowledged as tourism resources, and efforts were made to promote their utilization. As per this legislation, inclusion of a Modernization Industrial Heritage site recognized by the Ministry of Economy, Trade and Industry as a local resource enables access to support across multiple domains.

The conservation projects of Japan’s industrial heritage in Hokkaido and Maizuru City in Kyoto, along with Taiwan’s conservation project of Tsung-Yeh Sugar Factory, stand as notable success stories. These examples underscore the crucial role of governance structures and the proactive involvement of civic groups in ensuring the success of such endeavors. Recent global trends in industrial heritage conservation advocate for extending protection efforts beyond national boundaries and fostering collaboration across Asia. By embracing innovative strategies and methodologies that adhere to the principles outlined in the International Charter for the Conservation of Cultural Heritage, initiatives are being advanced to promote cross-border cooperation in modern industrial heritage conservation projects.

There is extensive research on industrial heritage which has mainly focused on establishing definitions and types [1–3], reuse of industrial facilities and regional regeneration [4–15], and case studies of local industrial heritage [16, 17]. Here, we examine how modern industrial heritage in the city, created in a different context in each country, is perceived and reused for urban regeneration. Then, we compare the examples of each country’s building governance for urban regeneration through the reuse of industrial heritage. We specifically focus on Japan and Taiwan.

2. Global Trend of Conservation and Reuse of Industrial Heritage

2.1. Beginning of Industrial Heritage Conservation. In the 1960s, numerous organizations were established to protect industrial heritage in Europe. One of the significant early

moments was the First International Conference for the Conservation of the Industrial Heritage in England, after which The International Committee for the Conservation of the Industrial Heritage (TICCIH) was established. TICCIH is a global organization for preserving, promoting, and interpreting industrial heritage as well as the research of industrial archeology [18].

2.2. The Nizhny Tagil Charter for Industrial Heritage: Values of Industrial Heritage. The Nizhny Tagil Charter for Industrial Heritage was adopted by TICCIH at its 12th general meeting held in Nizhny Tagil, Russia, in July 2003. This charter defines industrial heritage as consisting of “the remains of industrial culture which are of historical, technological, social, architectural, or scientific value.” These remains “consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious.” While numerous domestic and international studies define the concept of industrial heritage, the definition provided by the Nizhny Tagil Charter seems to be most inclusive and universal (<http://www.latimes.kr>).

2.3. 2011 Revision of the Nizhny Tagil Charter. As the world’s first principle on preserving industrial heritage, the Nizhny Tagil Charter has served as the international guidelines for the evaluation and conservation of industrial heritage globally. It was revised in 2011 in Paris and adopted as the Joint ICOMOS–TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas, and Landscapes, also called “The Dublin Principles.” According to the revision, industrial heritage is defined as “industrial cultural property of historical, scientific, technological and social value, which provides evidence of past or ongoing sustainable activity”; this extends the scope of industrial heritage, which used to consist of remains, remnants, and relics, to include the facilities in operation.

2.4. European Route of Industrial Heritage. In Europe, attempts have been made to connect the routes of industrial heritage to conserve and reuse industrial facilities. From 2003 and 2008, 11 partners investigated and explored industrial heritage sites to conserve and promote the values of the disappearing industrial facilities sponsored by northwestern European countries; these discovered industrial facilities were connected to initiate the project named the “European Route of Industrial Heritage” (ERIH: <https://www.erih.net/>). The ERIH is the tourism information “network” of important industrial heritage in Europe. The ERIH consists of “anchor points,” which are sites of exceptional historical importance in terms of industrial heritage, “regional routes,” and “European theme routes.” As of 2017, 47 European countries participated in the project, with more than 1,500 industrial sites connected to the network. Recognized for its contribution to the conservation and expression of European industrial heritage, the ERIH project has been supported

since 2014 as a part of Creative Europe, a framework program of the European Commission (<https://www.erih.net/>).

2.5. Conservation and Reuse of Industrial Heritage in Japan and Taiwan. In both Japan and Taiwan, governmental agencies are responsible for the conservation and utilization of industrial heritage. These agencies designate significant cultural properties, formulate overarching policies within comprehensive master plans, and allocate budgetary support to facilitate these endeavors. Local communities and stakeholders in Japan and Taiwan actively contribute to the conservation of industrial heritage through various means. These include making donations, facilitating outreach efforts to raise awareness beyond their localities, establishing networks to promote collaboration, branding local specialties associated with industrial heritage, and participating in diverse activities aimed at safeguarding and promoting the heritage sites.

