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**Comprehensive visualization of welfare services for
the elderly in a small-sized municipality:
a case study of information compiled by the manager of
the health and welfare division, Tsurui Village, Hokkaido**

(小規模自治体における高齢者福祉事業の俯瞰的可視化:
北海道鶴居村保健福祉責任者が集約した情報に関する事例研究)

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Abstract

On 25 September 2015, the United Nations General Assembly unanimously adopted “Transforming our world: the 2030 Agenda for Sustainable Development” (United Nations, 2015). “No one will be left behind” is stated as one of the principles. A feature is that sustainability is being questioned not only in the international community but also in local communities. In many Japanese regions, especially in Hokkaido, the declining birthrate and aging population is an unavoidable issue for the maintenance of local communities. First of all, the ability of the elderly to continue to live in their familiar places for as long as they wish, supported by the administrative services for their daily lives, is nothing less than the realization of SDG 3. Furthermore, it leads to SDGs 11, 13, and 15.

Due to the declining birthrate and aging population, the population is declining in many regions, increasing the elderly’s percentage in the population. For the elderly to be able to live continuously in their communities, municipalities in those regions are working to enhance “the welfare services,” administrative services, such as welfare, nursing care, and medical care deeply related to their daily lives. However, they cannot provide welfare services to all elderly who need them without leakage.

This dissertation conducted two case studies focusing on the “Daily Living Information File,” a file compiling information on the welfare services used by the elderly in Tsurui Village, Hokkaido, Japan, a small-sized municipality, from the perspective of “No one will be left behind” as a spirit of the Sustainable Development Goals (SDGs) (United Nations, 2015). Two case studies based on “Daily Living Information File” are (1) to demonstrate the presence of the elderly who may be left out of regular social services and (2) to discuss the requirements to ensure that none of the elderly is left out of the naming list for confirming their safety in emergency events such as disasters.

The “Daily Living Information File” is a Microsoft® Excel file created by the manager of the health and welfare division in June 2018 to compile each elderly’s access information on the welfare services or absence of their responses to questionnaires (hereafter called as “the information on the use of welfare services”) held by each section under the division. The file targets all senior citizens aged 65 years and older (777 people as of April 1, 2018), from the viewpoint of eliminating whether the presence of the elderly who do not know the welfare services are available (so-called “No one will be left behind” perspective). The “Daily Living Information File” contains (1) personal information such as name, age, and address, as well as the presence or absence of the user information on the welfare services (2) by laws and regulations and (3) by the Tsurui-original. When staff in charge finds an elderly people facing a problem in his/her daily work,” he/she can immediately refer to the staff in charge of the appropriate welfare service by using the “Daily Living Information File” to ascertain the presence or absence of the user information on welfare services outside of his/her jurisdiction. Since the “Daily Living Information File” includes necessary information such as name, gender, and date of birth, the protection and management of personal information must be considered in accordance with the Law Concerning the Protection of Personal Information and the Tsurui Village Regulation Concerning the Protection of Personal Information. The other items are only listed with the presence or absence of the information on the use of welfare services, which is relatively easy to manage and share within the health and welfare division.

Chapter 2 demonstrated what kind of information can be extracted from the “Daily Living Information File.” The file effectively worked the Health and Welfare Division new to find 30 elderlies out of a total of 777 elderlies. The interviews confirmed that none of the health and human services division had known their living conditions. By implementing a “Visit survey for grasping the actual living conditions of the elderly,” one of the Tsurui-original projects

established targeting about 50 elderly each year, the department will not pass unnoticed these elderly's living conditions anymore. In other words, the "Daily Living Information File" should allow us to achieve "No one will be left behind," a spirit of the SDGs, at the level of grasping after one year. Using the "Daily Living Information File," it was attempted to visualize elderly's situations such as percentage of living alone, age, and certification of nursing care in each district and to investigate their reasons. Many of the results were as the staff in charge had grasped or imagined but were also found to be different from what was imagined: e.g., cause of Tsurui Village's lower percentage of certification of needed support/care than surrounding municipalities.

Chapter 3 discussed the case in which the "Daily Living Information File" was used to extract people to be checked for their safety during a large-scale power outage "blackout" following the Hokkaido Eastern Iburi Earthquake in September 2018. The "Daily Living Information File" ensured comprehensiveness, flexibility, and convenience in the extraction process of persons matched with unexpected blackout requirements under the condition of the limited number of staff assigned. This study demonstrated that the "Daily Living Information File" could be used, even in emergencies, to extract people according to new requirements and circumstances, although the government recommends using "List of Persons in Need of Evacuation Support" in normal times. Although the "Daily Living Information File" must be carefully managed since it contains personal information, an ingenious contrivance made it relatively easy to manage without including detailed information was also found. There is a challenge that the "Daily Living Information File" has not been updated after the earthquake and does not ensure its reliability.

These case studies revealed that Tsurui Village successfully visualized many welfare services in a small-sized municipality close to the residents. Notably, it is shown that they extracted applicable persons under unexpected requirements with ensuring comprehensiveness, flexibility,

and convenience, even in emergencies. This dissertation reveals the significance of the “Daily Living Information File” from an academic perspective. On the other hand, updating the information becomes a challenge. Generally speaking, the more detailed information included in the file, the more time and effort it takes to update the information. As a result, the file will not be updated. The “Daily Living Information File” compiled by the health and welfare division has not been updated since it was made. As discussed in Chapter 3, to be updated frequently, there may be ways to reduce the amount of information, create an incentive to update, or make it mandatory. However, this research could not indicate which one is effective. In addition, this research has not discussed how unique the “Daily Living Information File” is compared with other municipalities. These points remain challenges for this study. If other municipalities have a file/database like the “Daily Living Information File” or similar cases, a comparative study could be done. This study shows the potential of compiling information on the use of welfare services to ensure that no one will be left behind in the aging society with declining birthrates and provide welfare services suitable to individual elderly people. In other words, the comprehensive visualization by the “Daily Living Information File” demonstrated in Chapters 2 and 3 will contribute to the achievement of Goals 3, 11, 13, and 15 of the SDGs at the local level, developing sustainable local communities. This study is a case study of Tsurui Village, a small-sized municipality, but it is expected that more and more municipalities will introduce the trial like this study.

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I would like to express my deepest gratitude to Professor Yasuhiro Yamanaka of the Graduate School of Earth and Environmental Sciences, Hokkaido University, for his guidance during about ten years of my research. The ideas he taught me, such as various perspectives on research and how to express them in papers, were a great asset not only to this doctoral dissertation but also to my current role as a civil servant and my future life.

This doctoral dissertation's structure is based on Prof. Yamanaka's explanation in one of the modules, "Fundamentals of Research" of the "Basic Exercise in Environmental Science Development" as a course in Environmental Science Development. That is, the introduction to the doctoral dissertation is regarded as evidence for the degree's award, confirming that the degree applicant has the ability to write documents expected as a Ph.D. holder, for example, the ability to objectively explain one's own research; a different role from writing articles for academic journals in Chapter two and three.

In that module, Prof. Yamanaka introduces the researcher triangle as qualities of excellent researchers written in "The Concept of Social Research: the first volume" (Sato, 2015). On page 43, the author described that he applies it to the researchers' case by referring to the qualities and abilities needed for managers into three categories: art, science, and craft suggested by Henry Mintzberg, a Canadian management scholar. As a civil servant, my experience is truly a craft, skilled, and experienced knowledge, difficult to obtain for researchers who have not experienced civil service. For many researchers, whether they have experienced civil servants or not, it is quite difficult to generalize and universalize the civil servants' experience because they have to interview the necessary number of civil servants and build trust with the interview respondents in order to deepen the content of the interviews.

In Sato (2015), art (creativity and sensitivity) is introduced as the quality of setting appropriate

questions and hypotheses through deep insight and intuition. the “Daily Living Information File,” the main object of my doctoral dissertation, was created by the dialogue I had with Prof. Yamanaka when I was a graduate student in the doctoral course. As a civil servant, the manager of the Health and Welfare Section (who also served as the Secretary-General of the Social Welfare Council), I evaluated the fact that the number of participants in the Social Welfare Council Salon, a trial event at the time, exceeded ten elderly people as “going well.” But Prof. Yamanaka asked me, “Why do you regard ten participants as the successful metrics? How would you respond to my question if you were a graduate student?” Prof. Yamanaka then asked, “How many elderly people are there in Tsurui Village? How many of them need the Salon hosted by the Council of Social Welfare? Have you ever tried to grasp them?” I was asked his questions one after another. Based on my experience as a civil servant and my intuition, I regarded the project as “went well.” However, I could not answer his questions satisfactorily. This episode is the starting point of this doctoral research.

The analysis of the “Daily Living Information File” in Chapter 2 was conducted by Ms. He Mengmeng, a doctoral student. I myself examined its significance as a welfare service provided by the government and information management considerations for. If she had not started her master-thesis’ research focusing on the Salon hosted by the Council of Social Welfare in Tsurui Village, my doctoral thesis research would not be started. She is now researching her doctoral research focusing on the “Nursing Care Prevention and Daily Living Area Needs Assessment” in Tsurui Village, and I would like to help her.

Since the “Daily Living Information File” contains necessary information such as the names and birth dates of elderly people, I must strictly manage it. In order to conduct my research, Prof. Yamanaka and Mayor in Tsurui Village agreed on information management for my research.

Although I have experience in on-site operations related to community welfare, I hardly

experienced my perspective as a researcher on community welfare. I sought guidance from Professor Naoto Okada of the School of Social Welfare at Hokusei Gakuen University, who has a wealth of experience and knowledge in the field of welfare. From Prof. Okada, I learned the importance of adding a researcher's perspective to on-site knowledge to improve welfare services. He participated in the preliminary and final review committees and gave us much valuable advice. I would like to make use of them in my future work and research.

I would like to express my sincere gratitude to Associate Professors Masahiko Fujii and Mamoru Ishikawa for participating in the preliminary review committee and Professor Teiji Watanabe and Associate Professor Takafumi Hirata for participating in the preliminary and final reviews committees for their valuable advice. These helped me improve my doctoral dissertation.

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I would like to express my deepest gratitude to the staff in charge at the Health and Welfare Division of Tsurui Village and the Council of Social Welfare of Tsurui Village for their cooperation in providing us with various data and explaining the contents of the study with paying attention to the Law Concerning the Protection of Personal Information and Village Regulation Concerning the Protection of Personal Information. Without their understanding and cooperation, I would not have completed my doctoral research. Although written here due to page limitations, I have received support from many people to compile my doctoral dissertation. Once again, I am deeply grateful to them.

Finally, I would like to express my deepest gratitude to my family, my wife Asuka, my daughter Karen, my son Joji, and my parents for their warm support of my research activities so far.

I am going to continue to take a researcher's perspective on my work in charge of, and I will give back to as many people as possible without forgetting my gratitude.

Chapter 1 General introduction

1.1 Introduction

On 25 September 2015, the United Nations General Assembly unanimously adopted “Transforming our world: the 2030 Agenda for Sustainable Development” (United Nations, 2015). “No one will be left behind” is stated as one of the principles, and all perspectives of the five P’s (People, Prosperity, Planet, Partnership, Peace) are essential to achieve the 17 goals as Sustainable Development Goals (SDGs). Another feature is that sustainability is being questioned not only in the international community but also in local communities. In many Japanese regions, especially in Hokkaido, the declining birthrate and aging population is an unavoidable issue for the maintenance of local communities. First of all, the ability of the elderly to continue to live in their familiar places for as long as they wish, supported by the administrative services for their daily lives, is nothing less than the realization of Goal 3 of the SDGs, “Good health and well-being,” at the local level. This means realizing a community that is livable not only for the elderly but also for all generations, which is the achievement of Goal 11 of the SDGs, “Sustainable cities and communities.” Resilience to disasters and other factors is necessary to increase sustainability. In recent years, climate change has led to increased meteorological disasters, and heavy rains and snowfall have been increasing even in Hokkaido. Considering the maintenance and sustainability of local communities, it is necessary to ensure people’s safety and security, including the elderly, even during emergencies, as stated in Goal 13 of the SDGs, “Climate action.” In Tsurui Village, the research site for the doctoral dissertation, as a habitat for the *Kushiroshitsugen* (Japan’s largest marsh) and *Tancho* (Japanese crane), the Goal 15 of the SDGs, “Life on land,” is also necessary. The achievement of this goal is premised on realizing sustainable local communities where people are to be well-being. In other words, sustainability requires a situation where the three aspects of nature, society, and economy are in right balance.

Due to the declining birthrate and aging population, the population is declining in many regions,

increasing the elderly's percentage in the population. For those small-sized municipalities, the maintenance of the local community is an inevitable challenge. As the elderly people make up a large portion of the population, the need for welfare services will inevitably increase to maintain the lives of the elderly people. Many municipalities have their own welfare services for the elderly people, such as transportation, daily safety checks, and shopping support.

The provision of welfare services by municipalities is based on applications for use by the individuals or their families. Therefore, it is difficult for municipalities to quickly grasp the living conditions of elderly people who have not applied for welfare services. Some elderly people may not be able to speak up to receive the welfare services they need, such as those who cannot apply for welfare services or those who cannot obtain support from others. As a result, there is a possibility that welfare services have not reached all elderly people who need them. The lonely deaths of elderly people would be an example of this inference. Even if municipalities conduct questionnaires to all elderly people in an attempt to find elderly people who are not receiving welfare services, they hardly obtain responses with 100% the response rate. In addition, it is not realistic to expect municipal staff in charge to visit all elderly people to check if they are qualified for their needs of welfare services, considering the number of staff in charge and the time and effort to spend.

This doctoral dissertation conducted two case studies focusing on the “Daily Living Information File,” a file compiling information on the welfare services used by the elderly in Tsurui Village, Hokkaido, Japan, a small-sized municipality, from the perspective of “No one will be left behind” as a spirit of the Sustainable Development Goals (SDGs) (United Nations, 2015). Two case studies based on the “Daily Living Information File” are (1) to demonstrate the presence of the elderly who may be left out of regular social services and (2) to discuss the requirements to ensure that no one is left out of the safety list of the elderly in emergency events such as

disasters.

Section 1.2 introduces the subject of this study: community welfare and welfare services, administrative organizations, and disaster response for the elderly, as well as previous research on these topics. In section 1.3, as a background to the discussions in Chapters 2 and 3, the “Daily Living Information File” made by Tsurui Village is briefly reviewed. Section 1.4 sets out the research question and structure of this dissertation.

1.2 Prior research on community welfare

The object of this doctoral dissertation is the “Daily Living Information File,” compiling information on welfare services for the elderly. First, the definitions of welfare and the elderly people will be reviewed, and papers on community welfare will be outlined. Next, the previous research on information aggregation and utilization, administrative organization, and disaster response related to this dissertation will be shortly reviewed.

1.2.1 Community welfare for the elderly people

According to page 503 of the Sixth Revised Dictionary of Social Welfare (Chuohoki Publishing Co., Ltd., 2017), welfare is “broadly a term for well-being and happiness. In the religious sense, it means salvation from danger and the flourishing of life. It is used synonymously with social welfare or as a concept that encompasses social welfare, public health, and social security. However, as a concept for social welfare, it has become firmly established in modern society as a positive expression of a healthy and cultural minimum standard of living.”

