

# The Effective Use of Social Capital for the Declining-population Society

Makoto Hadeishi, Kazuhiro Fukuyo

Graduate School of Innovation and Technology Management, Yamaguchi University, Yamaguchi, Japan

(E-mail: r004wc@yamaguchi-u.ac.jp, fukuyo@yamaguchi-u.ac.jp)

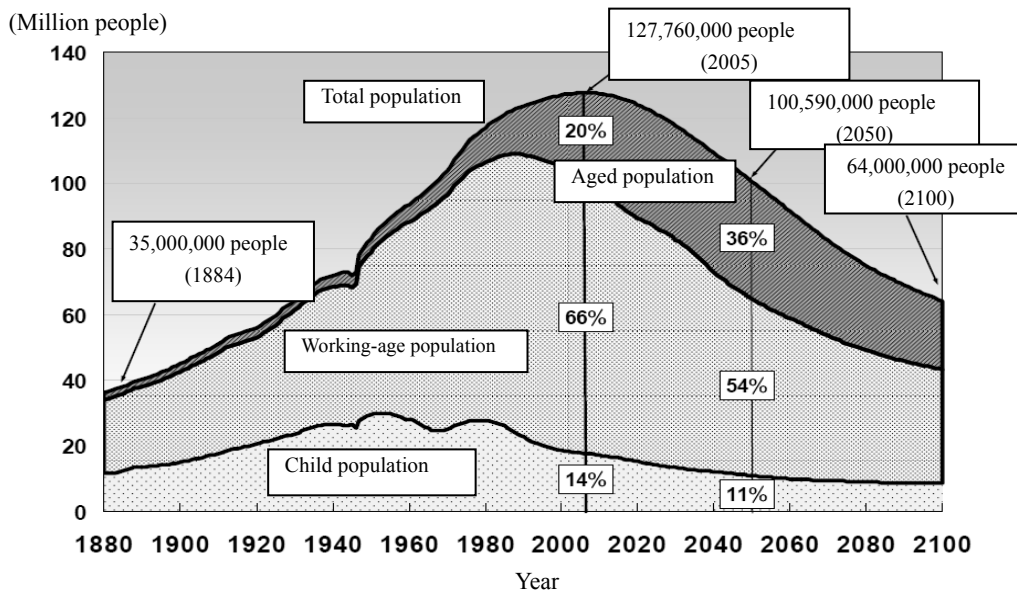
**Abstract:** Japan has become a declining-population society. It causes closing of more than 450 schools annually. More than 30 % of closed schools in Japan are not fully utilized at present. The closed schools should be utilized as the social capital and used for not only “public use” but also “business use” for the regional revitalization. Especially, in the hilly and mountainous area, effective measures for closed schools is required to cope with the declining birthrate and aging population, increase employment, promote agriculture, and contribute to the regional market. For the promotion of the business, local governments and the non-governmental business operators should cooperate together to expedite the business use for the closed schools proactively.

**Key words:** The declining-population society; Closed school; Social capital; Regional revitalization

## 1 Introduction

The vital statistics showed that the population of Japan in 2005 was 127,760,000 and began to decrease. National Institute of Population and Social Security Research estimates the population of our country will decrease for the future (Figure 1). It means that Japan has become a "declining-population society". The National Institute also estimates that the population of our country in 2050 will be about 110,600,000 and the ratio of population under 15 years old will be only 11 %.

In Japan, the closed schools have recently increased due to the decrease of population. According to the research of the Ministry of Education, Culture, Sports, Science and Technology (MEXT)<sup>[1]</sup>, about 450 public schools had closed annually from 2005 to 2009 (Table 1). Furthermore, it is also estimated that more than 450 schools will be closed annually until 2050.



**Figure 1 Dynamic Analysis of Population in Japan**

Source: National Institute of Population and Social Security Research (June, 2006)

According to the research of the MEXT, the utilization ratio of closed schools nationwide has remained about 70 % (Table 2). The details of its utilizations are sociophysical training facilities (30.8%), social educational facilities (24.7%), governmental offices and others (7.2%), facilities for changing culture and experience (6.2%), cultural facilities (5.1%), social welfare facilities for the aged

(4.2%) and so on ( Figure 2 ). As for the utilization of the closed schools, "the public use" cases are quite easy to be converted accounts for the most cases. "The business use" cases which contribute to the revitalization of local economy and regional innovation are not so many.

