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The Supply Process and Use Sphere of Day Care Facilities for the Elderly in *Suo Oshima* Island

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Abstract

The gold plan was introduced in 1989, and each local government started to establish a day care facility with a special nursing home in islands. However, there are few entries of a private sector corporation in the mountainous and island areas after nursing-care insurance system was introduced in 2000, and there are many islands where facility development is not proceeding.

This paper aims to clarify the establishment history, management method and establishment effect of the day care facility by survey on the construction process of the facilities in *Suo Oshima* town, where the local government established the facilities managed by a social welfare corporation and a social welfare council.

Each local government considered establishment of a day care facility with a nursing home in early 1990s. And a day care facility with a special nursing home was established in each old town. In the late 1990s, the local government could positively establish day care facilities in old *Oshima* town, because the local government had a relationship with public administrations and hospitals. The local government established the facility for solitary aged persons in old *Tachibana* town. The local government established the facility in old *Towa* town, because the transportation time of the existing facility was long and the number of elderly people was increasing. Therefore, the facilities were established in each municipality before the merger of Showa era. And there is a trend that the users choose a near day care facility from their houses, so establishment method to distribute the facilities is effective in islands where settlements are scattered.

Keywords: Day care facility, Opening details, Facilities location, Use characteristics

1. Background

The gold plan was introduced in 1989, and each local government started to establish a day care

facility with a special nursing home in islands. Nursing-care insurance system was introduced in 2000, and the number of day care facilities increased all over Japan, because the entries of private sector corporations increased rapidly. However, there are few entries of the private sector corporation in the mountainous and island areas, and there are many islands where there is no facility now. There is an issue that transportation time of the existing day care facility is long, because the coast is dotted with the villages and the road traffic network doesn't develop in islands. The production-age population is decreasing, and the support for the elderly is decreasing, but it is forced to take prompt measures against increase of the medical and welfare demands for the elderly. The new entry of a private sector corporation is expected to be little in islands. Therefore, it is an important issue to consider the establishment method of a day care facility.

In previous studies of the field of building and city planning, there are the research grasping the facility establishment plan of the local government 1,2), considering a service supply system in view of the network of local properties 3), and classifying accessibility of a day care and home visit care service and the effectiveness as the elderly welfare base facility 4-6). However, there are few studies classifying relationship between geographical condition and location of a welfare facility for the elderly in the islands.

This paper aims to clarify establishment history, management method and establishment effect of the day care facility by survey on the construction process of the facilities in *Suo Oshima* town, where the local government established the facilities managed by a social welfare corporation and a social welfare council. And it considers prospects for establishment facility in islands.

2. Methods

Firstly, the area characteristics and changes in towns and villages in *Suo Oshima* town have been clarified. The data used for analysis is maps in 1968 and 2015, result of national census and vital statistics (1980-2010) and National Institute of Population and Social Security Research: future population estimates (2015).

Secondly, the establishment history and outline of the day care facilities in *Suo Oshima* town have been clarified by based on questionnaire survey. And establishment history of the facility managed by a social welfare council has been clarified in detail by based on hearing survey for the organization and town officials, because the construction process of the facility managed by the social welfare council is a characteristic in *Suo Oshima* town.

Thirdly, the use sphere and method and time for transportation have been analyzed by survey on user's characteristics and actual conditions of transportation of facilities managed by social welfare corporations and a social welfare council, in order to verify the establishment effect of the facilities managed by the social welfare council.

3. Results

3.1 Relationship between terrain and villages distribution in *Suo Oshima* town

Figure 1 shows the number of houses for every municipalities division before merger in the Meiji era in 1883 and process of municipal merger. The small settlements are in the coast, in addition they are also in the mountainous area in old *Oshima* town. And road was maintained around the island in 1968, but there are only few roads that can cross north and south in island.