Welfare services are intended for all generations and are tailored to the living conditions of individual residents, including the disabled, the needy, and single-parent families. Therefore, there is a variety of welfare services. The entities providing welfare services are not limited to the

government but also include the Council of Social Welfare, private organizations, and individuals. According to the Sixth Revised Dictionary of Social Welfare (Chuohoki Publishing Co., Ltd., 2017), p. 150, the elderly, the target of welfare services, is “vary considerably in terms of biology, physiology, and psychology, and it is difficult to classify them uniformly by age. Therefore, even though there is some resistance to the term “*Roujin* (in Japanese),” and the term “*Koureisha* (in Japanese),” which means older, is widely used. The term “*Roujin* (in Japanese)” is still used in law. The Act on Social Welfare for the Elderly does not define the target elderly population, leaving its interpretation to socially accepted notions, but internationally, the age of 65 is often used as the dividing line in demographic statistics, etc. The range of the elderly people subject to specific measures is in principle 65 years old or older.”

1.2.2 Research on community welfare

In order to comprehend research in the field of community welfare, we will go over 60 peer-reviewed papers published in the academic journal “*Community Development in Japan*,” which was published once a year from 2008 to 2020 by the Japanese Research Association for Community Development, one of the cooperative sciences and research bodies of the Science Council of Japan. For a total of six papers in 2013 and 2014, only the papers’ titles, authors’ names, and their affiliations were used because the journals were not accessible, and for the other 54 papers, the contents were also used.

The following seven are regarded as dealing with the welfare of the elderly, although the author hesitated to categorize some papers into that topic. Yamaguchi et al. (2011) conducted a questionnaire survey of elderly people living alone in Itabashi Ward, Tokyo, and clarified the preferences of neighbors regarding talking to and confirming the safety of elderly people who do not speak up. Takase (2012) dealt with social work practice for social isolation cases of elderly

living alone in the Tokyo metropolitan area. Ikeda et al. (2016) studied the approach of community general support center staff to the elderly who do not seek support in Tokyo. Yamashiro (2019) clarified the factors of continuous social participation after living in the community for late-stage elderly aged 75 and over from the aspect of social networks such as community association activities.

Since the Great East Japan Earthquake, there are three papers on disaster preparedness for the elderly. Mochizuki (2015) described the practical process of building a community general care system by the community general support centers in the affected areas. Koyama (2018) clarified that each municipality has a different way of involvement in the development of individual plans for measures to support people who need to take evacuation action. In addition, Sato et al. (2019) clarified the attitudes of the staff of private elderly welfare facilities toward coming together when a disaster occurs.

As for the persons with disabilities, there were five papers as well. Nishimura (2008) proposed the direction of daily life support for persons with intellectual disabilities as a study on understanding the actual living conditions. Endo et al. (2009) studied the tendency of parents' leisure life to raise children with disabilities and proposed measures to support them. Takahashi (2010) clarified the current status and issues of small-scale workshops as employment places as a study on the economic problems of persons with disabilities. Aoki (2010) also clarified the issues of pensions for the disabled. Murakami (2011) clarified the degree of difficulty for people with disabilities in using public transportation, which is indispensable for them, through a field survey.

As a research on the needy after the enforcement of the “Living Poorness Person Independent Support Act” (April 2015), Yamamoto (2016, 2017) clarified the benefits of securing housing for the needy, focusing on seven NPOs and other organizations in the Tokyo metropolitan area that

provide support for the needy, Kagawa (2018) observed the effects of informal involvement as well as efforts by local governments to support the independence of the needy, Tanaka (2017) clarified child poverty and social isolation of households through interviews with single-parent families in urban areas, and Iwagaki et al. (2020) proposed sustainable management methods for children's cafeterias. These studies show that in urban areas, many NPOs and other private organizations are flexibly providing support to the needy.

There are many studies on the administration, council of social welfare, nursing and medical care, and Community-General Support Center that provide welfare services, 17 papers as well. Many studies of public administration have dealt with community welfare planning. Park (2009) examines cases of Takahama City in Fukui Prefecture and Miyakonojo City in Miyazaki Prefecture and proposes a process-oriented framework for the formulation of community welfare plans. Okuda et al. (2012) grasped new trends in symbiotic programs through a survey of all prefectures regarding community welfare planning and a comparison of Kumamoto and Kochi prefectures and made proposals regarding community welfare policy. Lee (2015) clarified how local residents' awareness of local communities changed through their involvement in the formulation of community welfare plans. Hirano et al. (2020) dealt with the development of multi-agency collaborative projects through the ongoing management of community welfare plans.

Studies on the council of social welfare include those that explored measures of welfare assessment from case studies of projects (Park et al., 2016) and those that clarified the possibility of integrating individual and community support in community social work (CSW) by the council of social welfare (Kato, 2019). Kato's study targets the work that she herself handles as a CSW at the Council of Social Welfare.

Studies on the construction of a "Community-General Care System" through cooperation among nursing, medical care, and welfare organizations are those that discuss the ideal form of

multidisciplinary cooperation and regional collaboration (Fujita et al., 2012) and those that propose the role of the director of the community general support center in the construction of a new nursing network (Masuda et al., 2017).

There are studies dealt with other subjects: the history of the welfare volunteers (one paper) and childcare services (three papers), private organizations providing welfare services for the disabled (seven papers), occupations such as social workers (three papers), and individuals (three papers), as well as those related to local governments overseas, such as the United States (one paper), South Korea (two papers), and Brazil (one paper).

In 57 of the 60 papers (95% of the total) published in the academic journal “Community Development in Japan” from 2008 to 2020, the first authors are researchers belonging to universities, etc. (so-called researchers). The first authors of the remaining three papers are members of the association of social workers (one paper) and employees of the council of social welfare (two papers), where Kato (2019) and Urata (2017) are single-authors respectively, and Ikeda et al. (2016) is the co-author with university researchers.

Each paper cited an equal number of books (many of which were single-authored, and some were translations of foreign books) as well as academic papers (many of which were published in university bulletins, so it is unclear whether they were peer-reviewed or not). Each paper also cites administrative materials and others (such as organizations’ materials).

The mean (median) number of citations of the 54 papers was 8.6(7), 8.8(5), 1.9(1), and 3.3(2) for academic papers, books, administrative materials, and others, respectively, and the mean (median) number of total citations was 22.5(19.5). The median of 54 papers is 7, but some papers have no citations at all (Figure 1b). Focusing on the papers with 40 or fewer total citations, we found that the ratio of the number of academic papers to the total citations was as high as about 80% in some papers, but less than 10% in others (i.e., only a few academic papers were cited)

(Figure 1a). Therefore, one of the characteristics of the academic journal “Community Development in Japan” is that the discussions are not closed to the researcher community but are open to the field, although researchers write the articles.

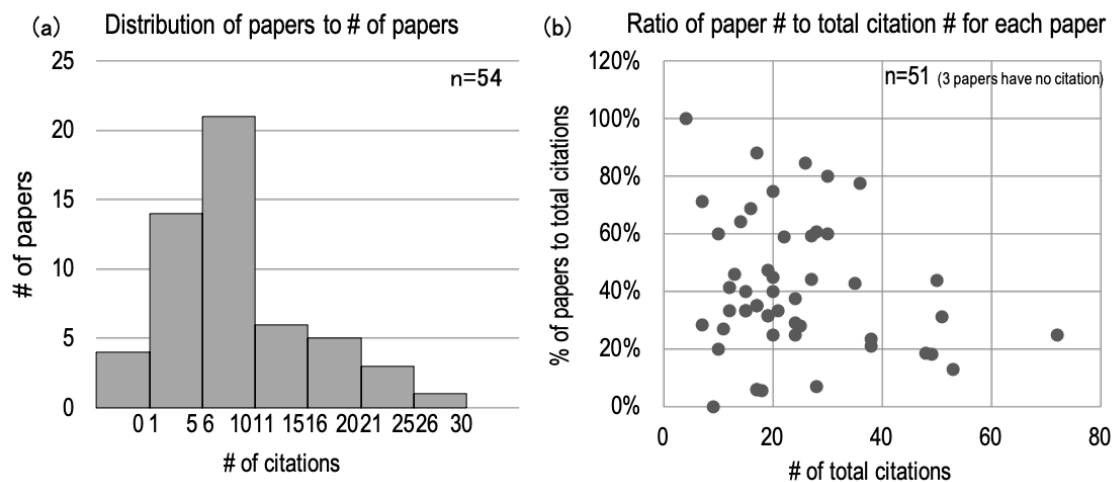


Figure 1: (a) The number distribution of citations for academic papers and (b) the number ratio of the academic papers to the total number of citations per paper, in the 54 papers published in the academic journal “Community Development in Japan” from 2008-2012, 2015-2020. Three of them are excluded from (b) due to no citations by them.

1.2.3 Information compiled and utilization, and study related to such information

Municipalities manage information on each resident, such as name, age, gender, and address (necessary information), as well as information on the users of welfare services and the status of responses to questionnaires (referred to as “information on the use of welfare services” in this dissertation). The former is captured by the Basic Resident Register as personal information for all residents, and the latter is captured for each welfare service. There are two types of welfare services provided by municipalities: those based on laws and regulations and those based on their own regulations. Municipalities provide a variety of welfare services to the elderly and obtain information on the use of welfare services. Each staff in charge of welfare services then manages

the information on the use of each welfare service, and each of this information is stored in an administrative system based on laws and regulations, in own systems, or in paper forms (e.g., Taguchi, 2002).

The Japanese government has been urging municipalities to actively utilize information on the use of welfare services to address regional issues such as the declining population due to the declining birthrate and aging society. The case studies introduced by the Japanese government, in “Data utilization guidebook for local governments Ver. 1.0” (Ministry of Internal Affairs and Communications, 2018) and “Data utilization guidebook for local governments Ver. 2.0” (Ministry of Internal Affairs and Communications, 2019), include a new system that links existing administrative systems connecting the Japanese ministries, prefectures, and municipalities to compile information on the use of welfare services and how to utilize it. The report also introduces 14 case studies by 11 local governments and other organizations.

As examples related to the welfare of the elderly people, these guide books introduced that Fukuoka City in Fukuoka Prefecture manages and analyzes various data related to medical care, nursing, and health for each resident, and promotes the planning of regional medical care and nursing care projects, Kawasaki City in Kanagawa Prefecture digitizes medication handbooks and stores the dispensing history on the cloud, and Hokkaido Information University and Ebetsu City, Hokkaido, developed an application that AI advice on “disease risk,” “when to visit a medical institution,” and “what to eat” based on the medical checkup data such as blood test.

In addition to the welfare of the elderly, these guide books introduced systems for the following usage. Chiba City in Chiba Prefecture provides residents with information about child-rearing, such as the availability of day-care centers, Himeji City in Hyogo Prefecture plans and evaluates its policies related to child-rearing using the information on residents, Minoo City in Osaka Prefecture holds data and questionnaire results related to children's academic ability, living

conditions, and family economic conditions. These are examples of the usage information compiled by building a new large-scale system that links existing systems for welfare services in urban areas. If municipalities were able to implement such a system, they would gain a comprehensive view of the user information of welfare services and transform current content into higher quality welfare services by matching users and welfare services.

Other than the cases introduced in the guidebooks mentioned above (Ministry of Internal Affairs and Communications, 2018, 2019), the only case study that the author found was Taguchi (2002). Taguchi (2002) reports on constructing the integrated health care and welfare information system in Sapporo City, Hokkaido.

Sapporo City has introduced the integrated health care and welfare information system as part of its administrative computerization based on the “Sapporo IT Management Strategy” under the e-japan plan set forth by the Japanese government for the following reasons: (1) to support administrative work (to improve the efficiency and labor-saving of cumbersome and complicated administrative work by integrating, commonizing, and unifying administrative work that is divided vertically by each system), (2) to support users (to manage human and facility resources for health, welfare, and nursing care services, and to strengthen cooperation among related organizations and promote the enhancement of their respective services), and (3) to support community welfare (to support community welfare activities and the raising of awareness of welfare by providing residents with information on health and welfare promptly).

The integration information system covered the following health and welfare services: the welfare services for the elderly (home-visit long-term care, day-care service for long-term care, etc., welfare facilities for the elderly requiring long-term care, etc.), the welfare for the people with disabilities (consultation, physical disability certificate, medical rehabilitation handbook, etc.), the child and maternal welfare (child allowance, childcare-rearing allowance, etc., day-care

center admission), the medical subsidies (elderly medical expenses subsidies, infants medical expenses subsidies, etc.), the long-term care insurance (consultation, management of qualifications for primary insured persons aged 65 and over, certification of needed support/care, etc.), and the health-related services (consultation, visits survey, health guidance, etc.). The system holds the necessary information of residents (name, gender, date of birth, and address) and the user information of the health and welfare services such as welfare for the elderly and welfare for the people with disabilities mentioned above.

Taguchi (2002) cites the “business structure model as a characteristic of the Integrated Health Care and Welfare Information System. While ensuring the uniqueness of each welfare service, subsystems have been established to standardize the way data is handled for each welfare service, and a collaborative system has been designed to connect these subsystems as a business structure model, as “Welfare services include a wide variety of service projects, each operating with its own paperwork and forms” suggested by Taguchi (2002).

Taguchi (2002) explained that as consideration of the fact that local governments’ welfare services are based on the national system, separating them into subsystems will be possible to respond flexibly to frequently implemented system reforms with ease of program maintenance and a standardized business structure model. The actual user interface, which each staff in charge of welfare services interacts with, is also designed in such a way as when the relevant residents are entered, they are compiled and displayed on the system screen for each individual, and when more detailed information is required, it is displayed by selecting the relevant item on the system screen. The necessary information of the residents is constantly updated through the information linkage with the resident record system.

In many municipalities, welfare services are provided by a limited staff in charge and a shrinking budget due to a declining population. Under such circumstances, Sapporo City, as a

large city where budgets and personnel can be secured comparatively. It has secured a budget for the integrated health care and welfare information system and allocated personnel to operate it. Its introduction has made it possible to consolidate and utilize various welfare services and utilization information on many users through cooperation among multiple departments and sections. On the other hand, in small-sized municipalities, due to budget and staffing constraints, it is challenging to implement the initiatives shown in the Japanese government case studies, and it is not easy to compile user information of welfare services for the elderly across multiple divisions and sections that are staff in charge of various welfare services. It would be desirable for small-sized municipalities if there were a system that would allow them to grasp information on the use of welfare services from a comprehensive without spending too much expenses and effort.

The report by Taguchi (2002) differs significantly from the structure of the “Daily living information file,” the target of this doctoral dissertation, and handling amount of the user information of welfare services. However, the point that the user information of welfare services is linked to each individual and visualized from a comprehensive is helpful for this doctoral dissertation (discussed in Chapter 4).

As far as one of the objectives of the Sapporo City system reported by Taguchi (2002) is concerned (in this case, support related to community welfare), even organizations with limited budgets and staff in charge can develop and utilize simple tools. For example, Terao et al. (2018) introduce the development and use of a tool for disseminating information on needs, missing social resources, and existing services related to welfare for the elderly people in the Maruko area of Shizuoka City and Shimada City in Shizuoka Prefecture by NPOs, volunteer groups, private companies, and local residents on a consolidated website as a case study for building a Community-General Care System tailored to local conditions.

1.2.4 Administrative organization and its studies

There are 1,724 municipalities in Japan (as of December 25, 2020). The framework of the administrative organization of a municipality (local public entity) is stipulated in the Local Autonomy Act as follows: “The organization of the executive organs of an ordinary local public body shall be systematically composed of executive organs under the jurisdiction of the head of the ordinary local public entity, each of which has a definite range of affairs under its jurisdiction and authority.”