3. Characteristics of Modern Industrial Heritage in East Asia

3.1. Taipei Declaration for Asian Industrial Heritage. At the 15th TICCIH General Assembly, held in Taipei in 2012, the Taipei Declaration for Asian Industrial Heritage was adopted to promote the conservation and conservation of industrial heritage in Asia (<https://ticcih.org/about/charter/taipei-declaration-for-asian-industrial-heritage/>). Against this backdrop, today, Asian and European countries are designating industrial heritage groups, not just individual sites, and connecting them in an effort to enhance their values.

3.2. Colonial Heritage versus Industrial Heritage. Many East Asian countries shared a period of Japanese colonial rule, during which they went through modernization and industrialization. Modern industrial heritage in Taiwan and Korea has the double meaning of being colonial heritage as well as industrial heritage. In East Asian countries, including Taiwan, China, and Korea, several colonial heritage sites remain from the Japanese colonial rule. However, they are perceived as the symbol of oppression and economic exploitation of Japanese imperialism rather than as heritage of historic values. Consequently, much of the industrial heritage was destroyed during the process of modernization. However, Taiwan, unlike other East Asian countries, was earlier in its effort of reusing industrial heritage for urban regeneration, calling the Japanese colonial period the “industrial revolution.”

3.3. Characteristics of Modern Industrial Heritage in East Asia. Since decolonization, former Japanese colonies in East Asia took over all assets from the colonial ruler and colonialist enterprises, incorporating them as state-owned properties and enterprises. Due to this background, industrial heritage in East Asia, which belongs to the government and state-owned enterprises, differs in many respects from the West and Japan, where most of the modern industrial heritage belongs to private enterprises. In East Asia, the heritage conservation strategy of the government and state-owned enterprises and the perception about heritage

protection after the privatization of the enterprises played an important role in the conservation and reuse of modern industrial heritage.

4. Building Governance for Conservation and Reuse of Japanese Industrial Heritage

4.1. Policies and Roles of the Government for Conservation and Reuse of Industrial Heritage

4.1.1. Conservation of Modernization Industrial Heritage by Japan’s Agency for Cultural Affairs. Japan started activities to conserve Matsunami in the late 1960s. Later, the “National Federation of Historic Sites Conservation (1970)” and the “National Association for the Conservation of Machinami (1974)” were formed in the 1970s. However, many industrial facilities were demolished due to the lack of awareness of heritage conservation.

One of the earlier examples of industrial heritage conservation is the “Kurashiki Ivy Square,” a cultural facility complex which was redeveloped from spinning mill in Kurashiki in 1973. At similar times, the Otaru canal and old warehouse buildings were converted into tourist attractions. This demonstrated the awareness and effort of conserving cultural property which was evaluated to have a great influence on the conservation of industrial facilities and civil engineering heritage in Japan. Although several notable conservation activities were undertaken, it is difficult to say that this was the period when Japan began paying attention to industrial heritage conservation.

This happened later. For example, a full-scale comprehensive survey began in 1990. Then, in 1993, the brick arch rail bridge in Gunma Prefecture and the Fujikura fountain-head water supply facilities in Akita Prefecture were designated as important cultural properties of modern industrial heritage for the first time. Since the 1990s, in Japan, the industrial heritage has been attracting attention as a new type of cultural property as well as a symbol of regional development. Moreover, active efforts have been made to conserve this industrial heritage. Furthermore, to promote the comprehensive survey by local governments or conservation activities, industrial buildings were perceived as having played an important role in industrial innovation and regional modernization after the Meiji Restoration [19].

After the Cultural Heritage Protection Act was revised in June 2018, the regional plan for the conservation and reuse of the cultural property was defined and implemented in April 2019. Accordingly, the action plans were outlined to conserve and reuse cultural property throughout Japan; the associated activities included developing ideas, enacting laws, and specifying the details of the project plan (Maizuru City, 2021).