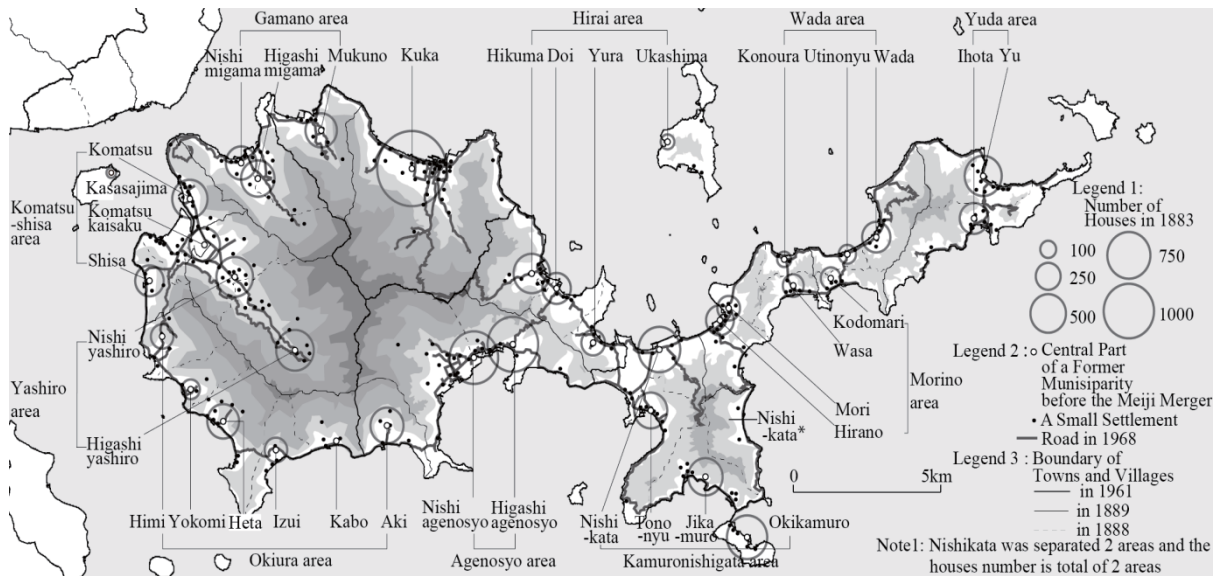


Fig. 1: Changes in towns and villages and the number of houses in 1968

In old *Oshima* town, *Komatsusisa* area that is the center of *Suo Oshima* town had about 500 houses, but *Nishiyatai* and *Higashiyatai* area in mountainous had about also 500 houses. On the other hand, almost the areas of southern part had about 100-200 houses. In old *Kuga* town, *Kuga* area had 1,941 houses. In old *Tachibana* town, *Nishiagenosyo* and *Higashiagenosyo* area had about 1,000 houses, other areas had about 200-300 houses. In old *Towa* town, *Tononyu* area that is the center of old *Towa* town had 442 houses, but *Nishikata* area had 707 houses and was the bigger village than *Tononyu* area. And, almost areas of southeast and eastern part had 100-200 houses.

In merger of Meiji era, small-scale villages are merged in old *Oshima*, *Tachibana* and *Towa* town, and the number of municipalities decreased from 34 to 11. After that, *Komatsushisa* and *Yashiro* area merged in 1952. In merger of Showa era, the number of municipalities decreased to 4. And, 4 towns merged and became *Suo Oshima* town in merger of Heisei era.

3.2 The change of population and population of care-need certificated person

Figure 2 shows the change of population and population of care-need certificated person in *Suo Oshima* town. The population of old *Oshima* town functioned as the center district of *Suo Oshima* town decreased from 1980, and 34 % for 30 years. The population decreased rapidly in also other old towns. The population of old *Kuga* town decreased 35 %, old *Tachibana* town decreased 41%, and old *Towa* town decreased 45% for 30 years. Furthermore, it is expected that the population of *Suo Oshima* town will decrease to less than half in 2040.

The number of the care-need certificated persons is the most in old *Oshima* town, and the rate of increase between 2000 and 2005 is the highest with 1.7 times. It is the least in old *Kuga* town, but it continued to increase, and it increased about 1.7 times for 15 years. It increased until 2010 in old *Tachibana* town, but it decreased because of decrease of the elderly population after 2010. It has increased about 1.4 times for 15 years in old *Towa* town.