The administrative organization is roughly divided into the following departments: General Affairs, Planning, Finance, Taxation, Civil Affairs, Health, Industry, Construction, and Education. Depending on the size of the population, the size of the staff in charge, and the size of the budget, each department has its own part, division, office, section, etc., based on regulations. Each department is responsible for a wide variety of tasks, some of which are based on the national system and other of which are original to the municipality. And administrative, technical, and labor staff are assigned to these tasks. It is likely that these organizational forms and personnel assignments have been shaped over time as the role of government has changed. In recent years, with the shrinking of public finances due to the declining birthrate and aging population, there has been a demand for more efficient operations. However, it is easy to imagine that reviewing the organizational structure and staffing is not simple as it sounds and that even only discussing such matters is not easy across multiple local governments.

Next, some papers on administrative organization, not only in the welfare sector, are introduced. Based on the survey of prefectures and municipalities with more than 10,000 residents conducted in 2009, Miyairi (2013) suggested that “region” and “government office” are confused as characteristics of the administrative organization of local governments and that the boundary

between the region and administrative organization is ambiguous. She also pointed out that bureaucratic organizational management cannot cope with diverse and complex issues amidst the drastic changes in the environment surrounding local government administrative organizations.

Nakajima (2000) described the current state of administrative organizations as follows: “Administrative organizations have strong existing values and knowledge are, and higher-order learning that changes organizational perception is unlikely to occur, and new behavioral pattern and knowledge are rarely produced. He also pointed out that government organizations tend to avoid, rather than confront, challenges arising from changing circumstances.

Sawada (2009) pointed out that in the changing environment surrounding local governments, “trained incompetence,” “sanctification of norms,” and “distortion of information” have emerged in the administrative organization of the municipalities. Kikuchi (2004) examined the relationship between administrative staff and administrative reform from the perspective of organizational learning and how departmental culture is inherited. He also pointed out that in many municipalities, personnel shifts take place at about three years intervals on average, and this short period might be considered a hotbed for the attitudes in the staff unfitted for reforms.

Nomura (2017) pointed out that it is difficult for administrative staff to think and act in a cross-disciplinary manner in a vertically divided administrative organization, regardless of the size of the organization. Also, based on his experience of attempting a practical study of the administrative organization of local governments, Kazuya (2015) stated, “We tried to paint a picture of the organization, even intrinsically, by interviewing administrative staff and former staff, but there were many deep-seated issues that we could not capture.”

In the author’s literature survey, except for those engaged in research, there was no administrative staff who researched and published academic papers on their work and administrative organizations.

1.2.5 Studies on disaster response

Okada et al. (2013), cited by Mochizuki (2015), organized and compared the activities of care managers from in-home care support offices and community-general support center who conducted safety confirmation of the elderly requiring assistance at home in Iwate and Miyagi prefectures immediately after the Great East Japan Earthquake and examined how care managers and community-general support center should respond to disasters in the future.

In other studies, Okada (2005) proposed a way of crisis management at the time of disaster, based on a field survey on the safety confirmation by care managers at the time of the Niigata-Chuetsu Earthquake, and Okada et al. (2006) clarified the construction of formal and informal networking through care plans through a qualitative and quantitative survey on the support for elderly people requiring support and care immediately after the earthquake. Okada (2011) stated that the neighbors rushed to the disaster site immediately after the disaster and responded faster than the care managers, showing the limitations of care managers in crisis management while evaluating the disaster response of care managers. Okada et al. (2013) describe the necessity of “setting up a place where the informal sector, such as officers of neighborhood associations and community members, and the formal sector, such as Care Managers (CMs) and umbrella organizations, can meet together.”

As for the safety confirmation targets at the time of the Hokkaido Eastern Iburi Earthquake, which will be introduced in Chapter 3, the care manager and other staff who had confirmed the living conditions of each elderly extracted from the “Daily Living Information File” excluded two elderly from two households, who were in the healthcare facilities for the elderly requiring long-term care, and added five elderly from three households, who had not been qualified to extract. Although not discussed in Chapter 3, Okada and his co-authors’ studies are to be refed in Chapter

4, where knowledge of care managers, staff who are familiar with the on-site field, should be included in the “Daily Living Information File.”

In order to respond to disasters, municipalities maintain a “List of Persons in Need of Evacuation Support” (hereinafter referred to as “List of Persons in Need of Evacuation Support”) based on the Basic Act on Disaster Management and the regional disaster prevention plan. As for research on persons who need evacuation support, Koyama (2018) found that each municipality has a different level of involvement in formulating a plan for individual support for residents on the List of Persons in Need of Evacuation Support.

Although it is not academic research, the “Casebook on evacuation behavior support for people requiring evacuation behavior” (Cabinet Office, 2017) introduces examples of municipalities regarding safety confirmation using the List of Persons in Need of Evacuation Support. For example, Ikeda Town in Hokkaido has predetermined how to use the List of Persons in Need of Evacuation Support and utilized a network of welfare volunteers, organizations for the disabled, welfare-related organizations, and voluntary disaster prevention organizations to confirm the safety of people in time of a disaster. Imabetsu Town in Aomori Prefecture, in cooperation with welfare volunteers, confirms the safety of the elderly living alone, elderly households, and households with disabled people in the entire town by visiting them individually or contacting them by phone in the time of a disaster. Tokai Village in Ibaraki Prefecture, in time of a natural disaster, confirms the safety of residents by using the List of Persons in Need of Evacuation Support distributed to the Self-Governance Association and in time of a nuclear disaster, the staff in charge in the village office confirms the safety of residents. Furubira Town in Hokkaido has established a system in which each department in charge of the town office confirms the safety of persons in need of evacuation support by using the List of Persons in Need of Evacuation Support and also established a system to promptly contact those close to persons

in need of evacuation support. Biei Town in Hokkaido confirms the safety of persons in need of evacuation support in areas where evacuation orders by phone.

Nagoya City in Aichi Prefecture has concluded agreements with organizations for the disabled and nursing care service providers to share information on the safety of residents in need of care. In the time of a large-scale disaster, safety information confirmed by nursing care service providers will be provided to the city so that the safety of the elderly who use home care services can be confirmed smoothly and promptly. Meguro-Ward in Tokyo, during the first two to three hours after a disaster occurs, welfare volunteers and local residents' organizations will confirm the safety of people who need assistance to the extent possible by using the List of Persons in Need of Evacuation Support that has been distributed in advance (but only to those who agree). Itabashi-Ward in Tokyo has created "We are all safe" bandanas for hanging outside of their houses to let others know their safety of the people who in need of evacuation support and distributed them to those registered in the List of Persons in Need of Evacuation Support.

In the author's literature survey, only "Casebook on evacuation behavior support for people requiring evacuation behavior" (Cabinet Office, 2017) presents examples of municipalities' use of the List of Persons in Need of Evacuation Support, including safety confirmation. Koyama (2018) is the only study related to the List of Persons in Need of Evacuation Support.

1.3 "Daily Living Information File"

1.3.1 Background of the "Daily Living Information File"

In chapters 2 and 3 as academic papers, the "Daily Living Information File" is described academically, on the positioning that it has already been created by the manager of the health and welfare department Tsurui Village.

As introduced in 1.2.4, the challenges of administrative organizations have been discussed in

several papers. Administrative organizations and administrative staff are in an environment that makes it difficult to generate new academic knowledge: it is difficult to create new modes of behavior and knowledge (Nakajima, 2000), think and act in a cross-disciplinary manner (Nomura, 2017), and pass on knowledge due to frequent personnel shifts in many local governments (Kikuchi, 2004). In addition, Kazuya (2015), who attempted practical research, pointed out the difficulty of conducting interviews with administrative staff and former staff. Furthermore, Kazuya (2015) indirectly points out the difficulty of describing based on academic knowledge (generalized and universalized knowledge) beyond personal experience due to the diversity of duties and the confidentiality of the work handled (including the protection of personal information). Due to these backgrounds and circumstances, the author described this doctoral dissertation in Chapter 1 based on the author's personal experience (which would be the experience of a general civil servant).

Usually, the staff grasps only the elderly using the welfare services they take charge of. Under the circumstance, they obtain field knowledge through their experiences about the welfare services they take charge of. The field knowledge increases as they gain experiences. In general, as staff in charge becomes a section chief, a division assistant manager, or a division manager, unintentionally, the more social services they are responsible for, the more information about the elderly using social services they have. However, only information about the elderly using social services is obtained, not information about the elderly not using them. Also, the only way to know what social welfare services an elder uses is asking every staff taking charge of each division. Then, only by contacting all social service personnel for every elderly will become clear how many elderlies are not using social services at all. In other words, at present, it is difficult for even an experienced division manager in charge to instantly answer the welfare services' usage for each elderly person, and he does not have any information other than the necessary information

such as their name, address, and birth date listed in the necessary resident register for those who do not use welfare services at all.

When attempting to compile information, consideration must be given to the protection of personal information. The staff in the health and welfare division can access and know the necessary information in the basic resident register. On the other hand, detailed information about the elderly who use each welfare service is necessary for the staff in charge of such as public health nurses directly contacting the elderly to perform their duties and is not something other staff should know. For this reason, information about individual welfare services in the “Daily Living Information File” is kept brief, and a two-step understanding was adopted: check the file to know the availability of the personal information there and ask the staff in charge for details. For example, when staff in charge needs information on the elderly in question, if they found this elderly were received by “Visits survey for grasping the actual living conditions of the elderly” listed in the “Daily Living Information File,” they could ask the staff in charge the contents obtained by the visits survey, to understand actual conditions of the elderly. The more information included in the file, the more frequently updated would be required.

This two-step understanding plays the same role as the business structure model presented by Taguchi (2002), one of the few previous studies introduced in 1.2.3, although the scale of both is very different.

1.3.2 Welfare services of the Health and Welfare Division as listed in the “Daily Living Information File”

In Chapters 2 and 3, the author takes the position of academic discussion based on the already existence of “Daily Living Information File” and discusses what would be possible if there is the “Daily Living Information File” compiling the user information of welfare services and its

comprehensive visualization.

The “Daily Living Information File” is a 777-line by 83-column Microsoft® Excel file (149KB) with all elderly of 777 (those listed in the Basic Resident Register as of April 1, 2018) in the rows and welfare services in the columns. The file itself will be introduced in Chapter 2, but the welfare services listed in the file will be introduced as follows.

There are two types of welfare services for the elderly people in Tsurui Village: those based on laws and regulations and those provided by the Tsurui-original. The former includes the long-term care insurance services and medical services for late-stage elderly, which are essential welfare services for the maintenance of life for the elderly people and are highly constant. In the long-term care insurance services, all elderly people aged 65 or older are “primary insured persons,” and all elderly people aged 75 or older are also covered by the medical services for late-stage elderly. The health and welfare division has established the long-term care insurance section providing long-term care insurance services and the community-general support section responding for the community-general support system, which are responses to the implementation of the projects prescribed by the Japanese Government. On the other hand, the latter is a wide range of services with highly variable, determined by the Tsurui Village’s welfare policy, and offers a wide range of services. Because of the unique services in the village, they are often reduced or discontinued when there are few users or and conversely, services are often expanded when there are more.

Tsurui Village is committed to enhancing Tsurui-original welfare services for the elderly. For example, there are partial support for medical expenses for the elderly up to 69, half support for home-visit care or daycare services, and snow removal services for elderly households. The village, in cooperation with the Council of Social Welfare, provides paid individual transfer services by volunteers to ensure transportation for residents in areas where public transportation,

such as buses, is not operated. It is also committed to preventive care projects, such as establishing regular elderly gatherings (Salon hosted by Council of Social Welfare) in five districts in the village.

1.4 Research Purpose of this doctoral dissertation

The “Daily Living Information File” is compiled of information on various welfare services for the elderly in Tsurui Village. When compiled the information, we not only gathered information mechanically, but also extracted essential information for a comprehensive.

The visualization means “to make things and phenomena that are invisible to the human eye easier to understand by creating images, graphs, tables, etc.” according to the *Daijisen* (Shogakukan, 2012), one of famous Japanese dictionaries, or “Visualization refers to the process of making phenomena, events, and relationships that cannot be directly ‘seen’ by humans into something that can be ‘seen’ (images, graphs, figures, tables, etc.)” according to Wikipedia (<https://ja.wikipedia.org/wiki/%E5%8F%AF%E8%A6%96%E5%8C%96>). It is a term that is widely used in a variety of fields. In this dissertation, the author decided to use the word “visualization” in order to focus on the role of “comprehensive” as well as “compiling.” At the beginning of creating the “Daily Living Information File,” we thought of including as much information as possible. If it were left as is, it would be a database (i.e., the extraction work would usually be a separate application that uses the database). However, as far as the function of extracting information is concerned, it has the same role in figures or tables. In order to express the significance of creating this “Daily Living Information File” that also has such a function, the main title of this study is “comprehensive visualization,” which focuses on its role, and the subtitle is “information compiled” as a specific task.

The purpose of this doctoral dissertation reveals the potential of the comprehensive

visualization compiling the information on many welfare services used by the elderly with the necessary information in the basic resident register, in small-sized municipalities, through case studies focusing on the “Daily Living Information File” created by the health and welfare division, Tsurui Village, Hokkaido. In particular, it is to reveal the existence of the elderly who do not use welfare services at all.

Using the “Daily Living Information File,” Chapter 2 identifies the elderly people who may be left out of welfare services, as well as characteristics and factors of the welfare services used by the elderly from the perspective previously overlooked. Chapter 3 discussed the case in which the “Daily Living Information File” was used to extract people to be checked for their safety during a large-scale power outage “blackout” following the Hokkaido Eastern Iburi Earthquake in September 2018. Based on Chapters 2 and 3, Chapter 4 summarizes the potential of the “Daily Living Information File” compiling the user information on many welfare services and discuss the remaining challenges, such as updating the information that was not revealed.

**Chapter 2 Making the “Daily Living
Information File” collecting the
information about elderly welfare
services and its advantages
- A demonstration by the health and welfare
division in Tsurui Village, Hokkaido, Japan.**

2.1 Introduction

To help residents to live continuously and satisfactorily, local governments in Japan provide public aid and welfare services to their residents, based on laws such as “the six laws relevant to welfare,”¹⁾ “The Long-term Care Insurance Act” (Hereinafter LCIA), and “Services and Supports for Persons with Disabilities Act” and local regulations established by the local governments. They provide various welfare services for elderly people over sixty-five years old registered on the basic register of residents. With the future increase in the elderly population, they should keep welfare services both in quantity and quality, although they would correspond to financial reduction caused by the decrease in local tax and tax allocated to local governments.

As a current status, the information on each welfare service, such as their users and target for the elderly, is separately managed by each staff in charge of the welfare division according to laws and local regulations. If we aggregate that information, we will figure out which welfare services an elderly person uses or find an elderly who does not use welfare services (i.e., “no one will be left behind” would be realized²⁾). We could also contact each elderly we found and provide suitable welfare services to their needs. We could also find new services fulfilling the elderly needs and confirm whether the elderly using service matches we originally intend. Gathering information on welfare services as sharing information in the whole welfare division would benefit both the elderly and the administration.

In reality, it is difficult for a village to centrally manage information related to multiple welfare services. Information based on laws and regulations and needs to be updated constantly is in each system whose specifications are defined by the government, while the information collected by the village itself is managed through papers media and so on with own specifications. Therefore, the village itself cannot develop the centralized control system with village-original information and interface to provide information to the government, accompanied by frequent updating, under

the technical and financial constraints and the protection of personal information.

