

The Formation Process and Changes in Patients' Housing in Nagashima-Aiseien

the First National Sanatorium in Japan

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Abstract

Hansen's disease sanatoria were constructed worldwide from the 19th century to the beginning of the 20th century. In Japan, 13 national sanatoria still exist. Although these facilities are still regarded as Hansen's disease sanatoria, their function has shifted from being a treatment facility to being a nursing facility for elderly people without a family or hometown. Hansen's disease is a chronic infection characterized by a wide range of symptoms depending on the progress of the disease. People with mild symptoms can live their daily lives, while other patients need help due to blindness or paralysis of the hands and feet. Additionally, the age of onset varies from children to adults. Through these facilities, people could live most of their daily lives without having to rely on the world outside of the sanatorium. A sanatorium was like a village where patients of different ages and with various symptoms lived together. This study examined the process of transition from the "villages" for isolated patients to the final abode of the elderly in terms of the formation process of patient housing.

Keywords

Hansen's Disease Sanatoria, Community development, Patients' Housing, Transformation of the living environment, Nagashima-Aiseien

How to cite

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INTRODUCTION

Hansen's disease¹ is a chronic infection characterized by a wide range of symptoms depending on the progress of the disease. Some people have mild symptoms and can live their daily lives to those, while others need help due to blindness or paralysis of the hands and feet. It is now curable, but when Hansen's disease was still an incurable disease, it was considered necessary to isolate patients from society to prevent the spread of infection. In Japan, 13 public sanatoria were established throughout the country since 1909. Unlike ordinary medical facilities, Hansen's disease sanatoria were like villages, including large residential complexes, schools, supermarkets, barbershops, farms, entertainment facilities, religious facilities, and so on.

Focusing on these characteristics of Hansen's disease sanatoria, this study examines the transition of Hansen's disease sanatoria created as "villages" for patients in terms of the formation process of patient housing. These sanatoria remained the final residence for some patients, even after isolation became unnecessary. There are 1,001 residents with an average age of about 87.0 as of May 2021 lived in thirteen national sanatoria Japan. The subject of this study is Nagashima-Aiseien, the first national sanatorium for Hansen's disease in Japan. In fact, there were five more sanatoria established before Nagashima-Aiseien.² All of them were established as public sanatoria and were later transferred to the national government. Although public sanatoria have a longer history, their main purpose at the time of establishment was to protect wandering patients rather than to isolate them.³ Meanwhile, the Nagashima-Aiseien facility was originally planned to isolate patients for the rest of their lives. Thus, Nagashima-Aiseien was considered a more appropriate case to examine.

Research on Hansen's disease in Japan is often based on the delay in the abolition of isolation policy compared to other countries⁴ and the awareness of prejudice and discrimination against Hansen's disease patients. Studies on the establishment and enforcement of laws on isolation from political and hygienic perspective and studies focusing on how patients confronted coercive and protracted isolation policies are the mainstream. The study of sanatorium itself, which is separated from the disease, was laid the foundation by Sakaino⁵. The development process of sanatoria, which focuses on the changes in the facility composition and expansion has been examined. Additional functions, facilities, and site expansion processes have been analyzed as a result of the transition from the protection of wandering patients to forced isolation of all patients, and characteristics of sanatoria are summarized according to the time and location of its foundation.

Meanwhile, the study of patients' housing was conducted sporadically for each sanatorium. Many of them are based on interviews with residents and former patients, because of access restriction to the documents of sanatoria, therefore it is difficult to compare them because the survey items are biased by each case. The cases have been reported in just 5 out of 13 sanatoria: Nagashima-Aiseien⁶, Kusatsu-Rakusen⁷, Hoshizuka-Keiaien⁸, Oku-Komyoen⁹, and Okinawa-Airakuen¹⁰. The research method of these previous studies is interview. Although the interview survey has limitations that depend on the interviewee's experience and memory, it is possible to conduct an in-depth investigation. Thus, the living environment by age group and

family composition, such as floor plan, residential behavior, number of residents per room, household tools was revealed in detail. This study attempts to investigate the universality and objectivity of the results revealed in previous studies in the entire history of sanatorium.