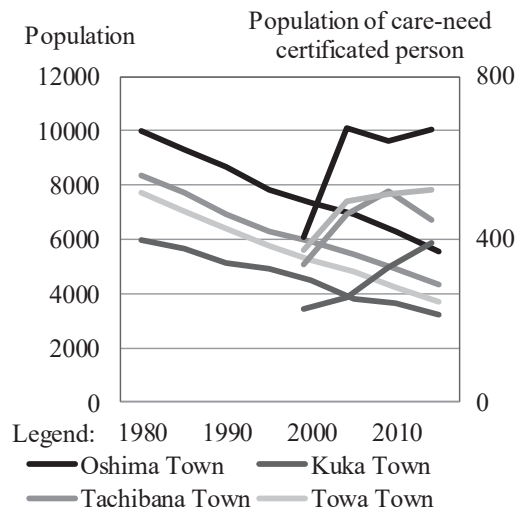


Fig. 2: Population and population of care-need certificated person

3.3 The construction process of day care facilities

(1) The first term (Supply of the facilities managed by a social welfare corporation)

Table 1 shows outline of the day care facilities, and figure 3 shows plot map of the day care facilities. Each local government considered establishment of a day care facility with a special nursing home in the early 1990s. In old *Towa* town, the local government established facility *To* in the land, where a special nursing home had already been established by a private social welfare corporation in 1990. And the local government took over the management of facility *To* to the social welfare corporation. In old *Kuka* town, the local government established Facility *Fu* managed by the local government in the land, where a home for the aged with moderate fee had already been established by a private social welfare corporation in 1990. And the local government took over the management of facility *Fu* to the social welfare corporation in 1992. After that, the social welfare corporation established a special nursing home in the next land in 1995, by the request of the local government. And the local government established a group home on the same land of a special nursing home and gave it to the social welfare corporation in 1999. Each local government established facility *I* with a special nursing home in old *Oshima* town in 1990 and facility *O* with a special nursing home in old *Tachibana* town in 1993. But there was no social welfare corporation that could take over facility management there. So, the local governments established social welfare corporations and took over the management of facility *I* and *O* to the social welfare corporations.

(2) The second term (Supply of the facilities managed by a social welfare council)

Table 2 shows the establishment history of the facilities. The aging was advanced in old *Oshima* town, and the government considered to supply welfare facilities for the elderly. The local government established facility *Mo* and *Ta* in *Kamano* and *Okiura* area where there was no facility, because the local government had a relationship with public administrations and hospitals and thought a community general support system is important. And the local government took over the management of facility *Mo* and *Ta* to the social welfare council. After that, facility *Ta* functions as a branch of facility *Mo* after 2014, and it is opened twice a week.

It was necessary to ensure safe living environment of the residents in old *Tachibana* town, because of many natural disasters and increase of solitary aged persons. Therefore, the local government established facilities in undeveloped area, to provide nursing care services equally. The local government established facility *Sh* with an elderly welfare center, facility for livelihood supporting and home nursing care in 1997. And the local government took over the management of facility *Sh* to the social welfare council. The elderly welfare center is also used as a day care facility now.

In old *Towa* town, facility *To* had been established in 1990, but there was a problem that the

Table 1: Outline of the facilities

Management Organization	Social Welfare Corporation				Social Welfare Council		
Facility name	To	Fu	O	I	Mo	Ta	
Establishment Date	1990	1990	1990	1993	1995	1995	
Construction	RC	RC	RC	RC	RC	RC	
Capacity	30	25	20	25	10	10	
Number of Staff	10	13	6	5	12	12	
Providing Service	1979 SNH	1995 SNH 1999 GH 2000 HNC	1990 SNH	1993 SNH	—	—	
Social Welfare Council				NPO			
Sh	Yu	Sa	Wa	Ii	Ku	Al	Ch
1997	1998	1998	1999	2004	2007	2011	2013
RC	RC	RC	RC	RC	RC	RC	RC
24	10	10	20	15	10	10	10
9	6	6	6	—	—	—	—
1997 LSC	—	—	1997 LSC	2008 SM 2012 GH	—	2013 Ch	2011 Al
Corporation for Profit						Medical Corporation	
Ic	Hm	Sr	Ha	Hn	So	Ko	
2005	2007	2010	2010	2010	2011	2012	
RC	RC	RC	RC	RC	RC	RC	
10	10	12	19	10	10	30	
—	—	—	—	—	—	—	
—	—	2000 HNC	—	2003 GH	—	2012 HNC SM GH	