Since the "Daily Living Information File" contains basic information, it must be carefully managed to protect personal information. However, since it does not contain detailed information, it is relatively easy to manage. We can obtain comprehensive and detailed information of welfare services with necessary minimum effort by two-step grasping of (1) comprehensive information on many welfare services such as the current status of their users by the "Daily Living Information File," we proposed in this study, and (2) detailed information on our focused welfare services by the established administrative systems. We would easily manage the "Daily Living Information File" without detailed information, although we should consider personal information as necessary information in the "Daily Living Information File."

In this study, as realizing our suggestion, we developed the "Daily Living Information File," in the form of a table, with the necessary information and the user information of welfare services for all elderly in Tsurui Village (777 people on April 1st, 2018), based on their information separately managed by each staff in charge of the welfare division. We also demonstrated the advantage of the file with the problems when creating and future renewing it.

2.2 The current situation in Tsurui Village

2.2.1 the our research target Tsurui Village

Tsurui village is within the district of Kushiro, Hokkaido, whose population is 2,526 people. Tsurui village is within the district of Kushiro, Hokkaido, whose population is 2,526 people³⁾. There are 14 districts in which the most populated districts are *Tsurui-Shigai* (city-center of Tsurui in Japanese), *Shimo-hororo*, and *Hororo-Shigai* in order. Although Tsurui has a village clinic and a private hospital, many elderly regularly go to hospitals in Kushiro City taking about 40 minutes by car. Since there is no high school in the village, the high school students also go to high schools

in Kushiro City for about an hour each way after they graduate from junior high schools in the village. The village office provides a welfare-bus taking all elderly to a route routinely for shopping, hospitals, etc. Dairy farming is the primary industry, and the farms are run on a larger scale in recent years. Tsurui has Kushiroshitsugen National Park, where *Tancho* (Japanese crane) lives, known as a special natural treasure. Tourism there focusing on natural environments such as horse trekking and canoeing are becoming popular.

2.2.2 The information on the elderly people managed by Tsurui Village and its current status

There are nine divisions, such as the health and welfare division in the municipality of Tsurui Village, constituted by “Tsurui Village Ordinance of Administrative Division” (Hereinafter OAD). OAD regulates the health and welfare division in charge of services relevant to welfare, promoting health, and “The Long-term Care Insurance Act” (Hereinafter LCIA). There are four sections, Promoting Health Section, Welfare Section, LCIA Section, Community-General Support Section, in the health and welfare division, constituted by “Tsurui Village Regulation of Administrative Division” (Hereinafter RAD).

These four sections perform tasks related to elderly welfare regulated by the laws and village-initiated ordinances, such as OAD and RAD, and separately manage each information on the elderly (Table 2.1). While the information with renewing regulated by the laws is managed by the established administrative system, the information associated with original services and obtained by surveys is managed not by the system but by the personal computer handled by the staff in charge.

Table2.1: Main information on the elderly people managed by the Health and Welfare Division

Section Name	The rationale for information collection and main elderly information	
	On the basis of laws or regulations	The Tsurui-original
Promoting Health Section	Receipts and reimbursement (Utilization of Tsurui Village Clinic)	Partial information on the “Visits survey for grasping the actual living conditions of the elderly” conducted by the Community-General Support Section (e.g., health conditions)
Welfare Section	Pension entitlement status (When a person become eligible to receive a pension, he/she must go to the Welfare Section to complete the procedures for receiving the pension, relevant to National Pension Plan, Employees’ Pension Plan)	Eligibility for the Tsurui-original support for elderly-medical expenses managed (find out what type of medical insurance he/she have) Utilization of Welfare-Bus Projects of the Council of Social Welfare (individual transfer service, Elderly club participation)
LCIA Section	“Primary insured persons” of the long-term insurance care service (Name, gender, date of birth, address) The status of certification of needed support/care, users and utilization of the long-term insurance care and preventive services, elderly people living at home and residents of facilities who qualified with a certification of needed support/care, and responses to the Nursing Care Prevention and Daily Living Area Needs Assessment	A user list of the Tsurui-original projects outside the benefits of the long-term insurance care system (e.g., partial subsidies for self-payment of the long-term insurance care services, distribution of benefit coupons for long-term care products, etc.)
Community-General Support Section	Users and their status of use of preventive services of long-term care (overlap with LCIA Section)	Information on the “Visits survey for grasping the actual living conditions of the elderly” (occupational history of the elderly, etc., the status of those living with them and their families, medical examinations by medical institutions in and outside the village,

		etc.)
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Other information related to the welfare of the elderly includes information on The Basic Resident Registration, which is managed by the Resident Life Division, and information on tenants in public housing and village housing, which is managed by the Construction Division.

Usually, each section uses the information managed by each section when providing their services regulated by RAD to the elderly. In other words, each section would not need any information hold by other divisions/sections. If the information on the target elderly were required but not in hand, the staff in charge would inquire whether the other divisions/sections have their information or not. In general, when the staff found that all divisions/sections have no information, the staff would obtain the information by directly visiting the elderly or by sending the questionnaire to all elderly people. Therefore, any information on the elderly would not require gathering, if they received the services continuously.

2.2.3 Sharing information on elderly people and its issues

The health and welfare division grasps necessary information on every elderly such as his/her name, birthday, gender, address, and certification of needed support/care as “primary insured persons” of the long-term insurance care service (name, date of birth, gender, address, and whether or not there is a nursing care requirement)⁴. As described in section 2.2.2, the user information of each welfare service is grasped by each section taking its charge. However, if the target-elderly people have never used any service, there is not any information on him/her except “non-user for the specific service.” There were some cases of certification processes requiring long-term care as follows. If some elderly submitted the application form for needed support/care, the staff taking charge of long-term care services would start collecting detailed information such

as which level of nursing care assistance is required with the applicant's family circumstances, only if some elderly submitted the application form for needed support/care. However, if the staff cannot collect any information except the necessary information until the elderly or his/her family will submit the application form, the staff cannot collect and know any information except the necessary information. The judgement of submitting depends on their families instead of third persons.

Since FY 2014, the number of consultations and support for the elderly has been increasing⁶⁾ in the general consultation and supporting service⁵⁾, one of the community support services that the Community-General Support Section in charge of, as the aging rate in the village increases. In recent years, it is more difficult for staff in the Community-General Support Section to consider their support, as a response to the consultation by the elderly, about various problems such as medical, care, economic issues, and family issues using only information managed by their section. They tend to be using more information recently managed by other sections, as their needs. For example, staff in the Community-General Support Section consider their support, as a response to consultations about economic issues by the elderly, not only using staff-having information but using the information on pension and the Tsurui-original support for elderly-medical expenses managed by the welfare section.

As the elderly population of Tsurui Village increases exactly in the future⁷⁾, there will be more opportunities for each section to utilize each other's information on the elderly when considering and responding to measures to support the living of the elderly.

2.3 Developing the “Daily Living Information File” and its utilization

The Health and Welfare Division has developed the “Daily Living Information File,” compiling the user information of welfare services for all elderly in Tsurui Village, as the first stage of the

two-step grasping. The Health and Welfare Division used a Microsoft® Excel file to create the “Daily Living Information File” because 777 elderly in Tsurui Village is not a relatively large number, and the information handled is only necessary information and simple items. As it includes personal information, its protection must be given the utmost care, laid down by the Law Concerning the Protection of Personal Information and Village Regulation Concerning the Protection of Personal Information. However, because it does not contain detailed information, it is relatively easy to be managed and shared within the Health and Welfare Division. Therefore, other small-sized municipalities can create a file similar to the “Daily Living Information File” as well.

Table 2.2: Items in the “Daily Living Information File” for this study

Identification number	Items	Classification of information	Section	Content of Information
1	“Primary insured persons” of long-term insurance care service	On the basis of a law or regulation	LCIA Section	All elderly people who are residents over the age of 65
2	Basic information	On the basis of a law or regulation	LCIA Section	Gender, date of birth, address (14 districts)
3	Lodger Number of households on the same premises	The Tsurui-original	Community-General Support Section	Elderly people living together Types of families that living together (For example, wife, son, daughter, grandson, etc.) Presence or absence of family members and others on the same premises Presence or absence of supporters in village
4	Primary past occupations	The Tsurui-original	Welfare Section Community-General Support Section	No work experience (e.g., as a housewife) Agriculture (Dairy and Livestock Industry) Company employees (including Civil Servant) Self-employment outside of agriculture Other (including unknown)
5	Rented housing Owner-occupied	On the basis of a law or regulation (public housing) The Tsurui-original (village housing and owner-occupied)	Architecture Section in the Construction Division	Rented housing: public housing, village housing All others: Owner-occupied
6	The status of certification of needed support/care	On the basis of a law or regulation	LCIA Section	The status of certification of care level 1 to 5 and support level 1 to 2 (with date of certification)
7	The status of use of various services of long-term care, and the status of use of services for preventive long-	On the basis of a law or regulation (Some of the projects are	LCIA Section (Services of long-term care) Community-	Home-visit long-term care, Daycare service for long-term care, Home-visit nursing, Village-original services, other, institutionalization (Welfare facilities for the elderly requiring long-

	term care	Tsurui-original)	General Support Section (Preventive services of long-term care)	term care, Healthcare facilities for the elderly requiring long-term care, Recuperative medical care facilities for the elderly requiring long-term care etc.)
8	The Tsurui-original support for elderly-medical expenses managed Medical Insurance	The Tsurui-original	Welfare Section	Eligibility for the Tsurui-original support for elderly-medical expenses manage Type of Medical Insurance (National Health Insurance, Advanced Elderly Medical Service System, Social Insurance, Seasonal Employees who regularly move between National Health Insurance and Social Insurance, and Public assistance recipient)
9	Persons living at home who are certification of needed support/care Institutional residents who are certification of needed support/care	On the basis of a law or regulation	LCIA Section Community-General Support Section	As of April 1, 2018
10	Utilization of Tsurui Village Clinic	The Tsurui-original	Promoting Health Section (Tsurui Village Clinic)	Number of uses for per year from February 1, 2017
11	Utilization of Welfare- Bus	The Tsurui-original	Welfare Section	Users for per year from April 1, 2017
12	Individual Transfer Registration and Availability	The Tsurui-original	Welfare Section	Number of uses for per year from April 1, 2017
13	Participation Status of Elderly club Participation Status of CSW Salon	The Tsurui-original	Welfare Section Community-General Support Section	Participation Status of Elderly club in 7 districts (Tsurui, Shimo-hororo, Hororo, Kami-hororo, Mo-setsuri, Shi-setsuri, and Shimo-kuchoro) as of April 1, 2018 Participation Status of CSW Salon in 5 districts (Tsurui, Shimo-hororo, Hororo, Kami-hororo, Mo-setsuri) as of April 1, 2018
14	Visits survey for grasping the actual living conditions of the elderly	The Tsurui-original	Community-General Support Section Promoting Health Section	Elderly people qualified for a home visit in 2017 The survey includes living situations, backgrounds, hospital visits, etc.
15	Responses to questionnaire on long-term care insurance business planning	On the basis of a law or regulation	LCIA Section	A questionnaire survey to be conducted every three years (in the Tsurui Village, an all elderly survey). This survey has possibility could grasp the living situation and health situation.

The identification number 3 (living alone on the premises): Since several households are living together on the same plot of land in a dairy farm, the household is one elderly people, but taking into account the fact that family members live on the same plot of land, it is judged whether they are living alone on the premises here. In public housing and village housing, no such decision is made.

The identification number 5: Since there are no private apartments or condominiums in Tsurui Village, public housing or village housing is considered to be rented and the rest are owner-occupied.

The identification number 9: Elderly people living at home (excluding institutional residents)

2.3.1 Actual conditions of the elderly people (Living situations of the elderly people)

When providing welfare services to the elderly, it is necessary to consider whether or not the household consists of only elderly people, including those living alone. For this reason, the staff included not only the number of family members living together as indicated in the resident registration but also the number of multiple family members living in the same premises, such as in dairy farms (ID# 3). The elderly often moves out of the village, relying on their relatives, as it becomes difficult for them to manage their own houses. Therefore, the staff ascertained whether they owned or rented their houses (ID# 5). Information such as the elderly living at home or in facilities can be used for activities to monitor the elderly by staff and welfare volunteers and for selecting the elderly to confirm their safety in the event of a disaster (ID# 9). The types of pension they receive indicate their past occupations (ID# 4). The relationship between their past occupations and their certification status of need nursing support/care (ID# 6) will be discussed in Section 2.4.2.

2.3.2 Situation of using welfare services (based on laws and regulations)

To examine future nursing care services and nursing care prevention projects, necessary information (ID#s 1 and 2) as well as the status of certification as requiring nursing care and support (ID# 6) and the nursing care services used (ID# 7) were obtained. Then, we can quickly check the status of the elderly of certification of nursing support/care and the status of using nursing care services. The response status of the questionnaire for all elderly in Tsurui Village conducted every three years with planning the Long-term Care Insurance Business Plan was also included (ID# 15). This item makes the respondents' lives and health situations clear to grasp.

2.3.3 Situation of using welfare services (as village-original)

To grasp the status of the elderly receiving medical care, the use of village clinics (ID# 10) and the subsidized medical care program and medical insurance for the elderly (ID #8) were added to the “Daily Living Information File.” The items help access directly the necessary materials when receiving consultation on financial problems indicated in Section 2.2.3. Participation in elderly clubs and CSW salons (ID# 13) can help grasp the elderly who are participating in society, including their connections with other elderly. The using situation of Welfare-bus (ID# 11) and registration/use situation (ID# 12) of individual-transfer were also added to the “Daily Living Information File.” Using other items combined with ID#s 11 and 12 can be a way of finding the elderly who are not getting the transportation support may be needed as the current users due to their similar situations. “Visits survey for grasping the actual living conditions of the elderly” (ID# 14) is the original project of Tsurui village, in which a public health nurse visits the household where the elderly over 75 age live alone to investigate their living situations.

2.4. Examples of use of the “Daily Living Information File”

2.4.1 The situation of the elderly people in different areas of the Tsurui Village

At present, the elderly and the late-stage elderly in the Tsurui Village are 777 people (31% of the village) and 400 people (16%). The number of elderly officially certificated as welfare service-users is also 128 people (16%). The housewife and the ex-office worker is 410 people (53%), and the number of farming-related is 280 people (36%). The top three districts in terms of population, namely *Tsurui-Shigai*, *Shimo-hororo*, *Hororo-Shigai* have 41%, 18%, 8% of the elderly, while the other 11 districts have 33% of the elderly (Table 2.3). In *Tsurui-Shigai*, as many people moved in the area from their generation having a weak bond to the district, 23% of the elderly live in

public housing or village housing (not shown), and the 26% rate of single residents or the 8% rate of participation in the elderly club and CSW Salon is higher or lower than in other districts. *Shimo-hororo*, where commuting to Kushiro is convenient, and after-retirement houses are well provided, is the only district in the village where the population is increasing. As a result, in *Shimo-hororo*, the rate of the late-stage elderly and the rate of official certification of needed support/care (hereinafter the certification ratio) are 8% and 7%, respectively, which are lower than other districts. In *Hororo-Shigai*, the central district along the Hororo River where public facilities such as schools also exist, the participation rate in the elderly club and CSW salon is high (Table 2.3), and bonds among the elderly are relatively strong. While 70% to 80% of the elderly in the top three districts are housewives or office workers, 80% of the elderly in the other 11 districts are agricultural workers who engage in dairy farming.