METHODS

Interviews have become the mainstream research method when investigating Hansen's disease sanatoria for several reasons, such as restricted access to materials, or the unorganized or unknown presence of materials. In this study, with the cooperation of Nagashima-Aiseien, new primary data including maintenance-related administrative documents were collected and investigated. Based on the collected data, this study aimed to clarify the overall picture of the sanatorium according to the transition of the facilities in terms of facility management rather than from the residents' view, a new perspective relative to the existing research.

Data collection was conducted between 2017 and 2021. The data on the location, layout, year of construction, residents, renovation, and demolition of all patients' housing in Nagashima-Aiseien were collected. The collected data include publications such as annual reports, commemorative magazines, and residents' journals, as well as documents related to the residents' council, architectural drawings, and photo albums stored by the facility management department. Among them, the documents stored by the facility management department were the new primary materials mentioned above. It includes documents prepared by Home Ministry, administrative documents such as *National Property Register*, *Survey of Land and Buildings*, and *Application form of facility maintenance cost*, as well as construction order documents, blueprints, and site plans. The main contents are as shown in **Table 1**.

To understand the transition of sanatoria as "villages" rather than medical facilities, the history of all patients' houses was investigated, and the supply and maintenance processes of the houses were organized in chronological order. Based on the results, an analysis was conducted on the order of the development of the residential area in Aiseien and the regional characteristics of each area in terms of physical planning.

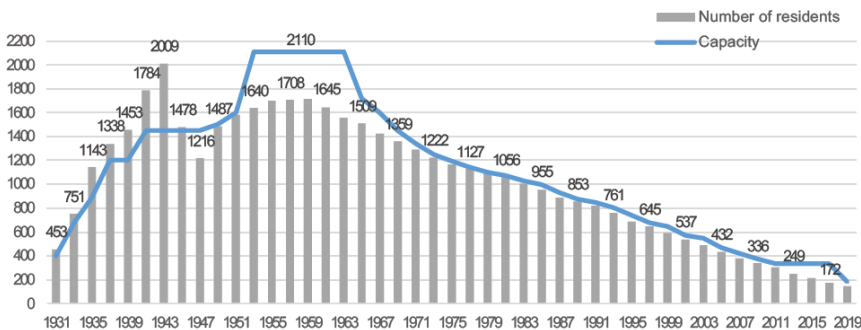


Fig. 1. Changes in the Number of Residents and Capacity of Nagashima-Aiseien. Source: Population transition statistics by Nagashima-Aiseien Welfare Division