Legend:SNH: Special Nursing Home, GH: Group Home, FLS: Facility for Livelihood Supporting, HVC: Home Visiting Care, SM: Residences with Health and Welfare Services for the Elderly

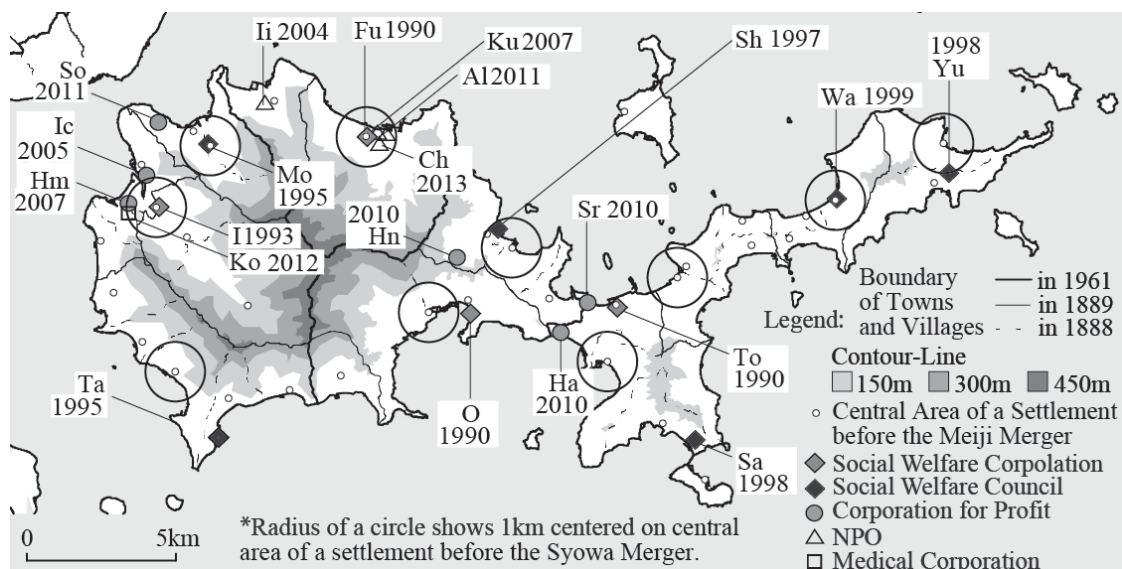


Fig. 3: Plat map of the day care facilities

Table 2: Establishment history of the facilities managed by a social welfare council