**Table 1 Number of Public Closed Schools in Japan (FY 2000-2009)**

(Unit: Number of schools)

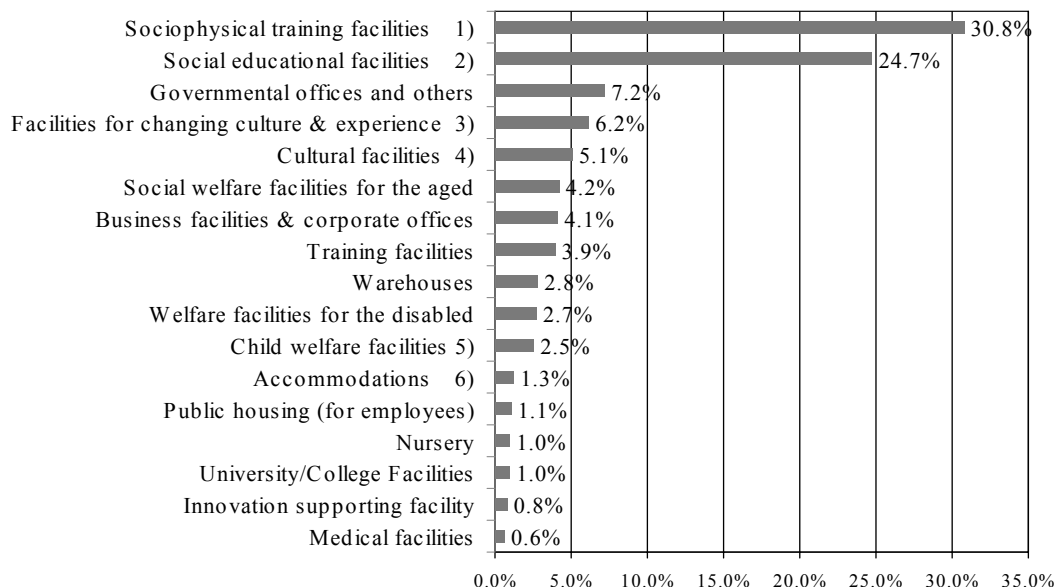
FY / Schools	2000	2001	2002	2003	2004	Ratio(00~04)
Elementary school	199	221	227	275	372	67.6%
Junior high school	51	64	68	82	118	20.0%
Senior high school	15	26	45	66	86	12.4%
Total	265	311	340	423	576	100%
FY / Schools	2005	2006	2007	2008	2009	Ratio(05~09)
Elementary school	314	250	275	272	332	61.9%
Junior high school	71	72	75	87	87	16.8%
Senior high school	71	104	114	101	107	21.3%
Total	456	426	464	460	526	100%

Since the legal procedure of the closed-schools utilization was revised by MEXT in June 2008, private use of closed schools became easy. It paves the way for the business use of the closed schools.

In this paper, the results of "research of the closed schools in Hiroshima prefecture in the past five years" and "advanced case research" are described. Based on the research results, it proposes ideal way of utilization of closed schools to contribute to the regional innovation and revitalization.

**Table 2 Utilization Status of Closed Schools in Japan (FY 2002-2009)**

Number of occurrence of closed schools		Utilization status of closed schools			
School division	Numbers	Utilization status	Numbers	Rate (%)	
Elementary school	2,317	Buildings not existed (b)	361	9.8	(b)/ (a)
Junior high school	660	Buildings existed (c)	3,310	90.2	(c)/ (a)
Senior high school	643	Utilized (d)	2,295	69.3	(d)/ (c)
Special support school	51	Not utilized (e)	1,015	30.7	(e)/ (c)
Total (a)	3,671	Plan to use (f)	221	6.7	(f)/ (c)
		No plan to use (g)	794	24.0	(g)/ (c)



**Figure 2 Utilization Status of Closed Schools in Japan (FY 2002-2009)**

1) Sociophysical training facilities: Sports center, etc. 2) Social educational facilities: Community centers, museum, and lifelong learning centers, etc. 3) Facilities for changing culture & experience: Nature experiencing

facilities, Farming experiencing facilities, etc. 4) Cultural facilities: Museum, art gallery, etc. 5) Child welfare facilities: including students' club after school 6) Accommodations: Except facilities for changing culture & experience.