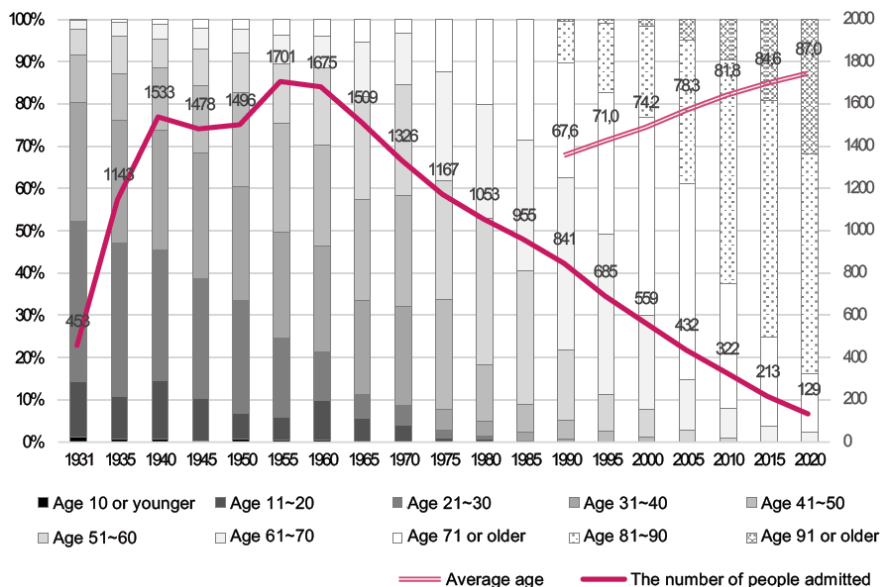


Fig. 2. Inter quinquennial Changes in number of inmates and age composition in Nagashima-Aiseien. Source: Demographic from the welfare division of Nagashima-Aiseien

OVERVIEW OF NAGASHIMA-AISEIEN

Nagashima-Aiseien, the first national Hansen’s disease sanatorium, opened in 1930. Nagashima is a small island located in *Setonaikai*. It used to be a remote island, but a bridge was built in 1988 that connects it by land. The area of the sanatorium is about 250ha. It has 125 residents with an average age of about 87.4 as of May 2021.¹¹

Since Hansen’s disease was considered incurable when the sanatorium was established, patients were not expected to be discharged after treatment like a general medical facility, so it was built as a facility to house residents for the full lifetimes. In addition, patients of various ages and with various symptoms live together. The facility contains not only wards but also houses for healthy residents who do not need hospitalization. The sanatorium includes public baths, grocery stores, a post office, religious facilities, schools, fruit farms, barns for livestock, factories, entertainment facilities, and so on.

Japan enacted a public health policy related to Hansen’s disease in 1907.¹² At first, the requirement of isolation was limited to wandering patients. However, after 1929, *The Campaign for Leprosy Free Prefectures*¹³ began, which led to a rapid increase in the isolation of patients with Hansen’s disease. The government decided to establish national sanatoria to accommodate patients from all parts of Japan. As **Figure 1** shows, from its opening to 1950.



Fig. 3. Aerial photograph of Nagashima-Aiseien in 2016. Source: Aerial photograph No. CCG20162X-C3-21, Geospatial Information Authority of Japan

Nagashima-Aiseien was always over capacity, except for a period after World War II. Therefore, securing housing for patients was always the biggest issue.

Hansen's disease was often transmitted and developed in childhood, and the age group of patients was widely distributed. **Figure 2** shows the trends in the number and age structure of the patients at Nagashima-Aiseien. In the early 1930s, 80% of residents were in their 30s or younger, but in the 1960s, it decreased to less than 50% and disappeared in the late 1990s. As new infections were suppressed, the average age of residents gradually increased as there was no inflow of new patients and childbirth was not allowed in sanatorium. Since the 1950s, when treatment drugs were widely used, recovery progressed mainly among young people, and the aging of the sanatorium's population accelerated. According to **Figure 2**, about 40% of those aged 60 or over in 1975 dropped to about 50% in 1980.

The main living area of the sanatorium is shown in **Figure 3**. Most of the buildings are the houses in which residents live. Generally, a single house building consists of 4 to 6 units, and more than 70% of them are now vacant.¹⁴ **Figure 4** shows the residential area of Nagashima-Aiseien in more detail according to the period and type of housing maintenance. Sanatoria were previously broadly divided into two areas: the patient area and staff area to prevent infection. Area J, which is surrounded by dotted lines, was the staff area and the other areas A~I were the patient areas. Patients were restricted from entering the staff area.



Fig. 4. Area map of Nagashima-Aiseien. Created by editing Site Plan of Nagashima-Aiseien in 2010 published in The 80th Anniversary. of Nagashima-Aiseien(2011)

CHANGES IN THE NUMBER OF PATIENTS HOUSED

Nagashima-Aiseien exceeded its capacity since its opening until the early 1950s, except during the period immediately after World War II. Therefore, securing housing for residents was always the biggest challenge.

