HOUSING FOR SENIORS:
An Analysis of Housing Alternatives for the Kitakyushu Population

by

MISA IZUHARA
B.A., Kitakyushu University, 1989

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS
in
THE FACULTY OF GRADUATE STUDIES
School of Community and Regional Planning

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA
May 1995
© Misa Izuhara, 1995
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

School of Community and Regional Planning

The University of British Columbia
Vancouver, Canada

Date June 2nd, 1995
Abstract

Japan has experienced significant changes in its age structure since 1970. Not only is the population aging, but also seniors’ lifestyles have been changing significantly. The changes are creating demand for seniors housing, including alternatives to institutions and the traditional extended-family houses. Supportive (congregate) housing for seniors, which is planned to promote their independent living with some support services, is the main theme of this thesis. The need for studies that examine alternative housing models, and housing policy in municipal levels have become increasingly apparent in recent years, since the new and growing demands are not synchronized with current housing provisions.

One methodology applied in this thesis is population projection, which helps to identify current and future problems of Kitakyushu City, Japan. Another is a case study of Greater Vancouver experiences through a series of interviews, which expands housing options and opportunities for accommodating seniors in Kitakyushu City.

The results of the population projection highlight the coming “aged society” with increasing numbers of seniors-only-households, which require revaluation of the city’s housing policy. Given the increasing demands for housing alternatives, also based on literature review, the city’s pressing need for an innovative response to such housing issues is further complicated by the fact that no single model provides a simple and final solution. Alternative means of project financing, service provision, and alternative models of housing
and its operation are explored within the context of scarce government resources. All three housing projects in Greater Vancouver respond in a unique way to the needs of seniors with moderate incomes.

The analyses reveal that providing a sufficient number of options for choices with a mixture of approaches is a key aspect of planning. Specific policy implications include cooperation and collaboration among various key housing players, alternative means of service provision, and also utilizing more community resources and non-profit human capitals. The equity co-op model is a cost-effective alternative for senior homeowners. Congregate housing is one responsive option which keeps seniors in the community and out of institutions. Also, locating housing adjacent to services is another progressive solution for the city’s future housing development.
Table of Contents

Abstract ii

Table of Contents iv

List of Tables vii
List of Figures vii
List of Graphs vii

Acknowledgements viii

Chapter One Introduction
  1.1 Problem Statement 1
  1.2 Research Rationale 5
  1.3 Purpose 7
  1.4 Method 8
  1.5 Significance of the Work 10
  1.6 Organization 11
  1.7 Who is “Senior”? 12

Chapter Two Understanding Housing for Seniors
  2.1 What is Housing for Seniors? 14
  2.2 Defining Seniors’ Needs and Wants for Housing 15
    2.2.1. Safety and Security 16
    2.2.2. Privacy 17
    2.2.3. Independence 17
    2.2.4. Familiarity of the Neighbourhood 19
    2.2.5. Accessibility and Convenience 19
    2.2.6. Beauty and Comfort 20
    2.2.7. Social Contacts 21
    2.2.8. Affordability 21
  2.3 The Current Living Situations of Seniors in Japan 23
    2.3.1. Home Ownership Rate 23
    2.3.2. Household Type and Structure 24
  2.4 Intergenerational Living 26
    2.4.1. Overview 26
      2.4.1.1. Dependency rates 26
      2.4.1.2. Differences in generations 27
      2.4.1.3. Community location 27
      2.4.1.4. Housing ownership 28
      2.4.1.5. Dependence 29
    2.4.2. Causes of the Transition 29
    2.4.3. Social Assistance 30
2.4.4. New Means of Intergenerational Living | 32

2.5 A Responsive Alternative Housing Model: Congregate Housing | 34
   2.5.1. The Model as a Transition from Institutions | 35
   2.5.2. Congregate Housing: Definitions and Goals | 36
   2.5.3. Characteristics of Congregate Housing | 38
   2.5.4. Advantages and Disadvantages of Congregate Housing | 40