Table 2.3: Status of the elderly in Tsurui Village for each district, compiling using the “Daily Living Information File”

District	All residents	The Elderly	The late-stage elderly	Living alone on the same premises	Primary past occupations			The status of certification of needed support/care	Participants of the elderly club or CSW Salon
					Farm-related people	Housewife or ex-office worker	Self-employed, etc.		
<i>Turui-Shigai</i>	1,028	296(29%)	155(15%)	76(26%)	26(9%)	228(77%)	42(14%)	49(17%)	25(8%)
<i>Shimo-hororo</i>	461	121(26%)	38(8%)	21(17%)	19(16%)	83(69%)	19(16%)	9(7%)	28(23%)
<i>Hororo-Shigai</i>	214	70(33%)	39(18%)	10(14%)	9(13%)	55(79%)	6(9%)	11(16%)	25(36%)
Others	823	290(35%)	168(20%)	36(12%)	226(78%)	44(15%)	20(7%)	59(20%)	84(29%)
Total	2,526	777(31%)	400(16%)	143(18%)	280(36%)	410(53%)	87(11%)	128(16%)	162(21%)

As of April 1, 2018. The top three districts with the number of residents and the other 11 districts grouped as other. The percentages for the elderly and the late-stage elderly were obtained for all residents in each district, while the percentages for the other items were obtained for the elderly of the district.

If involved in the welfare of the elderly for a long time, they could easily visualize the characteristics of each district as described above. However, it means that the “Daily Living Information File” can now provide explanations backed by numerical data when explaining to

those who do not.

2.4.2 Status of the elderly by age group

The rate of special care home residents and the certification rate increase with their age (The actual number of the former (latter) peaks at 90-94 years old (85-89 years old)) (table 2.4). As a characteristic of Tsurui, the majority of the people over 85 years old are the farm-related, and the majority of those under 85 years old are the housewife or ex-office worker. In the 85 and over age group, the ratio of agricultural workers and the housewife or ex-office workers of the certification rate (61% (46 out of 76) vs. 30% (22 out of 76)) is almost the same as that of elderly (58% (80 out of 138) vs. 28% (42 out of 138)). On the other hand, For the age group between 75 and 84 years old, the former ratio (53% (20 out of 38) vs. 29% (11 out of 38)) is significantly different from the latter ratio (35% (92 out of 262) vs. 55% (144 out of 262)). As a result, in all age groups, the occupational ratio of the certification rate differs from that of the elderly: the ratio of agricultural workers (the housewife or ex-office worker) of the certification rate is higher (lower).

Table 2.4 The Status by age of the elderly people in Tsurui Village Aggregated using the “Daily Living Information File”

Age	The number of the elderly	Living at home		institutional residents	certification of needed support	certification of needed care	Primary past occupations b)			Primary past occupations for the elderly with certification of needed support/care			Responses to questionnaire on long-term care insurance business planning
		Living alone on the same premises a)					Farm-related people	Housewife or ex-office worker	Self-employed, etc.	Farm-related people	Housewife or ex-office worker	Self-employed, etc.	
65-69	225	224	34(15%)	1(0%)	3(1%)	2(1%)	70(31%)	125(56%)	30(13%)	2(40%)	3(60%)	0(0%)	102(46%)
70-74	152	150	32(21%)	2(1%)	5(3%)	4(3%)	38(25%)	99(65%)	15(10%)	1(11%)	8(89%)	0(0%)	79(53%)
75-79	138	137	29(21%)	1(1%)	3(2%)	13(9%)	43(31%)	81(59%)	14(10%)	7(44%)	5(31%)	4(25%)	98(72%)
80-84	124	118	30(25%)	6(5%)	9(7%)	13(10%)	49(40%)	63(51%)	12(10%)	13(59%)	6(27%)	3(14%)	77(65%)
85-89	80	67	11(16%)	13(16%)	5(6%)	28(35%)	43(54%)	24(30%)	13(16%)	19(58%)	8(24%)	6(18%)	43(64%)
90-94	43	27	5(19%)	16(37%)	6(14%)	23(53%)	28(65%)	12(28%)	3(7%)	19(66%)	8(28%)	2(7%)	17(63%)
95-99	14	6	2(33%)	8(57%)	2(14%)	11(79%)	9(64%)	5(36%)	0(0%)	8(62%)	5(38%)	0(0%)	6(100%)
100-	1	0	—	1(100%)	0(0%)	1(100%)	0(0%)	1(100%)	0(0%)	0(0%)	1(100%)	0(0%)	—

Total	777	729	143(18%)	48(6%)	33(4%)	95(12%)	280(36%)	410(53%)	87(11%)	69(54%)	44(34%)	15(12%)	422(58%)
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In each age group per five years, all items as of April 1, 2018, except for the last item conducted in May 2017. a) as a percentage of the number of people at home of the same age, b) as a percentage of all certified persons of the same age, and otherwise as a percentage of all elderly of the same age.

If the number of people aged 75 to 84 who need nursing care was to increase from 11 to 33, with the number of agricultural workers and others remaining the same, this would represent 55% of the total number of the elderly in that age group. If this increase of 22 people is simply added to the current number of 128 people certified as needing nursing care, the certification rate will increase from 16.5% to 19.3%, approaching Hokkaido's overall rate of 19.9% (in the fiscal year 2016).

The staff in charge thought, "The number of people requiring nursing care has not increased because this is a village with a thriving dairy and livestock industry, and many elderly people are former farmers who work whenever possible or have their own vegetable gardens to take care." However, analyzing the "Daily Living Information File," it clarified that the certification rate for the village as a whole was somewhat low due to a large number of the housewife and office workers under the age of 85, of which the certification rate was low among those aged 75 to 84. It means that anyone, not just the person in charge, can now give explanations based on numerical data from the "Daily Living Information File."

2.4.3 Number of items identified by combining items in the "Daily Living Information File" (identification rate)

In this section, we attempted to find out how many people the Health and Welfare Section could identify by combining several items listed in the "Daily Living Information File." The levels grasped by each item differ from one another. From the "situation of certification of needed

support/care” and the “Visits survey for grasping the actual living conditions of the elderly” done by the public health nurses provide, we can grasp the detailed situation of the elderly. From the “Responses to Nursing Care Prevention and Daily Living Area Needs Assessment” and the “Situation of visiting village clinic,” we can grasp the situations of many elderly people, although not to the details. In addition, “Participation Status of Elderly club or CSW Salon,” are expected to be different from the elderly in the other items as they are healthier and more sociable. There are 32 ($=2^5$) combinations of these five, but here we present nine combinations (Table 2.5).

Table 2.5 Number (rate) of grasping the elderly in Tsurui Village using the “Daily Living Information File”

	Combination of items	I	II	III	IV	V	VI	VII	VIII	IX		
Applicable items	6 The status of certification of needed support/care	○		○				○		○		
	14 Visits survey for grasping the actual living conditions of the elderly		○	○				○		○		
	15 Responses to questionnaire on long-term care insurance business planning				○		○	○		○		
	10 Utilization of Tsurui Village Clinic					○	○	○		○		
	13 Participation Status of Elderly club or CSW Salon								○	○	Applicable elderly people	The institutional residents
Applicable elderly people	All elderly people	128(18%)	156(21%)	280(38%)	422(58%)	384(53%)	558(77%)	635(87%)	162(22%)	653(90%)	777	48
	Alone households over 70 ages	21(18%)	64(55%)	83(72%)	73(63%)	74(64%)	94(81%)	105(91%)	74(64%)	105(91%)	133	17
	Elderly households over 75 ages (excluding Alone households over 70 ages)	20(14%)	50(35%)	70(49%)	103(73%)	82(58%)	121(85%)	131(92%)	82(58%)	131(92%)	152	10
	Over 75 ages + Non-elderly 1 or more	19(28%)	25(37%)	42(62%)	35(51%)	33(49%)	49(72%)	57(84%)	33(49%)	60(88%)	72	4

The percentages were calculated by subtracting the number of institutionalized persons from the total number of applicable elderly.

“Visits survey for grasping the actual living conditions of the elderly” (II in Table 2.5) is the Tsurui-original survey targeting people who are likely to need welfare services (households with a single elderly, households with the elderly only, and households with the elderly with one person under 65 living together). Of the 156 people surveyed, 139 (64, 50, and 25, respectively) are those

targeted. Therefore, together with the status of those certified as needing support/care (III), we can efficiently identify 50-70% of those who are likely to need welfare services, although grasping for less than 40% of all elderly people. On the other hand, the responses to questionnaire (IV) and the user of clinics (V) both captured about half of the total elderly, and the combination of the two (VI) captured about 80% of the total elderly. In particular, if the questionnaire for the long-term care insurance business planning conducted every three years were to be given an additional role in identifying individual elderly people, and if efforts were made to increase the response rate, it would help identify a larger number of elderly people. The number of people identified by any of the above items (VII) is about 90% of all elderly.

Those who participate in elderly clubs or CSW salons (VIII) is only 22% of all 777 elderly, but their percentages for households headed by single and elderly people are 64% and 58%, respectively, which is reasonably high. However, when this is combined with the other four items (IX), the number of people identified who are likely to need social services remains about the same.

About 90% of the elderly can be identified by any of the five items listed in Table 2.5. That is, there are 76 ($=777-48-653$) elderly for all elderly, and a total of 30 persons (11, 11, and 8 persons for households with a single elderly, households with the elderly only, and households with the elderly with one person under 65 living together, respectively). Among those 30 elderly people, there are healthy elderly who do not need any welfare services. On the other hand, it is likely that some elderly people who need them have been left out. “Visits survey for grasping the actual living conditions of the elderly” (II) is investigating around 50 elderly people a year. If we give priority to these 30 elderly in this survey, we can grasp every elderly situation within a year. The person in charge decides the order in which the survey targets are to be visited, considering their experience and the information they hear (so-called field knowledge). To achieve this, future

issues include integrating the information obtained from the “Daily Living Information File” into the field knowledge of the staff in charge and/or incorporating information based on field knowledge into the “Daily Living Information File.”

2.4.4 Maintenance and administration of the “Daily Living Information File”

If the individual information included in the “Daily Living Information File” were not constantly updated, it would deviate from the current situation. This would cause discrepancies between the information in the “Daily Living Information File” (the first-level) and the information managed by each section (the second-level). When developing the “Daily Living Information File,” some discrepancies were found in the information for each welfare service (within the second column) due to the different times of obtaining the information. For example, the target of the “Visits survey for grasping the actual living conditions of the elderly” (ID# 14) should not include those certified as needing nursing care/support (ID# 6), but we found the elderly who were the applicable target of both surveys (an apparent discrepancy). The incident revealed that the home visit was conducted in 2017 and left the information, which led to the person being certified as needing nursing care/support as of April 1, 2018. In other words, when a certain welfare service or survey is updated, it will prompt the updating of the “Daily Living Information File” as well as the information managed by the other sections.

Since the staff charge in refers to information in the existing administrative system, they could operate their ordinary works regardless of whether “Daily Living Information File” exists or not. Therefore, from the standpoint that established operations should be carried out as before, updating the “Daily Living Information File” is regarded as extra work. On the other hand, if the information in the “Daily Living Information File” is not updated, it cannot meet the demand for grasping the comprehensive user information of welfare services. It is desirable to make it

possible to update the “Daily Living Information File” without difficulty when developing it, as suitable for the situation of each municipality and the needs of the person in charge. To keep using the “Daily Living Information File,” it will be necessary to establish a section in charge of each item, as well as an implementation outline and regulations that set standards for the timing and method of updating information. Furthermore, it is desirable to add history information of updates, such as when and by whom, to avoid conflicts, although not included in the “Daily Living Information File.”

2.5 Conclusion

The elderly welfare services are provided for the elderly over 65 years old, and their user information of each elderly is independently managed by each staff in charge. Hypothetically, if compiling comprehensive information above, it would be possible to provide appropriate welfare services to the focused elderly, find welfare services in short supply, and make their lives easier. Also, the ability to provide numerical data and explanations based on these data would help better communicate to people other than those in charge who have long been involved in the welfare of the elderly. These will lead to the provision of qualitatively and quantitatively enhanced welfare services as well as increased efficiency in response to the projected increase in the elderly population. However, building a system to centrally manage the user information of multiple welfare services is not realistic in terms of system management and personal information protection.

This study demonstrated whether we could grasp for all 777 elderly people living in Tsurui Village using the “Daily Living Information File,” which compiles necessary information and user information of welfare services for the elderly dispersed in each section of the Health and Welfare Division and other divisions. Based on this demonstration, we propose the following two-

step understanding of all elderly: the first step is to grasp a comprehensive view of whether there is or not the user information of welfare services using the “Daily Living Information File,” and the second step is to obtain detailed information referred to established administrative systems and others for the focused elderly. Although the “Daily Living Information File” contains necessary information taken care of to manage personal information, it is relatively easy to manage and share within the section in charge because it does not contain detailed information.

As an example of the advantages of a comprehensive grasping using the “Daily Living Information File,” we confirmed the characteristics of the elderly and welfare services by district and age group, which were known to those in charge of elderly welfare for a long time. As for the certification of the need for nursing care/support, we were able to find factors causing the lower certification rate than municipalities surrounding Tsurui Village, which are new to the staff in charge. As for the original purpose of developing the “Daily Living Information File,” we were able to examine whether there were the elderly who did not use any welfare services or did not receive any information.

About half of all elderly people can be identified from the questionnaire for the long-term care insurance business planning for the entire elderly and the utilization of clinics, respectively. When the two are combined, around 80% of the elderly were identified. On the other hand, when combined with the “Visits survey for grasping the actual living conditions of the elderly” and the status of those certified as requiring support/ care, we were able to identify around 50-70% of people who are likely to need welfare services. However, we found out that about 10% of the elderly people matching with no items left unknown. For this 10% of the elderly, the staff in charge could not immediately recall their faces. Some of are the healthy elderly who do not need welfare services, and others are likely to be some so-called “left behind the elderly” who have no access to the welfare services they apply for, for whatever reason. When conducting the

questionnaire for the long-term care insurance business planning, it would be a chance to identify more elderly requiring getting to know individually.

The person in charge will perform their tasks based on their experiences and judgment (so-called on-site knowledge) as in the past and can use the “Daily Living Information File” to provide new welfare services. Anyone just not the person in charge of elderly welfare for a long time can easily access and communicate about the information. To continuously use “Daily Living Information File,” future issues include integrating the information obtained from the “Daily Living Information File” into the field knowledge of the staff in charge and/or incorporating information based on field knowledge into the “Daily Living Information File.” By doing so, we would be able to provide welfare services that meet the needs of a super-aged society as well as the actual living situations of the elderly.

Endnote in Chapter 2

- 1) The general term of Livelihood Protection Law, Welfare law for Mother/Father and Child and Widow, Welfare Law for Aged People, Physically Handicapped and Mentally Handicapped People
- 2) “Transforming Our World: The 2030 Agenda for Sustainable Development,” UN General Assembly, page 1 of the preamble adopted by the 70th session of the UN General Assembly on 25 September 2015, in which the Sustainable Development Goals (SDGs) are set out.
- 3) The ledger about the population of Tsurui village as of 1st of April 2018
- 4) The second chapter, “The person insured,” of the law of Nursing Care Insurance
- 5) The sixth chapter, “Support project of regions,” of the law of Nursing Care Insurance /
- 6) “The action plan of the public nurses in 2019 and the record of public health nurse in 2018” edited by Health and Welfare Division in Tsurui Village., pages 135 and 137.