Figure 5 shows the results¹⁵ of a survey of the number of demolitions of residential buildings and trends in construction activities every 10 years.¹⁶ The first decade saw the biggest change. At the time of opening, the facility contained 16 houses, which increased to 135 immediately. Though housing supply was temporarily cut off in the 1940s due to the war, the number of houses continued to increase until the 1950s. The number of residential buildings peaked in 1953 and then moved from supply to management. In the 1960s, one noticeable change is the beginning of demolition and reconstruction. New houses named after former ones were built on the sites of demolished buildings. In addition to reconstructing houses with the same name on the same site, construction was carried out to dismantle neighboring houses and build new larger houses. Since the 1990s, the number of construction projects decreased significantly. By this time, housing maintenance was completed. Since then, there has been no significant change in the total number of houses, except for a gradual decrease.

Based on above, this study will examine the housing maintenance process in Nagashima-Aiseien in three periods: Housing supply period(1930s-1950s), Aging housing maintenance period(1960s-1980s), and Housing reduction period(1990s-2010s).

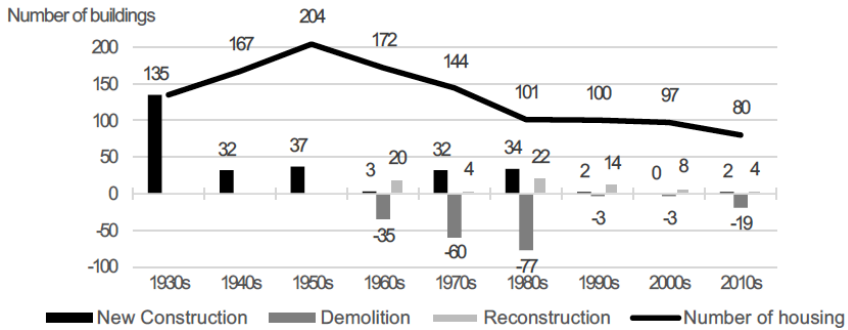


Fig. 5. Inter decennial changes in housing construction, demolition, and reconstruction in Nagashima-Aiseien.

DEVELOPMENT STATUS OF RESIDENTIAL AREAS AND CHANGES IN HOUSING TYPES

HOUSING SUPPLY PERIOD (1930S-1950S)

At the time of its opening, Nagashima-Aiseien consisted of area J(Main office and staff quarters) for the office functions of the sanatorium and staff offices, as well as A(Hide), B(Uchishirama), and I(Hospital and wards). Most of the residents lived in A(Hide). As the number of residents increased, new housing sites were gradually developed around I(Hospital and wards) and A(Hide) at the center of the village. For geographical reasons, certain scale flatland was difficult to secure, so small-scale houses were built dispersed in several places.

In general, the residential areas are gradually developing from the center to the suburbs; however, in Nagashima-Aiseien, it did not necessarily develop sequentially from the center. From tracking the construction history of houses, it seems that the order of development was determined by the geographical conditions of each area and the functions placed there. In addition, houses were not built all at once, but were gradually developed according to the sanatorium's needs.

Figure 6 depicts the site plan, showing the houses built between 1930 and 1953 and plotted by construction year. It was created based on the name of each house, construction year, and location from the annual reports and *Survey of land and buildings*.

At first, houses were built in A(Hide) and B(Uchishirama), the originally planned residential area, then E(Chiyoda) was developed, which is close to I(Hospital and wards) with good access. However, the next place, H(Niirata) and Irara Farm, are far from A(Hide) and E(Chiyoda). During 1934 to 1935, the next houses were constructed in G(Nozomigaoka), where it was difficult to travel to and from the central area represented by I(Hospital and wards) and A(Hide). Insufficient food is considered a significant reason. As the name indicates, Irara

Farm had farms and orchards and needed houses for workers. In H(Niirata), there were pigsties and chicken houses to raise livestock in addition to farms. Meanwhile, Aisei Gakuen was built in G(Nozomigaoka) as a place for elementary and junior –high school students in the park to learn. No records were found regarding the location selection of Aisei Gakuen, but it is considered that the large site was needed for a school ground, so it was sited away from the central area.