Chapter Three Projecting Aging of a Population
   3.1 Introduction | 42
   3.2 Explanations for the Demographic Trend in Japan | 43
   3.3 Population Projection
      3.3.1. Definition of Projection | 45
      3.3.2. Purpose and Use of Projections for Planning | 46
      3.3.3. Population Change | 47
   3.4 Projecting Natural Increase | 48
      3.4.1. Cohort Survival Model
         3.4.1.1. Age-specific survival rates | 48
         3.4.1.2. Birth rates | 49
         3.4.1.3. Proportion of male/female births | 49
      3.4.2. Method of Projection of Natural Increases | 50
      3.4.3. Analysis | 50
   3.5 Projecting Net Migration | 51
      3.5.1. Methods of Projection of Migration | 52
      3.5.2. Mathematical Extrapolation | 53
      3.5.3. Migration Projections Using Two Different Methods
         3.5.3.1. Method one: mathematical extrapolation | 54
         3.5.3.2. Method two: calculating the average of table 8.3 | 56
      3.5.4. Analysis | 57
   3.6 Analyzing the Results of the Projections | 58
      3.6.1. Changes in Age Structure | 58
   3.7 Shift of Household Structure and Housing Types for Seniors | 61

Chapter Four Greater Vancouver Case Study
   4.1 Research Objectives | 63
   4.2 Research Method
      4.2.1. Observations | 64
      4.2.2. Interviews | 64
   4.3 Beyond Mere Design of Housing: Service Delivery
      4.3.1. Services Within Housing | 65
      4.3.2. Housing Adjacent to Services | 66
   4.4 Housing Criteria on the Projects | 67
   4.5 Overview of the Housing Projects
      4.5.1. Abbeyfield Houses | 69
      4.5.2. Queens Park Place | 69
      4.5.3. Ambleview Housing Co-op | 70
4.6 Planning Process of the Housing Projects
   4.6.1. Abbeyfield Houses
   4.6.2. Queens Park Place
   4.6.3. Ambleview Housing Co-op

4.7 Research Findings
   4.7.1. Who are the Residents?
   4.7.2. Previous Dwelling?
   4.7.3. Reasons for Moving in?
     4.7.3.1. Abbeyfield Houses
     4.7.3.2. Queens Park Place
     4.7.3.3. Ambleview Housing Co-op
   4.7.4. Advantages and Disadvantages
     4.7.4.1. Abbeyfield Houses
     4.7.4.2. Queens Park Place
     4.7.4.3. Ambleview Housing Co-op
     4.7.4.4. Local Community

Chapter Five Conclusion
   5.1 Developing Policy Implications for Kitakyushu City
   5.2 General Housing Policy of Kitakyushu City
     5.2.1. Policy Implications
   5.3 Service Provision for Housing
     5.3.1. Policy Implications
   5.4 Development Partnerships
     5.4.1. Policy Implications
   5.5 Community Resources and Non-profit Societies
     5.5.1. Policy Implications
   5.6 Conclusion

Bibliography

Appendix A Tables for Population Projection
Appendix B List of Interviewed Key Informants
Appendix C Questionnaires
Appendix D The Overview of the Housing Projects in Greater Vancouver
List of Tables

Table 1  Baseline Population of Kitakyushu in 1990  99
Table 2  National Survival Rates of Japan in 1990  99
Table 3  Birth Rates by Mothers’ Age in Kitakyushu  99
Table 4  Proportion of Male/female Births  99
Table 5.1 Cohort Survival Model, Baseline Population in 1990  100
Table 5.2 Cohort Survival Model, Projected Population in 1995  100
Table 6  Projected Population by Age and Sex (1995-2010), by Cohort Survival Model  101
Table 7  Projected Population by Age (1995-2010), by Cohort Survival Model  101
Table 8.1 In- and Out-migration of Kitakyushu (1970, 1980)  102
Table 8.2 In- and Out-migration of Kitakyushu (1990)  102
Table 8.3 Net Total Migration  102
Table 9.1 Method One: Projected Social Decrease  103
Table 9.2 Method Two: Taking the Ratios of Data 2 (F.8)  103
Table 10 Migration Ratio by Cohort Group (1990)  103
Table 12 Percentage of Seniors-only-households (HH) in Kitakyushu  104
Table 13 The Overview of the Housing Projects in Greater Vancouver  107