Old Town Name	Items	Results
Oshima Town 2 Facilities	Motive and Purpose for Establishment of facilities	Because of the aging population, Oshima town involved with government and hospital to promote a welfare policy as a model region. Then, establishment of integrated community care system was needed. To promote welfare service, Oshima town established and arranged facilities in each region before the Showa Merger to made easily usable for a user living in
	Reasons for Determining those Place	Oshima town determined the place of facility Mo in place where a hot spring welled up and facility Ta in place with a view of the ocean considering that users were looking forward to bathing service.(A)
	Use Status of Facilities after those Establish	Most of users came from peripheral area of facility, and that facility was filled to capacity.(A)
Tachibana Town 1 Facility	Motive and Purpose for Establishment of a facility	There was a town policy to provide care service for elderly equally in the town. Social Welfare Corporation managed facility O in one region before the Showa Merger out of 2 regions. Then Tachibana town established a facility in residual one region.(B) To ensure living environments was needed because natural disasters including typhoon and landslides occurred frequently, and measures for increasing the number of elderly people living alone were needed in Tachibana town. Then Tachibana town established a facility as those measures.(C)
	Reasons for Determining its Place	Because a JA's fruit sorting place was no longer used.(B)
	Use Status of a Facility after its Establish	Both facility O and facility Sh had the same case manager, and he introduced a facility to users who lived in a region before the Showa Merger where the facility was.(B)
Towa Town 3 Facilities	Motive and Purpose for Establishment of facilities	There was only one facility managed Social Welfare Corporation in Towa town. But only one facility was not enough for all town people and pickup service took too much time. Also, there was a problem that increasing the number of elderly people living alone. Towa town established facilities newly to suppress that a time required for pickup and to
	Reasons for Determining those Place	Towa town determined the place where that landowner was Towa town or Social Welfare Conference.(D) The place of facility Wa was a JA's fruit sorting place; the place of facility Sa was a nursery school; the place of facility Yu was an agricultural land.
	Use Status of Facilities after those Establish	Most of users came from peripheral area of facility.(D) However, the exact details are unknown because Towa town merged.

Legend: A: an Officer of Former Oshima Town Health and Welfare Division, B: an of Former Tachibana Town Health and Welfare Division, C: a Former Deputy Tachibana Town Mayor, D: Suo Oshima Long-Term Care Insurance Planning Division

Note1 : Each town used a subsidy from the government (1/2), Yamaguchi prefecture (1/4), and the town (1/4). And each town bought the land.

transportation time of facility *To* was long. And it was needed to consider the measure toward increase of the elderly people who need welfare service, because the elderly population was increasing. For that reason, the local government considered to provide welfare services equally, and established facility *Sa* with a home nursing care in *Kamuronishigata* area and facility *Yu* with a home nursing care in *Yuta* area in 1998, and facility *Wa* with a facility for livelihood supporting and home nursing care in *Wada* area in 1999. And the local government took over the management of the facilities to the social welfare council.

(3) The third term (Entry of private sector corporations)

The day care facilities were not established in the early 2000s, and first entry of private sector corporations was in 2004. The private sector corporations entered in only old *Oshima* and *Kuka* town of a densely populated area in 2005-2009, because they place high importance on their profitability. Corporation for profit entered in old *Oshima* town, and many specified nonprofit corporations entered in old *Kuka* town. Corporation for profit entered in old *Tachibana* and *Towa* town after 2010. And it is characteristics that many facilities established by private sector corporations are used the existing buildings.

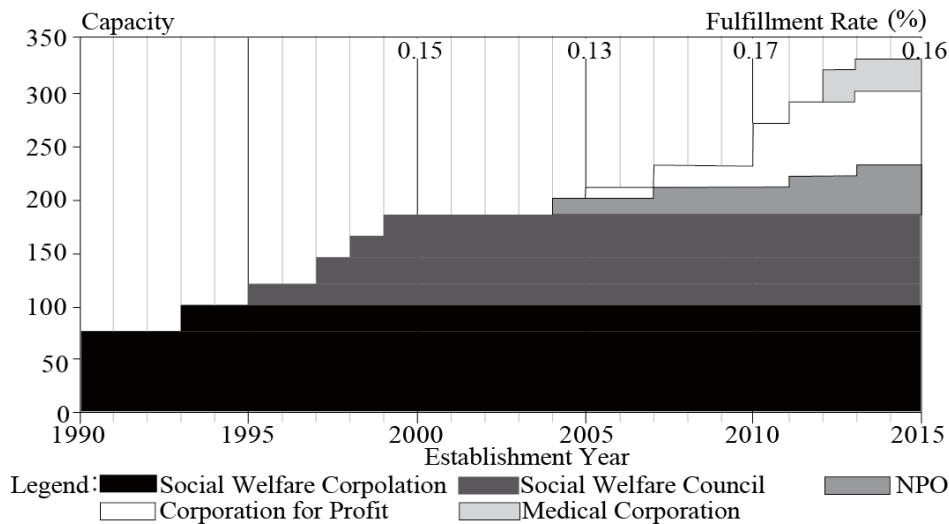
From the above, in the early 1990's, the special nursing homes and day care facilities were established near the center area of municipalities after merger of the Showa era. A reason for this is that the local government cooperated with a private sector corporation in old *Kuka* and *Towa* town, and the local government established the social welfare corporation in old *Oshima* and *Tachibana* town. In the late of 1990s, the local government planned to establish facilities for every municipalities division before merger in the Showa era. A reason for this is a relationship with the public administrations and hospitals in old *Oshima* town, measures toward increase of solitary aged persons in old *Tachibana* town and measures toward aging and problem about long transportation time of the existing facility in old *Towa* town.