Thereafter, the residential area spread from E(Chiyoda) to C(Seibu) and the vacant site on the north side of A(Hide). Furthermore, the residential area spread to D(Naniwa) through a steep climb. Due to the influence of World War II, new housing supplies were temporarily suspended, but construction began again in 1951. By that time, the vacant sites had disappeared in central areas such as A(Hide), E(Chiyoda), C(Seibu), and D(Naniwa). Large-scale development was carried out in suburban areas such as G(Nozomigaoka), H(Niirata), and B(Uchishirama).

AGING HOUSING MAINTENANCE PERIOD (1960S-1980S)

The supply of new housing was settled until the 1950s, and the number of houses has been decreasing since the 1960s, as Figure 5 shows. Figure 7 illustrates the changes in building layout every decade from 1960 to 2010. Observing changes in patients' housing, houses built earlier in A(Hide), B(Uchishirama), and C(Seibu) disappeared between 1960 and 1970.



Fig. 6. Distribution map of patients' housing by construction year in Nagashima-Aiseien. Created by editing Site plan of Nagashima-Aiseien in 1953 stored by Nagashima-Aiseien.

Over the next decade, the decrease in the number of houses and changes in building layout were identified in A(*Hide*) and C(*Seibu*). Old houses were demolished and replaced with new ones. On the other hand, some houses were demolished without reconstruction. In G(*Nozomigaoka*), because of the characteristics of the area in which boys and girls lived, vacant houses naturally occurred as no one was admitted around that age. Vacant houses were temporarily used for married couples and for singles in the early 1970s, but as housing maintenance proceeded throughout the sanatorium, the old buildings were demolished.

In this period, there was another big change besides reconstruction. In 1976, a large-scale landslide disaster occurred due to a typhoon. Patients' houses were also severely damaged by flooding and collapsed. The reconstruction plan was developed at F(*Akebono Housing Complex*) and G (*Nozomigaoka*), a little west of their original sites. F(*Akebono Housing Complex*) where used to be mountainous area was cut down to raise the ground level of damaged area from flood where used be the playground of Aisei Gakuen. Construction of F(*Akebono Housing Complex*) was completed in 1978, and the new housing complex in G(*Nozomigaoka*) was gradually vdeveloped between 1983 and 1988. The site plan of 1990 shows a decrease in the number and density of houses, resulting from the demolition of old houses without residents and the relocation of patients to the new housing complex in G (*Nozomigaoka*).