List of Figures

Figure 1 Framework of Seniors Housing & Housing Supply in Kitakyushu City  6
Figure 2 Age Groups Preferences for Intergenerational Living  27
Figure 3 Seniors’ Living Arrangements, by Community Location and Household Type  28

List of Graphs

Graph 1 Projecting the Net Migrations by Mathematical Extrapolation  56
Graph 2 Past and Future Population Trends, by Ten-year Age Cohort  59
Acknowledgements

I would like to take this opportunity to express my gratitude to Professor Penny Gurstein for her academic advise, generous support and encouragement throughout my thesis research. I also would like to thank Professor Craig Davis, who helped me so much from the beginning to focus my idea to a possible thesis topic. I am thankful to Professor Henry Hightower, who kindly filled a committee position at the last minute without hesitation. Also, it was wonderful to have Cheryl Kathler as my external examiner, since her expertise on seniors housing and her personal experience and interest in Japan contributed a great deal to my thesis work.

It is impossible to identify all those individuals and groups who provided support, inspiration, references, information, and time during my research in Vancouver. Keiichi Yamaga, City of Kitakyushu, deserves special credit for his assistance in order to make this cross-cultural thesis research possible.

I am grateful to my friends in SCARP, who have been always there seven days a week when I needed their help, encouraged me in various ways when I got depressed, and of course have been great fun to be with. Special thanks goes to Greg Oyhenart and Lyle Walker, who proofread some chapters of my first draft and gave me precious comments.

I would like to extend my appreciation to Dorothy Pink, whose care and companionship made my life richer for the past one year. Finally, I wish to thank my family, especially my mother, for their never-ending love and support.
1.1 Problem Statement

The world's elderly population is growing, much faster than the global population as a whole\(^1\) (U.S. Department of Commerce, 1987). In developed countries, especially, one of the most significant demographic facts affecting the current and future course is the aging of its population. The ratio of seniors to total population increased rapidly while population growth slowed during the 20th century in those countries. In accordance with the trend, Japan has also experienced significant changes in its age structure. Japan has met the United Nations (UN) definition of an “aging society”\(^2\) since 1970, and its rate of population aging has been very rapid compared with that of other developed countries\(^3\):

"Since 1950, the birthrate has decreased very sharply; now Japan belongs to one of the lowest-birthrate countries of the world. This low birthrate, combined with the extension of the life expectancy of older persons, which increased their number, brought about a very sharp increase in the proportion of the aging population. This tendency is expected to continue until the beginning of the next century when the proportion of the aged in Japan will become one of the highest in the world."\(^{\text{Maeda, 1993, p. 202}}\)

---

\(^1\) This growth rate will result in more than 410 million seniors worldwide by the year 2000 (41% in developed countries and 59% in developing countries), compared with 290 million in 1987 (46%; 54%).

\(^2\) An aging society (country) is one with people of 65 years and older comprising over 7% of its total population.

\(^3\) From 1985 through 2005, the 65-to-74 year old population of Japan is expected to experience an average annual growth rate of 2.7% (2.4% is the world average); the population of 75 years and older, 2.9% (U.S. Department of Commerce, 1987, P.5).
Chapter 1. Introduction

The proportional growth of the older population poses a considerable challenge to a country’s public policy because existing social and economic systems become obsolete and can no longer meet the people’s ever changing immediate and long-term needs.

In addition to changes in the age structure of the population, changes have also occurred in the lifestyles of the Japanese people. Japan’s vigorous post-war economic growth brought rapid industrialization and then urbanization, which caused drastic social change in the lives of the Japanese. Sometimes referred to as the “Westernization” of life, the transformation deeply affected both the social and economic lives of people of all classes, in both rural and urban communities (Maeda, 1993). Previously, one of the most conspicuous differences between the lives of seniors in Western countries and those in Japan was the latter’s preference for intergenerational living arrangements. The majority of people in Japan used to spend their elderly years living with their children, and approximately 6 out of 10 seniors still live intergenerationally (Ministry of Health and Welfare, 1991), while seniors in Western countries usually live separately from their grown-up children. The socio-economic changes in Japan, however, have broken down the traditional family structures, and a nuclear family is becoming common in Japan. Indeed, the number of seniors-only-households\(^4\) is rapidly increasing. Since 1975 households consisting of single-seniors and senior-couples have increased 2.7 times and 3.15 times respectively (Ministry of Health and Welfare, 1991).