4.1.2. Recognition of Industrial Heritage by Japan’s Ministry of Economy, Trade, and Industry

- (1) *Designation of Heritage Constellations of Industrial Modernization.* Since the 1990s, there have been extensive conservation activities around the country to conserve modern historic and cultural properties

of the Industrial Revolution since the Meiji era. Japan's Ministry of Economy, Trade and Industry (METI) defines heritage constellations of industrial modernization as "industrial heritage that has played an epochal role in the process of regional and industrial modernization, such as new factories, mine maintenance, groundbreaking manufacturing products, equipment, documents, restorations, and models from the end of the shogunate to the prewar period."

METI was aware that the value of industrial heritage, such as factory ruins or abandoned ships, is unlikely to be expressed in individual units, and that it is difficult to promote regional regeneration by preserving industrial heritage. Therefore, in 2007, METI selected 33 stories as "the stories of the ancestors about the heritage of Industrial modernization." This was done by creating heritage constellations of industrial modernization, not as individual heritage units. Furthermore, the entire production line and important industrial landscapes were conserved together to protect their integrity and authenticity [19].

(2) *Network of Heritage of the "33 Heritage Constellations of Industrial Modernization"*. According to the Small and Medium Business Local Resource Utilization Promotion Act, enacted in April 2007, industrial heritage was recognized as a tourist resource in the region, along with the special products. Moreover, under this law, if regional resources include industrial heritage recognized by the METI, a region can get support in various fields, including budgetary, financial, tax, and human resources; the aim is to promote the usage of industrial heritage. From 2007 to 2009, the METI's Committee on Industrial Heritage published 33 Heritage Constellations of Industrial Modernization and 33 Heritage Constellations of Industrial Modernization (Vol. 2), organized with numerous heritage sites based on stories from the regional and industrial history, to harness the value of industrial heritage to revitalize the region. For 2 years, the Committee on Industrial Heritage designated, conserved, and used 1,115 pieces of industrial heritage, scattered around the nation, based on 66 themes [19].

4.2. *The Japanese Case of Governance Building for the Conservation and Reuse of Industrial Heritage*. The first example of the conservation and reuse of industrial heritage in Japan can be found in the old Kurashiki Spinning factory that was built in 1889 and renovated in 1973 into a tourist facility. In recent years, local residents are actively involved in the conservation and regional regeneration using this industrial heritage. Local nonprofit organizations (NPO) and culture and history research groups are leading urban regeneration using the heritage constellations and groups in each region. In addition, local industrial heritage research groups have studied the history of this heritage for years.

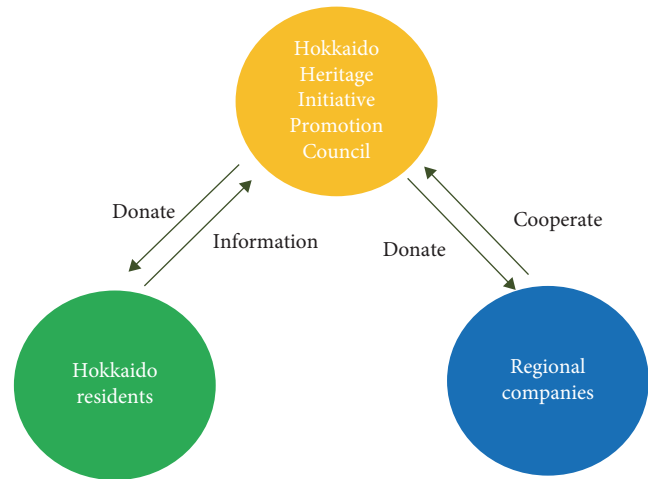


FIGURE 1: Organization and duties of Hokkaido governance.

For example, the Society for Industrial Archeology of Japan has 18 local branches throughout the nation that reassess regional industrial heritage, recommend them to be designated as a heritage, and suggest policies for the conservation and reuse of the heritage.

4.2.1. *Hokkaido Heritage Initiative Promotion Council: Conservation of Hokkaido Heritage*. Since the governor of Hokkaido declared the "Northern World Heritage Initiative" in April 1997, a committee composed of a project team and private experts was established within the provincial government. Further, forums were held while discovering candidates to be designated as heritage. In May 2001, the Hokkaido Heritage Initiative Promotion Council was established as a private organization to undertake Hokkaido heritage initiatives.