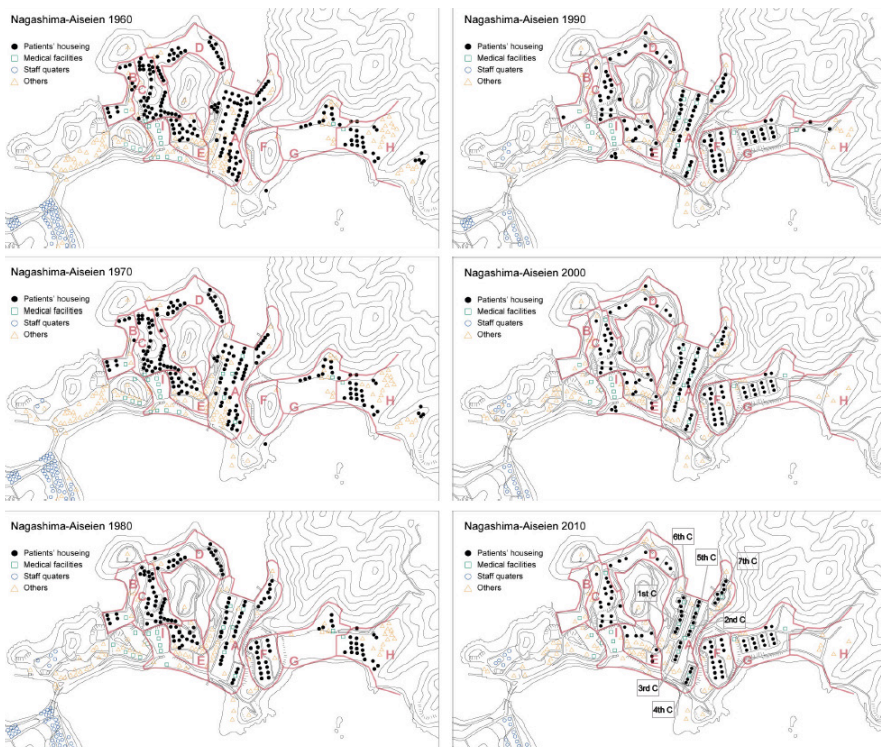


Fig. 7. Distribution map of patients' housing by construction year in Nagashima-Aiseien. Created by editing Site plan of Nagashima-Aiseien in 1953 stored by Nagashima-Aiseien.

HOUSING REDUCTION PERIOD (1990S-2010S)

Since the 1990s, there have been no significant changes, such as in Housing Supply Period or Aging Housing Maintenance Period, and the nursing care function improved sequentially to care for the aging residents. The nursing care function of Nagashima-Aiseien is concentrated in A(Hide), for two possible reasons: A(Hide) has always been the center of the sanatorium, and many of the newly developed areas are for young and energetic people, therefore those who need help remain in A(Hide).

The nursing home consists of 4 to 7 residential buildings with 1 management building, and is connected by a corridor through the middle of each building. It was called a *Center*, of which there were 7, from the *1st Center* to the *7th Center*. Although the number of nursing homes did not increase after the *7th Center* was built, the reconstruction of the facilities occurred gradually every two to three years in turn.

Relocation and densification began in the nursing home in 2013, and the *5th Center* was first dismantled, followed by a part of the *6th Center*. Each center's location is shown in the 2010 building layout in **Figure 7**. On the site of the *5th Center*, a new center to supply means and a general medical center were built. The *7th Center* was demolished in 2016, and only the *1st* to *4th Centers* remain.

CONCLUSION

In this study, we investigated the housing supply and maintenance process in the first national sanatorium, Nagashima-Aiseien, through a history of its building.

First, the relationship between the increase and decrease in housing in Nagashima-Aiseien and the change in the population composition was analyzed. The data were then classified into three periods based on its characteristics: Housing supply period(1930s-1950s), Aging housing maintenance period(1960s-1980s), and Housing reduction period(1990s-2010s). Second, Nagashima-Aiseien was divided into 10 areas(area A to area J) based on the order of development, the characteristics of each area, and the location of houses constructed or maintained. Lastly, based on the historical background of each period and the changes in housing, the reasons for the selection of area developed and housing types were analyzed. The results are as follows.

Since the early days of Nagashima-Aiseien's opening, the chronic shortage of housing continued, and patient housing was supplied intensively to overcome this problem. During this Housing supply period, various types of houses were constructed broadly, but the order did not necessarily spread from the center to the suburbs. The optimal location was selected to meet the needs of the times such as food production and education. During the subsequent Aging housing maintenance period, maintenance was carried out mainly on the 30-40-year-old houses that were supplied in bulk during the Housing supply period. First, the method of destroying old houses and rebuilding houses of the same size on the spot was adopted, but

the method gradually shifted to large-scale development to ensure a larger layout suitable for new lifestyles. In addition, large-scale housing development was carried out after the disaster, while demolition progressed in areas where there were no longer any residents. Finally, the Housing reduction period focused on improving existing housing instead of supplying new housing. As residents age, facilities will be concentrated in a central residential area A (*Hide*), and the future maintenance plan will be limited to nursing homes.