## 2 Research Results

### 2.1 Research of the closed schools in Hiroshima Prefecture for the past five years

The public schools in Hiroshima pref. which closed from 2005 to 2009 (80 schools) were searched.

Research results are shown in (Table 3). Half of the closed schools are located at "the hilly and mountainous area". 64% of the closed schools are constructed by "reinforced concrete". Most of the "reinforced concrete buildings" are located in "urban area" and "islands and seaside area". More than 60% of closed schools are "wooden building" at "the hilly and mountainous area". Many of the closed schools have good access for traffic. Most of the landform of the closed schools is rectangular and easy to be utilized. More than 80% of closed schools had been built before the 1980s. Therefore, countermeasures against earthquake are required for most of the closed schools. There are quite a lot of old closed schools at "Hilly and mountainous area". About 50% of closed schools are used as "evacuation centers, etc.", which means that they are not fully utilized. In Hiroshima pref., the utilization rate of closed schools is low. "The private use" which contributes to the regional revitalization is only 8 % (6 cases). "Private use" often means that local governments sold the closed schools to enterprises to secure their finances. Most of the sold sites of closed schools are used for condominium and commercial facilities.

From this research, it is found out that utilization is especially required at "the hilly and mountainous area" because half of the closed schools are located there and its utilization rate is low.

**Table 3 The Overview of Research of Closed Schools in Hiroshima Pref. for the Past Five Years**

Type/item	Schools	Structure	Time of construction	Utilization status
Total (N=80)	Most of the closed schools are "Elementary schools" and its ratio is 74 %. It is almost equivalent to the nationwide trend.	"Reinforced concrete buildings" is 64%.	70 percent of the buildings are constructed in the "the 1970-80's". Most of the buildings need measures for the earthquake-proof standard in 1982.	"Evacuation centers or etc.": 50%. "School facilities or etc.": 15%, "Public halls or etc.": 19%, "Private utilization": 8% (4 cases: Sold, 1 case: Lease, 1 case: scheduled to be utilized privately), and "Others": 1% (1 case: dismantlement).
Urban area (N=15)	There are quite lot of closed "Junior high school" cases together with closed "Elementary schools".	"Reinforced concrete buildings " is 100%.	Almost as same as the total tendency.	The utilization rate is more than 70%, which is quite high."School facilities or etc." is about 50%. 3 cases of private utilization (2 cases: sold for condominium site or etc.)
Suburbs (N=4)	Only "Elementary schools".	"Wooden building" is 60% or more.	All buildings were constructed "after the 1970s" and quite new.	All are "Evacuation centers" and its utilization rate is low.
Hilly and mountainous area (N=39)	About 50% of closed schools are located at "the hilly and mountainous area".	"Wooden building " is 60% or more	40% of the buildings are constructed "before the 1960s" is quite old.	"Evacuation centers or etc." is about 60%. There are a lot unutilized cases. One case of private sale. (The training center )
Islands part and seaside part (N=22)	Almost as same as the total tendency.	"Reinforced concrete building " is 100%.	Almost as same as the total tendency.	Almost as same as the total tendency.

## 2.2 Advanced case research

As the advanced case of private utilization of closed schools, the field research for "Senko School Farm Tottori Co., Ltd" was conducted.

A private plant factory, Senko School Farm Tottori Co., Ltd rents the closed school (the former Hawaii Nishio elementary school) from Yurihama-cho, Tottori prefecture by the low rental fee. Senko school farm has a purpose of promoting and stabilizing the employment of the disabled persons. They call this management model "the welfare type agriculture business". In the future, this type of welfare business is scheduled to be developed in Kumamoto & Miyazaki prefectures, too.

The amount for investment was JPY 120,000,000. It was invested for the plant factory (the plastic greenhouses, etc.) and the building reconstruction. All materials are procured from the local communities. All fund raising was covered by the subsidies from the country, prefecture, and city. These governmental subsidies are for the promotion of the employment for the disabled and to also the invitation for more companies (Table 4). This company employs nineteen local disabled persons and aged people. Finally, 35 persons are scheduled to be employed.