Thereafter, this council has conducted various projects to designate Hokkaido heritage, develop and spread Hokkaido heritage initiatives, and support regional activities for the conservation and reuse of heritage. Since 1999, the council has actively recruited candidates for Hokkaido heritage representing Hokkaido, selected 67 heritage sites by 2021, and carried out local revitalization projects. It acquired the status of an NPO in December 2008 and has been active as an NPO since April 2009 (<https://www.hokkaidoisan.org/>) (Figure 1).

4.2.2. *Conservation of Maizuru City's Red Brick Warehouse*. Maizuru City has several red brick buildings which were originally built as warehouses of the former navy in 1902. In the 1980s, the red brick warehouse was abandoned, and the town of Maizuru gradually declined. In 1988, the "Maizuru Town Development Promotion Research Group" was organized by 80 employees of Maizuru City; subsequently, symposiums were held to discuss urban landscape, disaster prevention, industrial heritage, etc. In 1990, the "Maizuru Architecture Exploration Group," led by citizens, was launched to investigate and study red brick buildings in the city (<http://www.redbrick.jp/>).

In 1991, the "Red Brick Club Maizuru," a civic organization, was launched with 150 members. It supported village

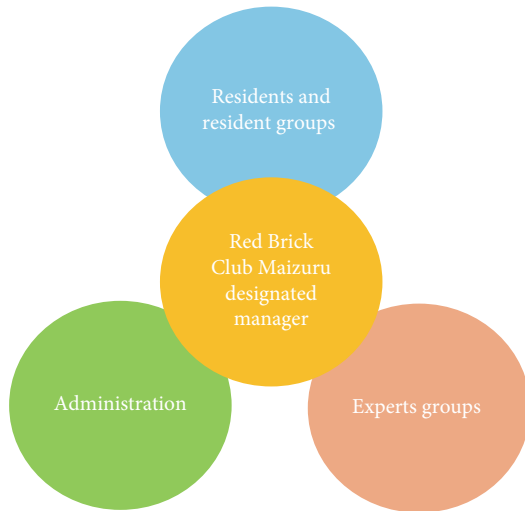


FIGURE 2: Governance for conservation and reuse of Maizuru red brick heritage.

development using red bricks, for example, by planning to network with domestic organizations for the conservation and reuse of brick buildings around the country. In 2000, it was recognized and began operating as an NPO.

This organization restored Maizuru City Commemoration Hall (1994), Maizuru Chiegura (Wisdom Warehouse) (2007), Akarenga Workshop (Akarenga Building 4), and Akarenga Event Hall (Akarenga Building 5) which have been renovated one after another as Red Brick Park, which was owned by the Maizuru Culture and Education Foundation (<https://www.city.maizuru.kyoto.jp>). In 2007, based on the provisions of Article 183(9) of the Cultural Heritage Protection Act, the “Maizuru Red Brick Warehouses Conservation and Reuse Review Committee” was launched to promote the project (Maizuru City, 2021). Moreover, the conservation of heritage constellations of industrial modernization was integrated into urban planning and landscape. The following year, the seven red brick warehouses, the symbol of Maizuru, were designated as important cultural properties of the nation. Led by the aforementioned committee, brick warehouses are now being restored as a new cultural facility. However, Red Brick Club Maizuru was disbanded on March 31, 2021, and will be hereafter active as a voluntary organization (<http://www.redbrick.jp/>).

Thus, a model was established to conserve and reuse Maizuru red brick warehouses. This set a successful precedent where citizens discovered and confirmed the value of the red brick buildings, which had been undervalued. This helped in cultivating attachment and revitalizing the city through conservation and utilization (Figure 2).

The decision-making process regarding the conservation and utilization of East Asian industrial heritage varies slightly depending on economic factors within each country. Historically, there has been a strong emphasis on conservation; however, there is now a growing recognition of the importance of urban revitalization through utilization. In Japan, economic considerations play a predominant role in decision-making, evident in the proactive promotion of

industrial heritage conservation and utilization initiatives by the Ministry of Economy, Trade and Industry. Japan’s industrial heritage, known as the “Modernization Industrial Heritage,” stands as a source of pride for its pivotal role in driving the nation’s modernization. Recognized for its cultural and social significance stemming from its contribution to Japan’s industrial advancement, this heritage is actively promoted by the Ministry of Economy, Trade and Industry. The Ministry is forging connections between industrial heritage sites and groups possessing narratives that effectively leverage these sites for regional revitalization through conservation and utilization, thereby fostering synergistic outcomes. Japan strategically transforms industrial heritage into a tourist resource through its conservation and utilization efforts. This approach not only enhances the cultural and historical appeal of the sites but also intertwines them with town development, known as “machi-zukuri,” thereby aligning with development interests.