- 7) “Tsurui Village Population Vision - Comprehensive Strategy for the Creation of town, people, and work in Tsurui Village”, Chapter 2 “Future Population Projections”, p. 26

**Chapter 3 Extracting Persons in Need of
Evacuation Support Based on
Information on Daily Life during the
Disaster: Case Study of Initial Responses by
Tsurui Village, Hokkaido, to the Hokkaido
Eastern Iburi Earthquake**

3.1 Introduction

When a disaster occurs, municipalities are responsible for the initial response based on their regional disaster prevention plans¹⁾. The regional disaster prevention plan describes possible hazards and countermeasures based on the geographical conditions of the municipality and past disaster experiences. In the event of a disaster or the threat of a disaster, persons who have difficulty in evacuating on their own and who require special support to ensure smooth and prompt evacuation should be designated as persons in need of support for evacuation activities. The scope of support shall be set up and a list of persons requiring support for evacuation activities (hereinafter referred to as a “List of Persons in Need of Evacuation Support”) should be prepared, including those who meet the requirements. These are defined by the Japanese Government²⁾. In establishing the requirements, in addition to the requirements for the certification of needed support/care status classification, disability support classification, etc., detailed requirements are to be established in order to ensure that persons recognized as truly in need of priority support in the community are not omitted from the target of support³⁾.

As of June 1, 2019, 98.9% of all municipalities in Japan had the “List of Persons in Need of Evacuation Support⁴⁾.” In the Case Study on Persons in Need of Evacuation Support (Cabinet Office, 2017) (hereinafter referred to as “Case Study”), as one of the requirements, municipalities determining when and how to update the roster according to the implementation guidelines, as well as municipalities having a system in place to list those who wish to get support in a disaster event, are introduced. The Japanese government also encourages providing the information on the list in daily situations to enable it to use in disaster events⁵⁾.

Predetermined requirements would always not be sufficient to respond to unexpected disasters, such as the massive power outage (hereinafter referred to as “blackout”) following the Hokkaido Eastern Iburi Earthquake, Japan breaking at 3:07 a.m. on September 6, 2018, or the shock due to

a contagious respiratory and vascular disease caused by severe acute respiratory syndrome coronavirus 2 (COVID-19) preventing in 2020. In these disasters, the municipality should establish new requirements and find out who is applicable during the disasters. In other words, a list of persons in need of evacuation support has the problem of responding to unexpected disasters.

In small-sized municipalities⁶⁾, the staff in charge of dealing with residents frequently has information on daily life, such as welfare, care, medical care, and housing, about the residents. If we used this daily living information, we could quickly find who matches the conditions we set. For example, if the staff in charge knew who lives in all-electric houses, they could quickly extract to the elderly people to confirm their safety affected by the blackout. To reduce the risk of transmission in COVID-19, if the staff in charge had medical information, they could collaborate with public hospitals and clinics to deliver long-term medications to elderly' houses regularly.

The purpose of this study is to clarify the necessary approaches, the advantages and the challenges of using daily life information as a list to be used in a disaster, from the initial response of the Health and Welfare Division in Tsurui Village, Hokkaido, which responded to the emergency of a large-scale power outage following the Hokkaido Eastern Iburi Earthquake in September 2018 using a list of daily life information.

3.2 Case Study

3.2.1 Tsurui Village and Health and Welfare Division

Tsurui Village is a small-sized municipality with a population of 2,528 and 1,206 households⁷⁾, located in the Kushiro Sub-District of eastern Hokkaido, with about 40% of the population living in the town of Tsurui, where the town hall and village clinic are located. The main industry in Tsurui is dairy farming. Fifteen percent of the village area is designated as Kushiroshitsugen

National Park, and the village has a thriving tourism industry. Tsurui Village has never suffered a major disaster due to wind or flood damage since it was established in 1937. When it rains, pastures near Kushiroshitsugen National Park are only partially flooded, and no rivers are designated as dangerous areas. There were three earthquakes: the 1952 Tokachi-Oki earthquake (with a maximum intensity of 5 on the Japanese scale), the 1993 Kushiro-Oki earthquake (with a maximum intensity of 6 on the Japanese scale), and the 1994 Higashi-Oki earthquake (with a maximum intensity of 6 on the Japanese scale), all of which caused no fatalities, but caused extensive damages to roads, water supply systems, public facilities, homes, and agricultural facilities. Of the nine departments and bureaus in Tsurui Village⁸⁾, the Health and Welfare Division has four sections: Promoting Health Section, Welfare Section, Nursing Care Insurance Section (LCIA Section), and Community-General Support Section, which are responsible for health promotion, welfare, and nursing care insurance.

Small-sized municipalities in Hokkaido find it difficult to ensure that private providers of welfare and nursing care services have the number of services they need to maintain their operations. However, municipalities also have to provide some services⁹⁾ to the elderly, regardless of the size of their population, and the government is left to take on the responsibility itself when private providers cannot be found¹⁰⁾. The Tsurui Village also has many services provided by the government. As a result, the government has many contacts with the elderly people on a daily basis, and while the government has become more familiar with the elderly people, it has become difficult to get a comprehensive of how each elderly people uses services.

3.2.2 “List of Persons in Need of Evacuation Support”

Tsurui Village prepared a “List of Persons in Need of Evacuation Support” in December 2014 with requirements for the certification of needed support/care status category, disability support

category, etc. (Requirements 2, 3, and 4 in Table 3.1) and other requirements (Requirement 1, 5 in Table 3.1).

Table 3.1 Requirements for the list of the “List of Persons in Need of Evacuation Support” in Tsurui Village and the number of persons on it

	Requirements/number of people
1	Elderly alone and couple households aged 65 and over 166 people
2	Physical disability certificate level 3 or higher 35 people (but no grade is specified for lower limb and body trunk functional impairment)
3	certification of needed support/care 4 people
4	Persons with Grade A in Rehabilitation Certificate 6 people
5	In addition to the persons listed above, persons in need of assistance in a disaster 0 people

Furthermore, there are multiple overlapping requirements.

Source: Requirements for the implementation guidelines of the support system for persons requiring evacuation behavior in the event of a disaster in Tsurui Village

3.2.3 “List of Persons in Need of Evacuation Support” listing requirements and the four requirements of the Health and Welfare Division

The Health and Welfare Division, which was established when the Tsurui Village was reformed on October 1, 2013, set the four requirements (Table 2) to decide who would be eligible for safety checks in the event of a disaster by the manager, assistant manager, and head of the community-general support section. The requirements were determined based on the experience of staff in charge, taking into account the following factors: (1) those over 80 years of age are more likely to need support in their daily lives as having difficulty of driving; (2) those under 80 years of age living alone; (3) those who do not have any supporters in the village are more likely to be isolated at the time of a disaster due to having difficulty of reaching out at that time of a disaster; and (4) those who have been qualified for certification of needed support/care at home are more likely to be isolated at the time of a disaster. However, they did not make any kind of roster of the elderly

people who met the four requirements.

Table 3.2 Requirements for persons eligible for safety checks by the Health and Welfare Division

	Requirements	Information Management Section
1	Over 80 ages	LCIA Section
2	Living alone[No family members, etc. on the same premises]	Community-General Support Section
3	Absence of supporters in the village	Community-General Support Section
4	Persons living at home who are with certification of needed care	LCIA Section

Source: Created by the Health and Welfare Division in Tsurui Village

3.2.4 “Daily Living Information Files” of the elderly people prepared by the Health and Welfare Division

In a joint study with a university, it became clear that while the staff in charge of each project knows the elderly people involved only in his/her project, it is necessary to contact with all responsible staff for each project to get a comprehensive information of a particular elderly people.. In response, the Health and Welfare Division, under the perspective of understanding whether there are elderly people who are unaware of the availability of welfare services (the so-called "no one left behind" perspective), created A Microsoft® Excel file (hereafter referred to as the “Daily Living Information File”) gathering daily information included aggregates the presence or absence of daily living information owned (Table 3) targeted the information of seniors over 65 years of age (777 elderly people who were listed on the Tsurui Village basic resident register as of April 1, 2018) from each section in June 2018 Information is managed in various forms, some shared with the government and some not, as well as in the form of business software and paper, and consolidating the information itself is not practical for small

municipalities because of the challenges of having to invest money every time the government revises the system and has to adapt to changes in centralized management. In addition to (1) information on living conditions, the “Daily Living Information File” includes information on (2) the use of welfare services as required by law and (3) the availability of information on the Tsurui-original supports.

Table 3.3 Composition of the “Daily Living Information File”

Identification number	Items	Classification of information	Section	Content of Information
1	“Primary insured persons” of long-term insurance care service	On the basis of a law or regulation	LCIA Section	All elderly people who are residents over the age of 65
2	Basic information	On the basis of a law or regulation	LCIA Section	Gender, date of birth, address (14 areas)
3	Lodger Number of households on the same premises	The Tsurui-original	Community-General Support Section	Elderly people living together Types of families that living together (For example, wife, son, daughter, grandson, etc.) Presence or absence of family members and others on the same premises Presence or absence of supporters in village
4	Primary past occupations	The Tsurui-original	Welfare Section Community-General Support Section	No work experience (e.g., as a housewife) Agriculture (Dairy and Livestock Industry) Company employees (including Civil Servant) Self-employment outside of agriculture Other (including unknown)
5	Rented housing Owner-occupied	On the basis of a law or regulation (public housing) The Tsurui-original (village housing and owner-occupied)	Architecture Section in the Construction Division	Rented housing: public housing, village housing All others: Owner-occupied
6	The status of certification of needed support/care	On the basis of a law or regulation	LCIA Section	The status of certification of care level 1 to 5 and support level 1 to 2 (with date of certification)
7	The status of use of various services of long-term care, and the status of use of services for preventive long-term care	On the basis of a law or regulation (Some of the projects are Tsurui-original)	LCIA Section (Services of long-term care) Community-General Support Section (Preventive services of long-term care)	Home-visit long-term care, Daycare service for long-term care, Home-visit nursing, Village-original services, other, institutionalization (Welfare facilities for the elderly requiring long-term care, Healthcare facilities for the elderly requiring long-term care, Recuperative medical care facilities for the elderly requiring long-term care etc.)
8	The Tsurui-original support for elderly-medical expenses managed	The Tsurui-original	Welfare Section	Eligibility for the Tsurui-original support for elderly-medical expenses manage Type of Medical Insurance (National Health Insurance,

	Medical Insurance			Advanced Elderly Medical Service System, Social Insurance, Seasonal Employees who regularly move between National Health Insurance and Social Insurance, and Public assistance recipient)
9	Persons living at home who are certification of needed support/care Institutional residents who are certification of needed support/care	On the basis of a law or regulation	LCIA Section Community-General Support Section	As of April 1, 2018
10	Utilization of Tsurui Village Clinic	The Tsurui-original	Promoting Health Section (Tsurui Village Clinic)	Number of uses for per year from February 1, 2017
11	Utilization of Welfare- Bus	The Tsurui-original	Welfare Section	Users for per year from April 1, 2017
12	Individual Transfer Registration and Availability	The Tsurui-original	Welfare Section	Number of uses for per year from April 1, 2017
13	Participation Status of Elderly club Participation Status of CSW Salon	The Tsurui-original	Welfare Section Community-General Support Section	Participation Status of Elderly club in 7 areas (Tsurui, Shimo-hororo, Hororo, Kami-hororo, Mo-setsuri, Shi-setsuri, and Shimo-kuchoro) as of April 1, 2018 Participation Status of CSW Salon in 5 areas (Tsurui, Shimo-hororo, Hororo, Kami-hororo, Mo-setsuri) as of April 1, 2018
14	Visits survey for grasping the actual living conditions of the elderly	The Tsurui-original	Community-General Support Section Promoting Health Section	Elderly people qualified for a home visit in 2017 The survey includes living situations, backgrounds, hospital visits, etc.
15	Responses to questionnaire on long-term care insurance business planning	On the basis of a law or regulation	LCIA Section	A questionnaire survey to be conducted every three years (in the Tsurui Village, an all elderly survey). This survey has possibility could grasp the living situation and health situation.

The identification number 3 (living alone on the premises): Since several households are living together on the same plot of land in a dairy farm, the household is one elderly people, but taking into account the fact that family members live on the same plot of land, it is judged whether they are living alone on the premises here. In public housing and village housing, no such decision is made.

The identification number 5: Since there are almost no private housing for rent in Tsurui Village, public housing or village housing is considered to be rented and the rest are owner-occupied.

Source: Created by the Health and Welfare Division in Tsurui Village

(1) Living situations of the elderly people

In addition to the basic information on the elderly people (Identification number 1 and 2 in Table 3.3), the number of people in a household living on the same property, such as a dairy business, as well as the number of family members living together on the certificate of residence

is also included in order to take into account whether the elderly people are the only members of the household, including those living alone, when providing welfare services to the elderly people (Identification number 3). It also states whether the elderly people are owner-occupied or rented, as they often move out of the Tsurui Village, relying on relatives and others to help them manage their homes (Identification number 5). Information on elderly people who live at home or who reside in an institution is provided in order to be used for the elderly care activities conducted by staff in charge at Tsurui Village and community welfare commissioners (Identification number 9), and the types of pensions are listed in order to understand the main occupational background (Identification number 4).

(2) Utilization of welfare services in accordance with laws and regulations of the elderly people

The use of certification of needed support/care services is also easily confirmed (Identification number 6,7). In order to understand the life and health conditions of the respondents, a questionnaire survey is conducted every three years in conjunction with the Long-term Care Insurance Business Plan (in Tsurui Village, it is a Carpet Survey), and the conditions of responses and items are also included in the survey (Identification number 15).

(3) The Tsurui-original supports

The use of village clinics (Identification number 10) and subsidized health care programs and medical insurance for the elderly people (Identification number 8) are also included in order to determine the status of medical care received by the elderly people. These items will allow any staff identify the existence of materials and contact the staff in charge when an elderly person needs a consultation facing a financial problem. Participation in Elderly club and Salon hosted by Council of Social Welfare (CSW Salon) (Identification number 13) is included to identify elderly

people who are participating in society, including their connections with other elderly people. The use of Welfare-bus (Identification number 11) and the registration and use of individual transfer (Identification number 12) are also included to find elderly people in a similar situation to current users, in combination with other items. The report describes the status of interviews in “Visits survey for grasping the actual living conditions of the elderly” in which public health nurses visit households in which only elderly people aged 75 years or older live, etc. (Identification number 14).

If the system is used in the “Daily Living Information File”, when staff in charge of a section finds an elderly people of concern in his or her daily work, he or she can check the availability of information on daily life outside of the section and immediately inquire of the staff in charge.

Since the daily living information includes basic information such as name, gender, and date of birth, consideration must be given to the protection and management of personal information in accordance with the Law Concerning the Protection of Personal Information and Tsurui Village Regulation Concerning the Protection of Personal Information, etc. Other items only state whether the information is owned or not, making it easier to manage and share information within the Health and Welfare Division. In addition, the availability of detailed information, such as questionnaires on long-term care insurance and “Visits survey for grasping the actual living conditions of the elderly” by public health nurses, makes it easy to refer to detailed information as needed. This type of use of the “Daily Living Information File” would be helpful to other small-sized municipalities.

3.3 Tsurui Village's response to Blackout

3.3.1 The time sequence of the Blackout

On September 6, 2018, at 3:07 a.m., the Hokkaido Eastern Iburi Earthquake has occurred¹¹. The earthquake damaged a power plant of the Hokkaido Electric Power Company and caused a blackout across Hokkaido for the first time.