A rapidly aging society and its accompanying changes in lifestyles has created new and greater demands on both services and housing for seniors. In reality, however, housing

---

\(^4\) Seniors-only-households are ones which consist only of those of 65 years and older, whether couples or one-person members, with or without other unmarried family member(s) under 18 years of age.
for seniors who wish to live as independently as possible, for as long as possible, is not well
developed in Japan, and there are only a very limited number of cases of specially equipped
housing for seniors (Maeda, 1993). Aside from the intergenerational family living
arrangements, institutional living was usually the only option available for seniors who
needed physical or financial assistance, but who could not rely on relatives and friends. In
response to new demands, there have been both publicly-funded and privately-sponsored
“congregate housing”\(^5\) projects for seniors operating since the late 1970s in Japan. The
amount, however, is still limited and the private housing projects currently serve only
relatively affluent seniors. During the late 1980s, before the Japanese economic “bubble”
had burst, the Ministry of Health and Welfare initiated the “Well Aging Community (WAC)
Project,” which was supposed to fill the gap of costly housing developments, with public and
private partnerships. These projects are currently facing severe financial constraints:

“...ten out of thirteen local authorities, whose plans had already got approved
for the national government’s funding, announced the cancellation or
postponing of the projects. The main reason for necessary alteration of the
plans is that they estimate the projects, especially congregate housing projects
which require huge amounts of strata fees, would be very difficult to attract
enough senior clients to make the projects economically feasible.”

\(\text{(Asahi Shinbun, 28 July 1994, p. 1)}\)

Since the late 1980s, Kitakyushu City,\(^6\) Fukuoka, Japan, has also started recognizing
the needs of developing such congregate housing for low- to middle-income seniors. This

---

\(^5\) Congregate housing, “supportive housing,” is a residential setting adapted to meet the special needs of seniors through design and service provision. It assists them in maintaining or returning to a (semi-) independent lifestyle and prevent unnecessary institutionalization as they grow older. It usually offers communal meals.

\(^6\) Located at 131° east longitude and 34° north latitude and at the northeastern end of Kyushu, Japan. Population is approximately one million people in an area of 482km\(^2\). It is an industrial and trading city with a rich natural environment.
Chapter 1. Introduction

policy is driven by a reflection of the national Ten-Year Gold Plan⁷. There are a number of issues affecting the changing needs of housing for seniors in Kitakyushu City. In terms of the demographic characteristics of the city, the speed of aging is much faster than that of the national average. It is expected that one in five people in the city will be senior⁸ by 2005. As far as a housing trend among seniors is concerned, seniors-only-households are also rapidly growing in both number and proportion of total households in the city. Both the growth rate and proportion of the city's seniors-only-households are higher than the national averages. Seniors-only-households are 50.4% of total households in Kitakyushu City; the national average is 35.8% (Management and Coordination Agency, 1990).

The survey done in Kitakyushu City in 1992 on housing supply for seniors also indicates that for the city's senior population, moving into institutions or living with their children are no longer top choices (City of Kitakyushu, 1992). On the other hand, seniors' growing worries concerning health and living conditions are inevitable in the process of aging (City of Kitakyushu, 1992). Overall, the survey highlighted the new demand for affordable "supportive housing"⁹ for seniors in Kitakyushu City, such housing, currently in short supply, is in great and growing demand in the city.