5. Building Governance to Conserve and Reuse Taiwanese Industrial Heritage

5.1. Policies and Roles for the Conservation and Reuse of Industrial Heritage by Taiwan’s Ministry of Culture of Taiwan

5.1.1. *Postwar Nationalization of Modern Industrial Heritage.* The modernization of Taiwan began in the late Qing Dynasty. The modernization of infrastructure and industry reportedly happened during the Japanese colonial era, which promoted the development of Taiwan as a modern nation [19]. Taiwan’s postwar government established state-owned enterprises while taking over the colonial assets. During this process, most of its modern industrial heritage was owned by the state or state-owned enterprises [19].

In the West, which was an early starter in preserving modern industrial heritage, private companies are the primary owners of such heritage. Civic groups or private companies are in charge of conservation projects, with citizens taking an important part in them. In contrast, most of the industrial heritage in Taiwan is state-owned. Therefore, the government and state-owned enterprises play a key role in the conservation of modern industrial heritage, depending on their perspective and policies about the conservation of historic heritage [19].

5.1.2. *Determining the Official Name of “Industrial Cultural Asset”.* In 2002, Taiwan’s Ministry of Culture determined that it would officially call industrial heritage officially as an “industrial cultural asset.” Together with local governments, local history study groups, and civic organizations, the Ministry carried forward with projects to conserve modern industrial heritage, as well as regional regeneration and town development. Recently, it has established the “Regional Cultural Center (Cultural Facility)” and the “Cultural and Creative Industrial Park” to transform the image of modern industrial heritage from the relics of the colonial rule to cultural resources; the aim is to use as this as the foundation

for regional regeneration and development of new industries [19].

5.1.3. Establishment of Five Great Cultural and Creative Industrial Parks. Since 2002, the Executive Yuan of Taiwan actively promoted the cultural and creative industries under the “Challenge 2008 National Priority Development Plan.” Under this plan, the breweries and distributors around Taipei Station, Taiju Station, Chiayi Station, Tainan Station, and Hoi Lien were designated as “Five Great Cultural and Creative Industrial Parks.” The plan was to reuse the large factories near the big city stations connecting the five points of cultural and artistic development to conserve modern industrial heritage. As a good example of preserving modern industrial heritage in Taiwan, the project greatly influenced the reuse of abandoned industrial sites in other areas, leading to urban regeneration in the metropolitan area [19].

5.1.4. Two Thousand Three State-Owned Modern Industrial Cultural Asset Survey by the Ministry of Culture. In the 2000s, the National Asset Management Committee was established to improve the central government’s severe financial difficulties by disposing of the public properties owned by the central government, local governments, state-owned enterprises, schools, etc., to promote the sale of public land and properties. To prevent damage to modern industrial heritage due to land development and facility maintenance by private capital, the Ministry of Culture investigated modernization heritage groups scheduled for privatization and prepared a list in collaboration with experts, academics, the Ministry of Economy, the state-owned property bureau, and the National Security Bureau [19]. Based on this survey, the components of industrial cultural assets were categorized, and the direction was set for the conservation of Taiwan’s industrial heritage.

5.1.5. Taiwan’s Cultural Property System and Expansion of Industrial Heritage Designation as Cultural Properties. Since the Cultural Asset Conservation Act was enacted and enforced in the 1980s, there has been no modern heritage item specified under the law. In the Act, there is a provision about cultural landscapes, but only a small number of buildings were designated as historical sites as modern industrial heritage. Recently, Taiwan’s government and state-owned enterprises are planning to reuse the industrial heritage—which was not recognized for its economic values nor evaluated as worthy of being conserved—as regional cultural assets.