In Tsurui Village, the power was out for about a day. Immediately after the power outage, fixed telephones and other devices that use electricity (TV, refrigerator, lights, etc.) could not be used, and mobile phones could not be charged. On the other hand, water, sewerage, and gas were available, and there were no high-rise houses with electricity to pump water or elevators, so many villagers did not get to the point where they had to evacuate. However, some public and village-owned houses were all-electric, making it difficult for some villagers to get a hot meal. Particularly in the Shimo-hororo district, where the Tsurui Village has developed a subdivision and is promoting settlement measures, many of the houses in the subdivision were all-electric. As a response to the Tsurui Village, many residents were able to enjoy a hot meal by opening up meeting facilities¹²⁾ in each area, such as the Shimororo Community Center, which is equipped with propane cooking facilities, to residents. Traffic signals were also installed only on the main arterial roads (Road 53, managed by Hokkaido, and the Hororo trunk line, managed by the Tsurui Village), and as a result, there was no major disruption. The dairy industry was severely affected by the lack of electricity for milking, which must be done daily. Immediately after the earthquake, Tsurui Village did not operate actions, in principle, as convening staff because the earthquake was not above the maximum intensity of 4 on which the regional disaster prevention plan of the Tsurui Village calls for staff. However, as the power outage continued, at 5:30 a.m., the manager of the General Affairs Division convened each manager of the eight divisions and bureaus to discuss the details of the Tsurui Village initial response to the prolonged power outage and the measures to

be taken for residents.

In the Hokkaido Eastern Iburi Earthquake, a disaster task force was not set up. As a result of discussions on countermeasures, the initial response of the Health and Welfare Division was to confirm the safety of some elderly people. We ran a small generator for events in the government office to charge TVs and mobile phones for information gathering and to secure power until the power was restored, but we were unable to secure enough power to start up all the personal computers for staff. The government office did not have a Business Continuity Plan (BCP) that assumed a prolonged power outage. Therefore, in response to the power outage, which was uncertain when it would be restored, special booths were set up for residents to charge their mobile phones.

3.3.2 Initial Response Using the “Daily Living Information File”

The manager of the Health and Welfare Division called one assistant manager and eight staff in charge of each section, taking into account that the staff themselves had been affected by the disaster, and they all arrived at the office by 7:30 a.m. At this time, due to the power outage, we were unable to confirm the safety of people by phone, including mobile phones, so we were limited to face-to-face visits, and we had to choose a small number of first responders to confirm their safety. In addition to the four requirements for determining the eligibility for safety verification in the event of a disaster introduced in section 2.3, which are Requirement 1 (elderly people aged 80 years or older) and Requirement 2 (living alone, including those who have no family members, etc. on the premises), there are two additional requirements for elderly people living in public housing (all-electric houses) or village housing (additional requirements) listed in the “Daily Living Information File”. 1), and a requirement that the elderly people are living in the center of Tsurui Village (who can return promptly to the town hall in the event of a major

aftershock) (additional requirement 2). Elderly people who meet requirements 3 and 4 of the 4 requirements (but not requirement 2) are living with their spouses or family members, and therefore are not considered by the manager to be urgent as a safety check for power outages, and were removed from the primary safety check.

From 7:40 am on the day of the earthquake, we used the “Daily Living Information File” that had been saved on a laptop computer that had a low battery and extracted the elderly people to be checked for their primary safety. The combination of Requirement 1, Requirement 2, and Additional Requirement 1 was used to extract 32 individuals from 32 households, which was narrowed down to 17 individuals from 17 households by taking into account Additional Requirement 2. Led by the head of the Community-General Support Section and with the input of five people - a public health nurse (two), a care manager, and a caregiver - the number of people in 15 households was set at 15, with two members of two households who were residing in the facility being excluded from the safety check.

In addition, we considered elderly people who did not fit the requirements. In the opinion of the care manager, five additional persons were added: "90 years of age or older, living alone, and certification of needed support/care " (one person per household) and "both couples 80 years of age or older and certification of needed support/care" (two people per household), who were unable to confirm whether their home was all-electric houses or not, according to the opinion of the head of the Community-General Support Section, and "couples 80 years of age or older who do not live alone" (two people per household), whose cognitive status has declined significantly. Twenty elderly people from 18 households were selected for the first round of safety checks within a short period of time. From 7:50 a.m. onwards, the manager and a staff member remained at the town hall to coordinate and contact with the agencies, while eight staff members, including an assistant manager, between 9:00 and 9:20 a.m., the staff in charge of confirming the safety of

the victims returned to the town hall in turn. In accordance with the regional disaster prevention plan, the manager of the Health and Welfare Division informed the manager of the General Affairs Division at 9:20 a.m. of the results of the Health and Welfare Division's initial response, which was to confirm the safety of all 20 members of the 18 targeted households. The second and subsequent safety checks were not carried out because the General Affairs Division and the Tsurui Fire Department had started their community patrols based on the results of the first round of safety checks, and because the staff themselves were also affected by the disaster.

3.3.3 Interviews with staff who responded on the day

About a week after the electric power was restored, we interviewed all the staff of the Health and Welfare Division, who were engaged in the safety confirmation work for about half a day, about a week after the power was restored, about the use of the “Daily Living Information File”. In addition, verification among the manager, assistant manager and the staff in charge confirmed that the appropriate number of the elderly people were selected and responded to without omission.

Seven of those staffs have provided safety checks for the elderly people during natural disasters, including the Sept. 26, 2003, Tokachi-Oki earthquake and the snowstorms of the last few years. All of those staff said that this time, "it saved us a lot of time and effort" because all we had to do was consider 15 people in 15 households, which we narrowed down using the “Daily Living Information File”, whereas the previous extraction process¹³ had taken a lot of time and effort. One of them commented that, based on the information on living at home or institutionalization in the “Daily Living Information File”, it was possible to avoid selecting those who were institutionalized without the need to confirm their safety, thus reducing the burden on the staff dispatched to confirm their safety and avoiding a second disaster.

There was input for proactive use of the “Daily Living Information File”, including adding

disaster preparedness as a purpose for using the file and adding all-electric houses to the housing type. On the other hand, since the “Daily Living Information File” were up-to-date, they were able to quickly and appropriately confirm the safety of the victims in the event of an unexpected disaster such as the Hokkaido Eastern Iburi Earthquake, but some respondents were negative about keeping the “Daily Living Information File” up-to-date on a regular basis¹⁴⁾.

3.4. Extraction of a list of names and persons to be used in an emergency

3.4.1 Examining the perspective of using rosters in an emergency

(a) “List of Persons in Need of Evacuation Support” that should have been used, (b) the requirements that were reviewed by the staff in charge on that day, (c) Actual the “Daily Living Information File” used, every (a) to (c), we will try to verify the response of Tsurui Village from the following points of view: (1) the reliability of the latest information that reflects the current situation (i.e., people who meet the requirements equals people on the list), (2) the flexibility to choose new requirements and people who are subject to them in response to a disaster, (3) comprehensiveness to prevent people who are subject to the requirements from dropping out of the list of people who are subject to the requirements, and (4) convenience to easily narrow the list of people who are subject to the requirements. These perspectives were referred to in reviewing the case studies and the concept of service design and quality assurance¹⁵⁾, but need to be considered in the future.

(a) “List of Persons in Need of Evacuation Support” was unreliable as it had not been updated since the time the list was created four years ago. Even if the information was up to date, it did not include any requirements other than those set out in the regional disaster prevention plan, so it was not flexible enough to meet Additional Requirement 2 (living in the Tsurui-Shigai) but not Additional Requirement 1 (all-electric houses). Also, although there were 166 people on the “List

of Persons in Need of Evacuation Support”, it was difficult to narrow it down to the number of people we were able to respond to this time (20), which was not convenient. If the staff in charge had taken the time to carefully review all of the elderly people living in Tsurui Village (777), it is likely that they would have been able to extract the target population from elderly people who were not on the “List of Persons in Need of Evacuation Support”, but it would have been difficult to ensure comprehensiveness and convenience in doing so.

(b) There was some flexibility in the requirements that staff in charge reviewed that day, including the additional requirements 1 and 2 in response to unexpected disasters and excluding the requirements 3 and 4. However, because there was no roster existed there was a lack of reliability of grasping people who are qualified with requirements, without all the staff in charge of each requirement. In particular, obtaining the information about those who were subject to Additional Requirement was not completed due to requesting to the Construction Division, which was responsible for maintaining the water supply and other emergency responses that made it difficult to pump water due to power outages. Even if information on the subjects for each requirement had been available, there would have been a process of collating names on a single list, which would have been difficult to ensure comprehensiveness and convenience in an emergency situation.

(c) The response was excellent from a flexibility and convenience standpoint, including the use of items in the “Daily Living Information File” to determine additional requirements and the fact that five additional individuals were identified in a short period and five additional individuals were added with input from the staff in charge. This can be confirmed by the statement from the responding staff that it saved us both time and effort.

The fact that they were able to view Excel files on a laptop computer during a power outage is consistent with the case of Akkeshi Town in Hokkaido, Japan, which was introduced in the

“Emergency, Portable” in the “Casebook on evacuation behavior support for people requiring evacuation behavior.” In addition, in Tsurui Village, interviews with staff revealed that there were problems with updating the “Daily Living Information File”.

3.4.2 Use of the “Daily Living Information File” in emergency situations

The use of “List of Persons in Need of Evacuation Support” during daily situations is introduced in the “Guidelines for Evacuation Behavior Support for Persons Requiring Evacuation Behavior”(Cabinet Office, 2013). It is harmonious with the case study of Tsurui Village as being capable of being used regularly. However, in the case of Tsurui Village, the “Daily Living Information File” was used rather than “List of Persons in Need of Evacuation Support”. This is an example of the emergency use of the “Daily Living Information File”, which is the opposite of the country's promotion of “List of Persons in Need of Evacuation Support” as a daily situations use. In addition, we were able to add requirements for unexpected disasters (flexibility). Furthermore, for each additional requirement, the staff in charge needs to extract the person in question, and Tsurui Village was able to operate it quickly by using the “Daily Living Information File” (comprehensiveness and convenience).

There were circumstances on the part of the administration that differed from the requirements on the part of the elderly people, such as the number of staff available to respond in an emergency. In the case of Tsurui village, the number of staff members who could respond to the emergency situation was limited, so the maximum number of first responders has to be limited to about 20 people because the telephone service could not be used due to the blackout, and the method of safety check was to visit them face-to-face. If the number of subjects was reduced, some elderly people might be left behind, and if the number of subjects was increased, the staff in charge to be mobilized might have to be increased. To address this situation, we were able to use the “Daily

Living Information File” to target an appropriate number of elderly people.

What is noteworthy about the “Daily Living Information File” in the case study of Tsurui Village is that it does not consolidate the information itself, but lists only the simplest of information. Therefore, the “Daily Living Information File” avoided the complexity of protecting and updating personal information. Because the information was visualized as the “Daily Living Information File” that managers have already known, there was no increased burden for managers to manage and administer.

In Tsurui Village, there is also an issue of unreliability due to the lack of updated the “Daily Living Information File”. As in the Case Studies on Persons in Need of Evacuation Support of Betsukai Town in Hokkaido, Japan, a systematical approach for updating, such as the establishment of a handling guidelines specifying the timing and method, is necessary.

3.5 conclusion

In response to disasters, local governments prepare a “List of Persons in Need of Evacuation Support” based on the requirements for major disasters, along with the regional disaster prevention plan. Detailed requirements have been established and the used of a daily situations of “List of Persons in Need of Evacuation Support” has been encouraged by the Japanese Government. In the event of an unexpected disaster, existing requirements may not be sufficient to respond. In doing so, the municipality shall establish new requirements and find out who is applicable during the disaster.

We focused on the initial response of the Health and Welfare Division of Tsurui Village, Hokkaido, Japan, which responded to the massive power outage following the September 2018, the Hokkaido Eastern Iburi Earthquake, and discussed the perspectives necessary for a registry to be used in times of disaster and the benefits and challenges of using the information on daily

living of elderly people.

In the case study of Tsurui Village, the availability of a list of daily living information would have ensured comprehensiveness, flexibility, and convenience in extracting people easily and without omissions under new requirements and been assigned by the limited number of staff. However, the “Daily Living Information File” was not updated after the case study and we found some issues that did not ensure its reliability.

Although it is recommended to use “List of Persons in Need of Evacuation Support” behavior at the time of disaster during, the case study of Tsurui Village proved that the “Daily Living Information File” in need of evacuation behavior at the time of disaster can be used in an emergency situation and ensured the flexible response with new requirements and situation to extract persons qualified. In consideration of updates, the amount of information to be included should be discussed in the future.

It was also fortunate that they were able to handle information on a laptop computer during a power outage, as in the case of Akkeshi Town in Hokkaido, Japan, which was introduced in the “Casebook on evacuation behavior support for people requiring evacuation behavior” (Cabinet Office, 2017). Storing the information in paper form as well would be less comprehensive and convenient, but it would be able to handle more severe emergencies than this one.

In the case study of Tsurui Village, an increase in the burden of the updating process was also pointed out by the staff in charge. In addition to formulating business continuity plans (BCPs), it would be possible to prevent forgetting to update the information and conduct simulated drills, for example, by updating information and identifying those who are affected, in conjunction with comprehensive disaster drills and the like, which are conducted every year in many municipalities.

In small-sized municipalities, the number of people on the rolls is limited, while the administrative staff is also being reduced, and the government is providing a variety of welfare

services. Furthermore, linking disaster response and daily living information is essential to deal with the increase in the number of natural disasters due to climate change and the depopulation caused by declining and aging populations.

Endnote in Chapter 3

- 1) Articles 42, 50(2), 56, 58 and 62 of the Basic Act on Disaster Management.
- 2) Article 49-10 of the Basic Act on Disaster Management.
- 3) See Cabinet Office (2013), “Guidelines for Evacuation Behavior Support for Persons Requiring Evacuation Behavior,” p. 17.
- 4) Fire and Disaster Management Agency website:
https://www.fdma.go.jp/pressrelease/houdou/items/191113_hinan_tyousa_1.pdf (retrieved August 15, 2020). However, as of 1 June 2019, one town (Futaba Town, Fukushima Prefecture) is excluded from the survey due to the ongoing evacuation order for the entire area due to the nuclear accident.
- 5) A joint notice dated November 13, 2019, addressed to the heads of the fire and disaster management departments in each prefecture, states that the "Creation of “List of Persons in Need of Evacuation Support” activities and the promotion of the provision of list information during daily situations" should include a list of persons in need of support during daily situations. It calls on local governments to promote efforts such as the provision of information.
- 6) The Ministry of Internal Affairs and Communications website
https://www.soumu.go.jp/main_content/000020461.pdf (retrieved August 15, 2020) states that there are less than 10,000 people in the municipalities.
- 7) The Basic Resident Registration of Tsurui Village as of August 1, 2020.
- 8) The administrative organization of the Tsurui Village has six divisions and bureaus in the

chieftain's department: general affairs, planning and finance, residents' life, health and welfare, industrial promotion, and construction, and three other divisions and bureaus: the education division of the board of education, the secretariat of the council, and the secretariat of the board of agriculture. Of these nine divisions and bureaus, the Health and Welfare Division is responsible for elderly people's welfare and medical and nursing care. As of April 1, 2020, the village has 69 full-time staff under the village's quota ordinance, and about 35 other fiscal year appointees with fixed employment terms usually work there, bringing the total number of staff to around 105. Except for professional staff such as public health nurses and nurses, employees are generally transferred to other departments after about three years. The Health and Welfare Division has 40 staff, accounting for about 40% of the Tsurui Village staff.