Kitakyushu City's recent initiatives are to promote seniors' independent living through: provision of 'Itawari Jutaku' [silver housing], which is purpose-built subsidized congregate

---

⁷ In 1990 the Japanese Government promulgated the "Ten-Year Gold Plan" for the development of health and welfare services for seniors. According to this plan, for example, the number of home helpers is to be increased from 31,405 (1989) to 100,000; and the number of day-service centre for seniors from 1,080 (1989) to 10,000 before the year 2000.
⁸ The term "seniors" is defined as somebody 65 years and older.
⁹ Supportive housing for seniors is also defined as types of housing planned and designed to promote seniors' independent living with some support and care services. Congregate housing is included in the forms of supportive housing.
housing with some support services (e.g., a life-support advisor); provision of extended-family units in public housing complexes; and special loan and mortgage programs to encourage familial intergenerational living arrangements or to make some adaptation to enable seniors to remain in their own dwellings. The number of housing units available or planned are, however, still limited (refer to figure 1). As the figure shows, one area of housing which has been discussed a lot but has got no precise action yet is 'Senior Jutaku' [senior housing], which is congregate housing for middle-income and relatively healthy seniors. In order to fill the gaps in the unbalanced housing supply, new approaches to provide affordable congregate housing for seniors or adapt existing housing stocks are required to respond to the growing demands of those seniors with low- to middle-income. An excellent approach would involve: not only the current government policy direction of “community care” (essentially, supporting seniors in their own dwellings by providing a set of social programs), but also alternative housing to reflect the diverse needs, preferences, and financial backgrounds of seniors.

1.2 RESEARCH RATIONALE

Given the increasing demand for housing alternatives for a growing number of seniors in Kitakyushu City as well as in Japan as a whole, there is a clear need for the research and analysis suggested in this chapter. In light of the lack of government initiatives and resources to develop such housing in Kitakyushu City, alternative means of project financing, service provision, and alternative models of housing and its operation need to be developed. The experience of Greater Vancouver, British Columbia, Canada may in some respects be relevant
FIGURE 1 Framework of Seniors Housing & Housing Supply in Kitakyushu City

Health Condition

- Healthy
- Frail
- Required Nursing Care

Regular Housing
- Silver town (village type)
- High value-added condo.
- Silver condo. / apartment

Supportive Housing
- 'Yuryo Rojin Home' [Private congregate housing for seniors]
  - 'Yuyu Ichiban-kan' (capacity: 170)
  - 'Villanova Otani' (capacity: 160)
- 'Senior Jutaku' [Senior housing] (0 unit)

to planners in Kitakyushu City. Without the benefit of senior government funding programs, it is increasingly recognized that cooperation, collaboration, and partnerships amongst the key housing players such as funders, landowners, municipalities, non-profit societies, developers, and service providers are required to enable establishment and operation of affordable supportive housing for seniors (City of North Vancouver, 1994). Partnership can include the resources, expertise, and support of these key players. Based on the knowledge gained from Greater Vancouver’s experience, the research project in this thesis seeks to define possible housing alternatives for Kitakyushu City.

1.3 Purpose

The primary purpose of this thesis is to present an analysis of housing alternatives for seniors which can meet their diverse needs, preferences, and financial status. The Greater Vancouver’s experience is analyzed in terms of its suitability and applicability to Kitakyushu City. The analysis includes an evaluation of necessary elements (e.g., location, type of services, design, method of cost reduction, etc.) which should be considered when planning such housing projects. A case study was conducted in Greater Vancouver in order to evaluate innovative and successful housing models for seniors. Since providing a sufficient number of options is also a key aspect of planning, three different housing projects were chosen for the analysis. Finally, the analysis suggests housing policy implications which could improve the housing situation for seniors in Kitakyushu City. The primary objective above is supplemented by four secondary objectives:
Chapter 1. Introduction

1) to review the current housing situation for seniors in Japan and, more specifically, changes in trends of their living arrangements, in order to assess their current and future housing needs. The governments’ policy responses are also examined;

2) to project the population of Kitakyushu City over the next twenty years, predicting changes in the age structure of the city’s population, and how they may affect the city’s future housing needs;

3) to examine and evaluate the planning process, financing, and operation of three different supportive (congregate) housing projects for seniors, which are run by development partnerships in different Greater Vancouver neighbourhoods; to review the role of the key housing players in order to assess the project viability (e.g., municipalities, non-profit societies, developers, service providers); and to assess the needs and satisfaction of senior residents of the housing, and thus to assess the pros and cons of the projects;

4) to explore policy implications to improve housing projects for seniors in Kitakyushu City by using the knowledge gained from Greater Vancouver’s experience. How to provide housing projects affordable to seniors and economically viable to development bodies is one of the issues discussed in this thesis.