As of 2013, approximately 70 industrial buildings and relics were designated as historical sites according to the definition of industrial heritage, while approximately 140 were registered as historical buildings. The definition of industrial landscape and civil heritage was added to the provision of “Cultural Landscape” of the Cultural Asset Conservation Act in 2005, which recognized that a sufficient area was necessary for the conservation of industrial heritage. Until 2013, 18 industrial heritage items, registered as cultural landscapes, and industrial clusters of agriculture and forestry were also conserved as cultural assets. Two hundred thirty

industrial heritage assets account for 10% of the total designated and registered cultural assets [19].

5.1.6. Industrial Cultural Asset Regeneration Plan (2006–2009). To support the conservation of state-owned assets and modern industrial heritage, five regeneration plans and five support-type plans were created since 2006, and eight Industrial Cultural Asset Regeneration projects were promoted from 2007 to 2009.

5.2. The Case of Building Governance to Conserve and Reuse Taiwan’s Modern Industrial Heritage: Tsung-Yeh Sugar Refinery in Tainan City. Since the 1990s, under the Cultural Asset Conservation Act, many industrial facilities in Taiwan have been registered as historic sites and designated as historic buildings in an effort to conserve the history and culture of Taiwanese modernization. However, according to the redesignation policy and reuse system of cultural assets, the conservation of the stylistic structure of buildings and the reuse of open spaces, rather than the conservation of industrial history and culture, were emphasized in these conservation projects. It is only recently that examples of the conservation and reuse of industrial sites have been diversified; today, they are being used as a cultural landscape, cultural and creative industrial parks, cultural villages, museums and archives, parks, etc.

Tainan Tsung-Yeh Sugar Refinery was established in 1911 by Japan Meiji Sugar Co., Ltd., and the sugar refinery became an important industry in Madou, Taiwan. However, about 100 years later, the sugar refinery was closed in 1993. Since then, the local economy has been driven by agriculture, including the cultivation of fruits. In 1999, the Tainan government designated four buildings and Japanese-style gardens as prefecture-designated historic sites, some of which were restored. Currently, Tsung-Yeh Arts and Cultural Center is contributing to revitalizing the region through art and tourism (<https://culture.tainan.gov.tw/>).

According to Xinheng, the reuse of a sugar refinery in Taiwan can be divided into a state-owned enterprise-led project and an external organization-led project. The latter can be further divided into those led by local governments and private companies and those led by the tourism and leisure departments of the state-owned enterprises. The subjects can be divided into local government, private companies, and state-owned enterprise. The process of conservation differs depending on who leads the project. The state-owned enterprises tend to introduce tourism and leisure facilities centering on the exhibition of the history and culture of sugar refinery and plan large-scale cultural facility complex; meanwhile, local governments or private companies focus on the promotion of the quality of life of residents and revitalization of the region by introducing art and cultural exhibitions as well as the history and culture of sugar refinery exhibitions. The conservation of the Tsung-Yeh Sugar Refinery was led by Tainan City, with the aim of creating an extensive space for residents and establishing a community center for residents.

In 1993, when the production of Tsung-Yeh Sugar Refinery was brought to a halt, it dealt a major blow to the community. Taiwan Sugar Corporation, or the state-owned enterprise, demolished industrial buildings, including factory



FIGURE 3: Governance for conservation and reuse of Tsung-Yeh Arts and Cultural Center.

buildings and Japanese-style dormitories, in the residential area for real estate development on this site. However, the local residents resisted the development on the site and strongly called for the conservation of the refinery. To stop the demolition, local residents collected complaints from local maintainers and applied for the site to be designated as historic sites to the Central Government Culture and Construction Committee. In 1999, the private conservation organization of Madou Yeonseon, supported by influential locals, artists, and civic groups, appealed to the local government and central government to conserve the remaining architecture and promoted the conservation with the participation of residents. This attracted the attention of the Central Government's Cultural Construction Committee and the Tainan County Government. At first, Taiwan Sugar Corporation opposed the designation of the factory as a cultural property; however, after it lost the administrative litigation in the Higher Administrative Court, the Tsung-Yeh Sugar Refinery conservation project was implemented in collaboration with the Tainan County Government and the residents [19].

In November 2001, "Tsung-Yeh Arts and Cultural Center" was opened as the largest art village in the region under the county's leadership, aiming to revitalize the modern industrial heritage and the region. Currently, the Tainan Cultural Foundation, under the Tainan Prefectural Government, is operating Tsung-Yeh Arts and Cultural Center with budgetary support from the Tainan government and grants from the central government [19] (Figure 3).