3.4 The rate of a facility capacity and the fulfilment rate of facility demand

Figure 4 shows the change of a day care facility capacity by management organization. The total of the facility capacity of 2000 was 184 people, because four facilities managed by the social welfare corporations and six facilities managed by a social welfare council were established in 1990s. The total of the facility capacity of 2010 increased to 229 people, because private sector corporations entered after 2004. And the facility capacity managed by the social welfare corporations and social welfare council accounted for 80% of the total. The total of the facility capacity of 2015 increased to 330 people, because the private sector corporations established six facilities after 2010. And the facility capacity managed by the social welfare corporations and social welfare council accounted for 60% of the total, but the facilities managed by them didn't increase after 2000. It is possible to grasp the demand correctly by calculating the fulfilment rate of facility demand. The fulfilment rate of 2000 was high with 0.15. After that, the fulfilment rate was down between 2000 and 2005, because the number of the care-need certificated persons increased and facility establishment didn't advance in the early 2000s. However, the fulfilment rate of 2010 rose to 0.17, because the private sector corporations established facilities. The fulfilment rate of 2015 was down with 0.16 again.

3.5 Use Sphere of day care facilities

Figure 5 shows distance from a user's house to the facilities managed by social welfare



*A number shows fulfillment rate in Suo Oshima.
 Fulfillment rate = Capacity / Number of people who need long-term care