**Table 4 The Investment and Fund Raising Status of Senko School Farm Tottori Co., Ltd**

Investment	Amount (million JPY)	Fund raising	Amount (million JPY)
Hydroponic farming beds ( 12 )	3,800	Promotion fund for specified subsidiary companies-Companies for the disabled (by the Ministry of Health, Labor and Welfare, Within 3 years)	10,000
Mushroom growing units	1,400		
Refrigerators (established at school rooms)	600	Promotion support subsidy for the companies to join agriculture ( By Tottori Prefecture )	1,500
Solar power systems (15w)	1,200		
Food processing machines	1,000	The welfare promotion business subsidy (By Tottori Prefecture )	230
Rebuilding of school houses (Barrier-free system and others)	4,000		
Total (All orders to the local firms)	12,000	Total (All funded by the subsidies)	12,000

The major businesses are the production of leeks in plastic greenhouses at the school yard and cultivation of mushrooms in cold storages of the schoolhouse. The customers are supermarkets, department stores in the Chugoku and the Kansai region, etc. Transportation was implemented by the parent company, Senko Co., Ltd. The target sales in 2010 are JPY 32,000,000 (Sales have been launched since the last of August, 2010). The target sales in 2011 will be JPY 62,000,000 (Table 5). The rental charge for land and school houses have decreased with the support of Yurihama-cho. The annual rental charge for the land is JPY 1,600,000, which is one half of the usual rental fee. The rental fee for the school house is free of charge. Executive salaries are paid from the head office. The characteristic of this management is fewer burdens for various expenses.

The purpose of Yurihama-cho is the local revitalization by utilization of closed schools. Then, Yurihama-cho has given full support for the promotion of this business. By the implementation of this business, the purpose of the public governments and private institutions are achieved cooperatively.

From this advanced case research, the following points for the closed school utilization are found out.

- 1) Utilization resources are abundant in the closed schools and the closed schools can be utilized for a wide range of purposes.
- 2) The initial investment can be reduced.
- 3) In case of rental, the way of utilization is limited.
- 4) The closed schools are the place for community and also the place for memory. Therefore, the local governments and the private institutions should attempt to get local understanding and to build consensus between them.
- 5) The regional contribution such as the employment of the local people and the procurement from the local companies are necessary.
- 6) The closed schools can be utilized for "Business use ".
- 7) It requires the evaluation of careful business planning and management strategy.
- 8) It is also necessary that the local governments and the private institutions cooperate to achieve this

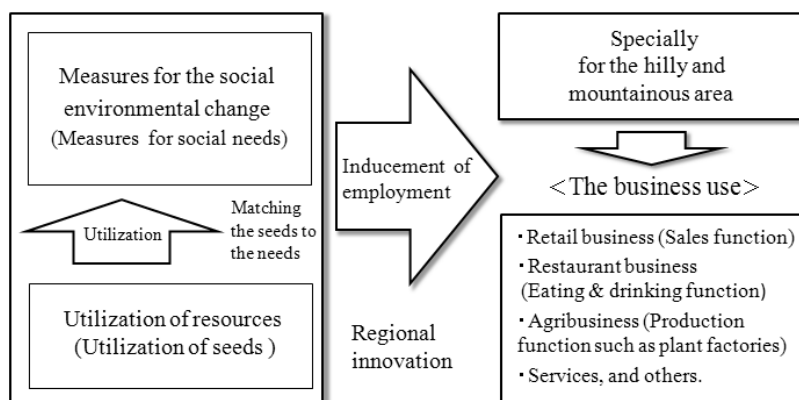
project actively.