In Taiwan, there is already a high level of public awareness regarding industrial heritage. For instance, in the case of the sugar mill, public demand has led to its designation as a historic site. Furthermore, the public actively provides input on plans for its use. Similarly, with Tsung-Yeh Arts and

Cultural Center, there is active participation from the public in its operation. In Taiwan, the Ministry of Culture spearheads efforts to promote the conservation and utilization of industrial heritage. Consequently, when industrial heritage sites undergo conservation and utilization initiatives, they are often repurposed into facilities that are intertwined with culture and arts. Furthermore, numerous instances in Taiwan showcase how these sites serve as content hubs, leveraging their cultural and historical significance to enrich visitor experiences and foster greater appreciation for Taiwan's industrial heritage.

6. Conclusion: Comparison of Governance Building for Conservation and Reuse of Industrial Heritage in Japan versus Taiwan

Here, we examined (1) the definition of industrial heritage and policy change for conservation and reuse of industrial heritage; (2) the characteristics of East Asia's modern industrial heritage; and (3) the cases of governance building for the conservation and reuse of industrial heritage in Japan and Taiwan.

Recently, the definition and scope of industrial heritage have been extended to try and look at heritage in the network beyond national boundaries. Accordingly, several policies and plans for conservation and reuse of industrial heritage have been promoted in this context. Thus, East Asia is increasingly recognizing, preserving, and reusing industrial heritage, in the context and connection with other sites, rather than as an individual heritage of a country.

Modernization in East Asia has different characteristics from that in the West. In addition, the process of modernization differed between Japan and other East Asian countries, including China, Taiwan, and Korea. These differences were observed in the process of decommissioning past industrial facilities after 1945 and converting them into heritage later.

Here, we examined the difference between Japan and Taiwan in building governance for the conservation and reuse of the industrial heritage (Table 1). Japan started paying attention to industrial facilities as heritage due to the neglect of heritage, regional decline, and awareness of asset conservation in both cases. In contrast, conservation projects in Taiwan started because under policy of disposing of public properties, the abandoned heritage was at the risk of redevelopment. Japan's policy goal was to conserve assets in both cases, while Taiwan aimed at regenerating modern industrial heritage and revitalizing the region. In all three cases, we found that there was a promotion organization which consisted primarily of residents and citizens. In Japan's case, local governments played a more prominent role than the central government; in Taiwan, both the central and local governments did their part appropriately. These differences between the two countries are also observed in the process of decommissioning industrial facilities and citizens' awareness of industrial heritage.

TABLE 1: Comparison of governance building for conservation and reuse of industrial heritage: cases of Japan and Taiwan.

Nation	Japan	Taiwan
Target site	Hokkaido	Tsung-Yeh Sugar Refinery (Madou, Tainan City)
Background	Conservation of assets to hand over to the next generation	Disposal of shared properties Redevelopment of closed factory site
Policy implementation	1997, the governor of Hokkaido declared the "Northern World Heritage Initiative"	Conservation movement of residents Promotion of designation of historic sites
Promotion organizations	2001, Hokkaido Heritage Initiative Promotion Council	1998 Group of influential locals (promotion of designation of historic sites) 1999 Madou Yeonseon (private organization for conservation) 2001 Tsung-Yeh Arts and Cultural Center
Members of the organization	Administration, NPOs, residents	Influential locals, artists, civic groups
Roles of the organization	Designate Hokkaido heritage, develop and spread Hokkaido heritage initiatives, support regional activities for conservation and reuse of heritage, promote Hokkaido heritage, promote industrial tourism	Investigate and research red brick buildings, plan networking, support town development, repair and manage red brick parks, hold events
Roles of the central government	—	Apply for historic sites conservation movement, participated by residents
Roles of the local government	Organize heritage initiative promotion council establishment of information center for Hokkaido Heritage through public-private partnership	Designate historic sites Support fund
Financial/institutional support	—	Designate historic sites Administrative cooperation with residents Open Tsung-Yeh Arts and Cultural Center Budget Support
Resident participation	Donation	Tainan Cultural Foundation Participation in activities

Data Availability

The author makes data available on request through a data access committee, institutional review board, or the authors.

Conflicts of Interest

The author declares that there is no conflicts of interest.

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