Fig.4: Change of the fulfillment rate of a day care facility

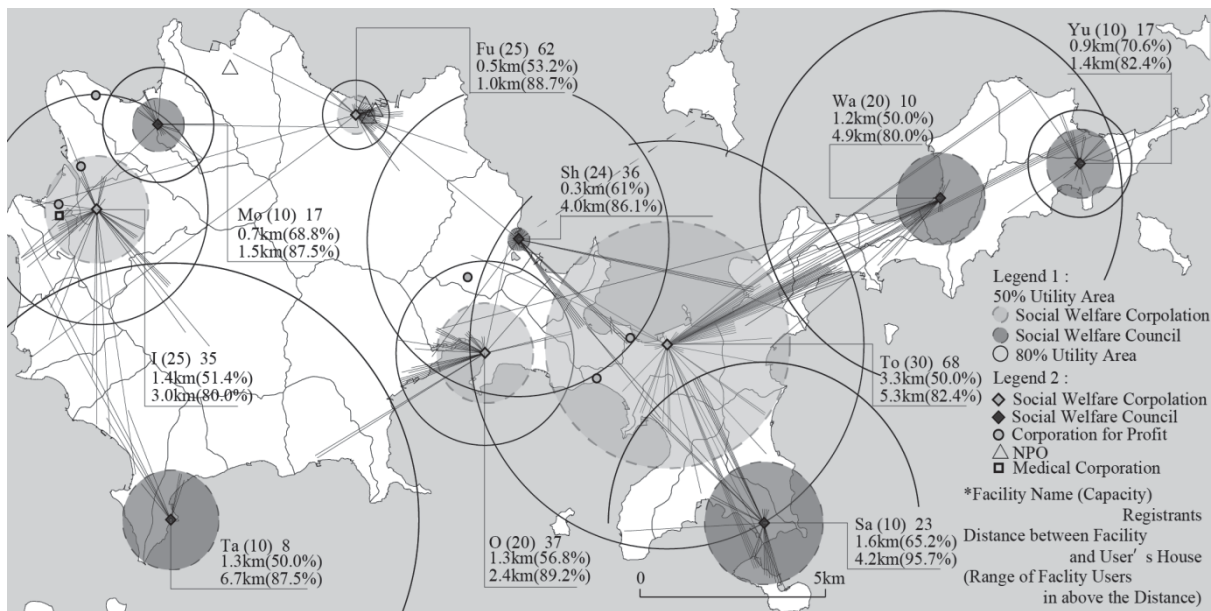


Fig.5: Distance from a user's house to the facilities

corporations and a social welfare council. Facility *To* managed by a social welfare corporation has many users from facility location and neighborhood areas. On the other hand, the 50% use sphere is 3.3 km, and the 80% use sphere is 5.3 km, because it accepts users from all area of old *Towa* town. The 50% use sphere is 0.5 km, and the 80% use sphere is the narrowest with 1.3 km in facility *Fu*, because it accepts many users from *Kuka* area where facility *Fu* is located. The 50% use sphere is 1.4 km and 1.3 km in facility *I* and *O*, because they accept many users from the facility location area.

Facility *Mo* managed by a social welfare council has many users from the facility location area, so the 50% use sphere is 0.7 km, and the 80% use sphere is 1.5 km. The 50% use sphere is 1.3 km in the facility *Ta*, because it accepts many users from the facility location area. On the other hand, the 80% use sphere is the widest with 6.7 km, because it accepts the users from the areas distant from the facility. The 50% use sphere is the narrowest with 0.3 km in the facility *Sh*, because it accepts many users from the facility location area. The 50% use sphere is 1.6 km in the facility *Sa*, because it accepts many users from the facility location area. The 50% use sphere is 0.9 km, and 80% use sphere is narrow with 1.4 km in the facility *Yu*, because it accepts the uses from only facility location

area. The 50% use sphere is 1.2 km in the facility *Wa*, but the 80% use sphere is wide with 4.9 km, because half of the users are from the facility location areas and other users are from *Morino* and *Kaokunishikata* areas.

Therefore, the use sphere of facility *To* overlaps with other 3 facilities in old *Towa* town, because facility *To* accepts the users from the whole area in old *Towa* town. Almost users are from the near areas in other facilities. And, the 50% use spheres of all facilities don't overlap with other facilities. So, it tends to use the facility for every municipalities division before merger in the Showa era, and all facilities share the use sphere.

3.6 knowledges

- 1) Each local government considered establishment of a day care facility with a nursing home in early 1990s. In old *Kuka* and *Towa* town, the local governments established a day care facility in the land, where the special nursing homes had already been established by private social welfare corporations. And the local government took over the management of the facility to a social welfare corporation. In old *Tachibana* and *Oshima* town, the local governments established a social welfare corporation and the day care facilities with a special nursing home, and the local government took over the management of the facility to the social welfare corporation.
- 2) In the late 1990s, the local government could positively establish day care facilities in old *Oshima* town, because the local government had a relationship with public administrations and hospitals. The local government established the facility for solitary aged persons in old *Tachibana* town. The local government established the facility in old *Towa* town, because the transportation time of the existing facility was long and the number of elderly people was increasing. Therefore, the facilities were established in each municipality before the merger of Showa era. Special debt on the merger of municipalities was used for the fund of the facility establishment in all old town, so ease for securing fund was probably affected the facility establishment.
- 3) The use sphere of facility *To* overlaps with other 3 facilities a little in old *Towa* town, because facility *To* accepts the users from the whole area in old *Towa* town. On the other hand, almost users come from the near area in other 3 facilities. In addition, 50% use spheres of all facilities don't overlap with other facilities. So, it is said that there is a tendency to use the facility in the area before the merger of Showa era, and all facilities share the use sphere.

Therefore, facility establishment managed by a social welfare council is effective, because the effects of sharing a use sphere has been confirmed. And there is a trend that the users choose a near day care facility from their houses, so establishment method to distribute the facilities is effective in islands where settlements are scattered.

4. References

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