9) One representative example is the long-term care service business based on the Long-term Care Insurance Act. One of them is the new comprehensive project under the new long-term care insurance system that started in fiscal 2015, in which each municipality must establish a Community-General Support Center (hereinafter referred to as a "Center") that will play a central role in promoting the new comprehensive project.

10) The eastern part of Hokkaido (within the jurisdiction of the Kushiro General Subprefectural Bureau, Tokachi General Subprefectural Bureau, and Nemuro Subprefectural Bureau), in which Tsurui Village is located, consists of 23 small towns, villages, and 9 cities and towns (according to the population on The Basic Resident Registration as of January 1, 2020). Of the 20 centers established in the latter group, 12 are operated by private companies, while 22 of the former villages and towns have one center operated by the local government (Regional General Support Centers for the Elderly, Elderly Health and Welfare Division, Senior Citizen Support Bureau, Hokkaido Department of Health and Welfare, "Status of Community-General Support Centers in Each Municipality in Hokkaido"). (From April 1, 2020). This is an example of a small

municipality where the government is responsible for welfare services.

11) JMA website https://www.jma.go.jp/jma/menu/20180906_iburi_jishin_menu.html (retrieved September 4, 2020).

12) Total 9 facilities. Except for the Shimo-hororo Community Center, the other facilities are the General Center in Tsurui-Shigai, the Rural Environment Improvement Center in Hororo-Shigai, and six community centers in the districts of Kami-hororo, Shimo-setsuri, Mo-setsuri, Shi-setsuri, Naka-kuchoro and Shimo-kuchoro.

13) Until now, potential recipients were selected by referring to “Visits survey for grasping the actual living conditions of the elderly” (by the Community-General Support Section staff) and information on the use of various welfare services (by the Welfare Section staff), etc., and then the public health nurses, care managers, and others who deal with the elderly people on a regular basis decided on potential recipients. From a different perspective, the public health nurses, care managers, and others decided on potential recipients based on the information they had on the scene. These potential recipients were then aggregated and made into the final recipients.

14) Staff can perform their assigned duties without hindrance by using information from existing administrative systems and other sources, regardless of whether or not they have the “Daily Living Information File”. Therefore, from the standpoint of continuing to perform the duties for which they are still in charge, the work of updating and maintaining the “Daily Living Information File” is considered to be an unnecessary effort and these new tasks are considered to increase the burden on the staff.

15) Quality management (general quality management system ISO 9000 and software quality management ISO 9126) discusses quality assessment in terms of reliability, convenience, comprehensiveness and flexibility. Also, for example, the Cabinet Office (2019) "Digital Government Implementation Plan" is based on the concept of service design.

Chapter 4 General Conclusion

4.1 Summary of Chapters 2 and 3

Chapter 2 discussed what kind of information can be drawn from the “Daily Living Information File.” Out of a total of 777 elderly, 30 elderly were not grasped by the Health and Welfare Division were found by using the “Daily Living Information File.” Their living situations had been captured by none of the Health and Welfare Division. Through the “Visits survey for grasping the actual living conditions of the elderly,” the village-original survey of about 50 elderly people every year, we will not miss any elderly, especially those who are unknown by the division after one year. In other words, “no one will be left behind,” a spirit of the SDGs, at grasping level will be achieved by using the “Daily Living Information File” one year later. In addition, using the “Daily Life Information File” found factors such as the percentage of people living alone in each district and the percentage of people certified as requiring care and support based on age and former occupation. Many of the results were as the staff in charge had understood or imagined, but some of the findings were different from what they had imagined (e.g., the reason why Tsurui Village has a lower rate of certification of needed support/care than surrounding municipalities).

Chapter 3 discussed a case study in which the “Daily Living Information File” was used as a process for extracting people to be checked for their safety during the massive power outage (blackout) following the Hokkaido Eastern Iburi Earthquake in September 2018. The existence of the “Daily Living Information File” ensured comprehensiveness, flexibility, and convenience making it easy to extract people without omissions based on new requirements and the number of the staff in charge who could be responsible for the blackout. Although the Japanese Government recommends the use of the “List of Persons in Need of Evacuation Support” during normal times, it was found that the “Daily Living Information File” can also be used during emergencies to extract persons in need according to new requirements and situations. Also, the “Daily Life Information File” was designed to handle necessary personal information easily because the file

does not contain detailed information, even it requiring careful management. Unfortunately,, the “Daily Living Information File” has not been updated since this earthquake, and its present state does not ensure its reliability.

4.2 Findings from Chapters 2 and 3 in terms of previous case studies

In this section, the significance of findings obtained in Chapters 2 and 3 are discussed in terms of the previous case studies introduced in Chapter 1.

4.2.1 Findings obtained in Chapter 2 in terms of the previous case studies

Two-step grasping of the “Daily Living Information File” in Tsurui Village is conceptually similar to the business structure model of the integrated health care and welfare information system in Sapporo City (Taguchi, 2002). In Tsurui Village, the existence of user information on welfare services is confirmed comprehensively by the “Daily Living Information File” and the details of the user information are obtained by existing administrative systems. This relationship corresponds to the collaborative system and subsystems of the integrated health care and welfare information system.

Making inquiries to the focused elderly in charge of the welfare services by checking the user status of welfare service in the “Daily Living Information File” is the same function as displaying more detailed information by selecting the relevant item on the system screen for the focused elderly as the user interface of the integrated health care and welfare information system. Of course, the latter is a much more convenient system than the former, as it is instantly displayed. The Health and Welfare Division of Tsurui Village is managing a wide variety of welfare services in various forms (existing systems, paper media, and original specifications on computers), which is the same situation as “there are a wide variety of welfare services, each operating with its own

paperwork and form format.” (Taguchi, 2002)

The Health and Welfare Division of Tsurui Village examined how to manage the contents of each welfare service as an item to be included in the Microsoft® Excel file, which is a similar idea to the standardization of how to handle data for each welfare service by Taguchi (2002).

In addition, since the “daily living information file” was created in a way that separated it from the daily operations of individual welfare services, the Health and Welfare Division of Tsurui Village can apply the same response that “The business structure model, in which subsystems are separated from the collaborative system, allows for flexible responses to frequent government-directed institutional reforms.” stated by Taguchi (2002) introduced in Chapter 1.

Fourteen case studies by 11 local governments and other organizations are introduced in the “Data utilization guidebook for local governments” (The Ministry of Internal Affairs and Communications, 2018, 2019) as new system construction connecting established systems. The case of Minoh City in Osaka Prefecture among 14 cases seems to be the same concept that the Tsurui Village Health and Welfare Division’s attempt to understand the actual situation of the elderly by compiling various information, including the availability of questionnaires. However, Taguchi (2002) and the “Data utilization guidebook for local governments” did not introduce how these systems are being used for what kind of subjects.” As far as the author finds, there is no academic paper discussing the use of the local government-having daily information such as “Daily Living Information File” for the actual situation of elderly people by age or region or for safety confirmation in times of disaster.

The “Daily Living Information File,” a small Microsoft® Excel file, is the opposite of a large-scale system developed in a large city, but it turns out that both have similar roles. This doctoral dissertation demonstrated that even such a small file could play a sufficient role in providing a comprehensive view of the elderly welfare services in the village, although the system’s form and

scale depend on the size of the municipality.

4.2.2 Findings obtained in Chapter 3 in terms of the previous case studies

The damage to Tsurui Village in the Hokkaido Eastern Iburi Earthquake ended with a blackout lasting about a day, with no significant damage other than the dairy industry, and only one extraction of elderly people for safety confirmation using the “Daily Living Information File” was completed. Therefore, what this dissertation would compare is the safety confirmation as an initial response to the disaster in Okada et al. (2006), Okada (2011), and Okada et al. (2013).

The safety confirmation by the Health and Welfare Division of Tsurui Village using the “Daily Living Information File” based on on-site information is similar to the disaster response of care managers using “care plans” to understand the living situation of the elderly at the time of the Mid Niigata Prefecture Earthquake (Okada et al., 2006, Okada, 2011) and care managers and Community-General Support Center professional staffs at the time of the Great East Japan Earthquake (Okada et al., 2013). The significant difference is that if the “Daily Life Information File” is available, the safety confirmation can be carried out to some extent without the daily on-site staff. However, it has to be said: “to some extent” because as described in Chapter 2, the care managers, public health nurses, and caregivers in charge of their fields made the final decision on whether the elderly needed their safety confirmation as excluding two elderly people in two households in healthcare facilities for elderlies and adding five elderly people in three households with a certification of needed support/care qualified for care plans. Those elderly were not qualified to extract as subjects for safety confirmation from the “Daily Life Information File.” In this final decision, they were relying on the judgment of the daily on-site staff, just like similar situations pointed out by Okada’s papers above. In other words, the “daily living information file” took the place of the field staff in extracting a large number of candidates to ensure no mistakes,

which meant that the field staff only had to make the final decision, as a file-providing support to staff. In order to avoid such final judgments by daily on-site staff, it is better to add a column to the “daily living information file” such as “Elderly to be concerned about in emergencies as judged by daily on-site staffs daily contacting with elderly (criteria such as frequency of updates and differences in judgment among staff members would be required.).

The use of the “Daily Living Information File” has been so far limited to the Health and Welfare Division. However, if the administration and local resident organizations establish daily cooperation, suggested by Okada (2011) and Okada et al. (2013), more candidates can be listed and extracted from the “Daily Living Information File” and more people as neighborhood associations can ask and confirm the elderly’s safety. As a result, it would be possible to achieve “no one is left behind” in the safety confirmation process. The “Casebook on evacuation behavior support for people requiring evacuation behavior” (Cabinet Office, 2017) introduced that the administration utilizes the networks of welfare-related organizations and voluntary disaster prevention organizations (Ikeda Town, Hokkaido) and that the safety of the elderly living alone, elderly households, and households with disabled people in the entire town are confirmed through individual visits and phone calls in cooperation with the welfare committee members (Imabetsu Town, Aomori Prefecture). The Casebook (Cabinet Office, 2017) also

introduced the practice that the government created and distributed “It’s safe” bandanas to confirm the safety of persons in need of evacuation, as a response to safety confirmation from the residents themselves to the outside (Itabashi-Ward in Tokyo). This case is uniquely effective as safety confirmation from the residents’ side for a village like Tsurui Village, where a small number of employees must carry out safety confirmation.

The “care plans” of care managers introduced in Okada (2011) and the “List of Persons in Need of Evacuation Support” in the Casebook (Cabinet Office, 2017) are both limited in their target, a

part of all elderly. Neither the previous studies nor the Casebook contains any academic research studying disaster responses using compiled user information of welfare services in all elderly as a “Daily Living Information File.”

4.2.3 Studies on daily operations in administrative organizations

The author’s position as the manager of an administrative organization accessing resident information and the user information of welfare services with the author’s perspective as a researcher is crucial to developing the “Daily Living Information File.” Only the manager of the welfare services division of administrative organization has access to highly confidential information such as resident information and the user information of welfare services, which are strictly controlled by the Law Concerning the Protection of Personal Information and the Regulation Concerning the Protection of Personal Information. However, if the author is only a manager of an administrative organization without the author’s perspective as a researcher, the use of that information would end up in their work scope. On the other hand, as only a researcher’s position, it is difficult to access such highly confidential information due to legal barriers. The “Daily Living Information File” was created and researched by the author, both a researcher and a manager of the administrative organization, who came up with the idea of having a way to obtain a bird’s eye view of what welfare services are used by individual elderly. The “Daily Living Information File” is a visualization of the researcher’s idea, and it sets a new precedent for administrative organizations regarding compiling information on residents and users of welfare services.

Chapter 1 described the fact that there is no paper with administrative staff as the first author in the academic journal “Community Development in Japan” from 2008 to 2020, and that it is difficult for administrative organizations and staff to produce academic findings or for researchers

to obtain academic findings from outside. This doctoral dissertation might probably be positioned as rare research that a manager of the health and welfare division realized by engaging his position in the study as a graduate student.

4.3 Conclusions of this doctoral dissertation

The purpose of this doctoral dissertation was to identify the academic significance of the comprehensive visualization with the “Daily Living Information File,” which was used to ensure that no elderly was left out of welfare services. The “Daily Living Information File” created by the Health and Welfare Division of Tsurui Village is a Microsoft® Excel file with rows of 777 elderly in the village with columns of 83 welfare services, including questionnaires for the elderly. As a result, it found 30 elderly who had never been grasped before. Combining and analyzing the user information of welfare services with necessary information such as address and age identified situations that had not been grasped (e.g., the reason why Tsurui Village has a lower rate of certification of needed support/care than that in surrounding municipalities). Creating the file has succeeded in visualizing the comprehensively current situation of many elderly in small-sized municipalities closely involved with their residents. The file was also useful in emergencies to ensure coverage, flexibility, and convenience in extracting the qualified people based on timely requirements. The above academic significance of the “Daily Living Information File” has been clarified. On the other hand, we found some challenges with its updating. If more detailed information were included, it would not be easy to update constantly or never be updated. Even the “Daily Living Information File” created by the Health and Welfare Division of Tsurui Village has not been updated since its creation. As discussed in Chapter 3, in order for it to be updated, the amount of information could be reduced, the opportunity to update it could be created, or it could be mandated. Nevertheless, this doctoral dissertation could not indicate which one would

be more effective.

The possibilities of using the “Daily Living Information File” demonstrated in Chapter 2 means that we can regard it as a tool for “No one will be left behind,” one of the principles of “Transforming Our World: The 2030 Agenda for Sustainable Development” (United Nations, 2015). In other words, at the local level, the “Daily Living Information File” will contribute to realizing Goal 3 of the SDGs, “Good health and well-being,” and the achievement of Goal 11 of the SDGs, “Sustainable cities and communities,” which will enable the elderly to live. Chapter 3 demonstrated that responding to disasters with the “Daily Living Information File” can be regarded as an action toward Goal 13 of the SDGs, “Climate action.” Developing such a local community is also the foundation for achieving Goal 15 of the SDGs, “Life on land,” in Tsurui Village, having marsh and home to Japanese cranes. In other words, the comprehensive visualization by the “Daily Living Information File” demonstrated in Chapters 2 and 3 will contribute to the achievement of Goals 3, 11, 13, and 15 of the SDGs at the local level, developing sustainable local communities.

4.4 Remaining issues for this study

The current lack of use and updating of the “Daily Living Information File” in the Health and Welfare Division indicates the difficulty of integrating new academic knowledge into the daily work of staff in charge of administrative organization. As another example, the Health and Welfare Division did not conduct the “Visits survey for grasping the actual living conditions of the elderly” to the 30 elderly people using any of the welfare services found in Chapter 2. Both as a researcher and as the person in charge of the administrative organization, the author would like to make use of academic new findings to improve the daily operations of the staff in charge and thinks that his division should discuss how to manage the “daily living information file” including its utilization

and updating.

Another major weakness of this study is that it did not survey 178 other municipalities in Hokkaido to see similar cases to this research. As a result, it has not been discussed whether the “Daily Living Information File” is distinctive from other municipalities, especially similar sized municipalities. This remains an issue in the future. If a similar case of the “Daily Living Information File” were found in other municipalities, a comparative study would be conducted. The discussion should also be active in compiling user information on welfare services for the elderly and making a comprehensive visualization from it by the administrative organizations.

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