**Table 5 The Business Overview of Senko School Farm Tottori Co., Ltd**

Name	Senko School Farm Tottori Co., Ltd
Representatives	CEO: Inoue Tsuyoshi (Business development manager of Senko Co., Ltd., 54 years old) Parent company: Senko Co., Ltd.(Capitals: JPY18,345,640,000, Sales: JPY250,000,000,000, Major distribution company, Head quarter in Osaka )
Address	1350 Nagase, Hawaii-cho, Yurihama-cho, Tohaku-gun, Tottori Pref. (The former Hawaii Nishio Elementary School , Population of town :17,525 by the census research in 2005)
Capitals & establishment	Capitals: JPY10,000,000, the day of establishment: 2010.4.1, Years after the establishment : 47 years
Employees	35 persons (schedule) (Disabled persons: 25, Aged persons:10) Working hours: From 10AM to 17PM, Working 6 hrs/day, More than 30 hrs work/week
Business details	Production & Sales of vegetables (leek, etc.) by hydroponics farming, Cultivation & Sales of mushrooms, Cultivation & Sales of floriculture, Transportation business using cargo vehicles
Facilities/ Construction	Hydroponics farming beds (Plastic greenhouse: 6, hydroponics beds :12), Mushroom growing units, Refrigerators, Solar power systems (15w), Food processing machines, Rebuilding of schoolhouses (changing to barrier-free system, etc.)
Investment/ Fund raising	Investment: JPY120,000,000 All fund raising are covered by subsidies money from the country, prefecture and city.
Sales	Consigned to the Sales company. Sales places: Supermarkets, Department stores in the Chugoku, the Kansai region, etc. Transportation: By the parent company, Senko Co., Ltd.
Business achievement	Target sales: JPY 32,000,000 (2010) , JPY 62,000,000 (2011). Products have been dispatched since the end of August, 2010.

### 3 The Course of Action to Utilize the Closed Schools for Regional Revitalization

Based on the research results, the course of action to utilize the closed schools for regional revitalization was described as follows. Figure 3 shows the summary of the course of action.



**Figure 3 The Course of Action to Utilize the Closed Schools for Regional Revitalization**

Firstly, it is required to cope with social environment change (the change for social needs). Specifically, following measures are strongly required; measures for utilization needs for closed schools due to the declining birthrate and aging population, measures for the agriculture promotion needs due to the declining of Japanese agriculture<sup>[2][3]</sup>, and measures for the heightening awareness of food safety.

Secondly, it is required to promote the utilization of closed schools which are increasing due to the declining birthrate even though they are important social capital.

Thirdly, the judging criteria for the closed schools are the employment inducement (increase of employment numbers), which is very influential to the regional society even though it is small-scale.

Fourthly, especially, the area where half of closed schools are located and most of which are unutilized "hilly and mountainous area" should cope with the utilization of closed schools proactively.

Fifthly, after confirming the circumstances surrounding closed schools, as for the utilization

method, "the business use" is proposed. As the examples for business utilization, there are "Retail business (sales function)", "Restaurant business (eating and drinking function)", "Agribusiness (production function such as plant factory, etc.)", and "Other service business, etc. (Service providing function)".

#### 4 Conclusions

This paper proposes an ideal way of the utilization of closed schools for regional revitalization. Main points of this research are as follows: 1) More than 30 % of the closed schools are not utilized. 2) From the advanced case research showed that "the business use", which includes "retail business", "restaurant business", "agribusiness", "Other service business", etc., of the closed schools is possible to revitalize the hilly and mountainous area. 3) It is also required that the local governments and the private businesses should cooperate together to expedite the business utilization for the closed schools proactively. In order to achieve that, local governments should lend closed schools for free or at a low price and also to review their supporting policy for closed schools. And, the private business operators should contribute to the local market such as promoting local procurement and local employment.

Based on the above, it is strongly expected that the closed schools should be used not only the "public use" but for the "business use".

#### References

- [1] The Ministry of Education, Culture, Sports, Science and Technology. Effective Use of Vacant Classrooms and Closed Schools Facilities, [http://www.mext.go.jp/a\\_menu/shotou/zyosei/yoyuu.htm](http://www.mext.go.jp/a_menu/shotou/zyosei/yoyuu.htm), (In Japanese)
- [2] The Ministry of Agriculture, Forestry and Fisheries. Outline Results of the World Agriculture and Forestry Industry Census in 2010 (final figure), [http://www.maff.go.jp/j/tokei/pdf/census10\\_kakutei.pdf](http://www.maff.go.jp/j/tokei/pdf/census10_kakutei.pdf) (In Japanese)
- [3] The Ministry of Agriculture, Forestry and Fisheries. Japan's Food Self-Sufficiency Rate, <http://www.maff.go.jp/j/zyukyu/fbs/pdf/21slide.pdf> (In Japanese)