The Aiseien documents are still being sorted, and new discoveries are expected in the future. Previous research focused mainly on tracking the development of facilities because of the lack of historical materials. However, the discovery of old documents at national institutions, which are required to record the entire process of all assets, is expected to contribute to significant research progress, as prior studies had to rely on interviews with residents who lived in the facilities during the period of study. Based on this survey, the future research subjects are to expand the scope to other sanatoria nationwide and eventually clarify the characteristics of living environment in Japanese sanatoria through comparison with other countries.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

NOTES ON CONTRIBUTOR(S)

Minjeong Park is an assistant professor at Okayama University. She is interested in buildings and places which are on the boundary line between common and special and the process of becoming a heritage. Hansen's disease sanatorium is one of her research fields.

Toshio Otsuki is a professor at University of Tokyo. His specialties are architectural planning, residential area planning, housing, and housing policies. He also involves with designing temporary housing after Great East Japan earthquake.

ENDNOTES

1. It used to be called leprosy, Rai in Japan, but Hansen's disease became an official name instead because of its discriminative meaning.
2. Nagashima-Aiseien is the first national sanatorium, but it is not the oldest sanatorium. Matsuo-ka-Hoyoen, Tama-Zensyoen, Sotojima-Hoyoin, Oshima-Seishoen, and Kikuchi-Keifuen were built as public sanatoria in 1909 based on the Law Concerning the Prevention of Leprosy enacted in 1907.
3. Article 3 of the Law Concerning the Prevention of Leprosy (1907).
4. It was in 1996 that the leprosy prevention law was officially repealed, though it lose substance at its late years.
5. Sakaino, Tomokiyo, and Takada, "The Formative Process of Architectural Planning," 41-48, Sakaino, Tomokiyo, and Takada, "Changes in the Facility Planning," 45-53
6. Matsumoto and Mukai, "A study on the residential environment," 225-228., Park, Ishikawa, and Otsuki, "Establishment of Donation House," 257-264.
7. Sakaino, Miura, Kanki, and Takada, "House Plans of an Independent Ward," 15-22.
8. Kusunoki and Tomokiyo, "Study of Historical Transformation," 193-196

9. Sakaino, Yamawaki, Nakashima, Miura, and Toyama, "A Study of Historical Change," 113-119
10. Nishimurota, Tomokiyo, and Kusunoki, "A Study of Historical transformation," 169-172
11. Data released by the Ministry of Health, Labour, and Welfare.
12. The government enacted the Law Concerning the Prevention of Leprosy to isolate patients.
13. This social movement began around 1928 with the aim of creating a prefecture without patients by isolating all Hansen's disease patients in sanatoria. In addition to the government, the general public actively participated in the movement, and local governments across the country competed to isolate patients.
14. The results of the author's survey as of 2017.
15. In Figure 5, the bar chart shows the total number of new, demolished, and rebuilt houses for 10 years total, and the line chart shows the total number of houses at the end of each decennial. The number of reconstruction cases refers to the process of demolishing existing houses and rebuilding them in their original positions, and does not affect the total number of houses.
16. The number of houses per year was calculated based on Annual reports, Site plans, the Survey of land and buildings, and so on.

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IMAGE SOURCES

- Fig. 1 Created by the author
- Fig. 2 Created by the author
- Fig. 3 Aerial photograph No. CCG20162X-C3-21, Geospatial Information Authority of Japan
- Fig. 4 Created by the author editing Site Plan of Nagashima-Aiseien in 2010 published in The 80th Anniversary of Nagashima-Aiseien(2011)
- Fig. 5 Created by the author
- Fig. 6 Created by the author editing Site plan of Nagashima-Aiseien in 1953 stored by Nagashima-Aiseien
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