1.4 Method

The thesis research was conducted using both primary and secondary research methods. The methodology included: a literature review, population projections, and a case study of housing models for seniors in Greater Vancouver.
Chapter 1. Introduction

Secondary research consisted of reviewing the academic literature on similar research in the field, and collecting data on basic demographic and housing trends among seniors in Japan. The literature review included: a general discussion of what constitutes housing for seniors; seniors’ needs and wants regarding their housing; and a specific review of the housing situation for seniors in Japan. The transition from traditional living arrangements, the congregate housing option, and government policies to assist the senior citizen population (including social service programs) were all topics reviewed.

For Kitakyushu City’s population projection, various demographic methods were applied. Cohort survival model, the best way to project population composition by age group, was an appropriate approach for projecting natural increase with the biological determinants of population growth. In order to compensate for the weakness of a model which ignores migration, mathematical extrapolative techniques were used to project a migration component of population change. Four functions (linear, exponential, quadratic, and hyperbolic), commonly employed in demography, were used for the purpose.

The case study was an empirical study of housing models successfully serving certain seniors’ needs and preferences in Greater Vancouver. The main source of the information was primary research, consisting of both observation of the selected housing models and the residents, and a series of interviews with key housing players. The housing issue was examined in terms of its financing, operation, and features from various perspectives: city planners, residents, and members of non profit societies and development firms. By evaluating the impacts and issues of the projects from the perspectives of groups holding different criteria for judgment, a complete and less biased understanding of the housing issue could be achieved.
1.5 SIGNIFICANCE OF THE WORK

An assessment of alternative housing models for seniors, by consideration of Greater Vancouver's housing models in a Japanese context, is worth pursuing for the following reasons:

1) to expand housing options and opportunities for accommodating those seniors who are currently unsatisfied with their housing situations in Kitakyushu City, by presenting different housing models from Greater Vancouver, each responding in a unique way to the needs of seniors with low- to middle-incomes;

2) to provide a summary of the roles of the selected development partners, such as local public authorities and local non-profit or co-op organizations, in terms of their programs, project operations, and financing. The research study may help to lessen some of the financial constraints which Kitakyushu City is facing. Some successful methods of cost reduction for housing development and methods of service provision as summarized in this thesis may also help to improve the situation in Kitakyushu City;

3) to evaluate the suitability of Greater Vancouver's housing models for seniors in the Japanese context; to ascertain project feasibility according to the criteria obtained from Kitakyushu City; and finally, to propose some implications for housing policy in Kitakyushu City.
Chapter 1. Introduction

1.6 Organization

The thesis consists of five chapters. Chapter 1 presents an introduction by way of a brief background of the demographic and housing trends among seniors in Japan as well as in Kitakyushu City. The research rationale, purpose, methodology, significance of the work, and the definition of "senior" are also summarized in the first chapter.

Chapter 2 provides broader information regarding housing for seniors. It begins with a discussion of seniors' needs and wants for housing, and reviews the current housing situation for seniors in Japan with a focus on the transition away from intergenerational living arrangements. As a response to the changing demands, some alternative housing models such as congregate housing are investigated as well.

Chapter 3 presents the importance of population projection for planning, and some demographic methods which are applied for projection. Kitakyushu City is used as a case study, by projecting its population over the next twenty years. Both natural increase and net migration of the city's population are projected, and analysis of the results completes the third chapter.

As examples of the successful Greater Vancouver's planning approach for seniors housing, three innovative housing models for seniors in Greater Vancouver are chosen for evaluation in chapter 4. The models are innovative in terms of development partnerships, and the methods of cost reduction and service provision. A series of interviews with city planners, residents, and housing organizers and developers are undertaken to enrich understanding of the process and results, and to provide a holistic picture of the projects from different perspectives.
Chapter 5 concludes the thesis by providing some implications for housing policy in Kitakyushu City, with the goal of improving the housing situation for the city’s seniors. The project feasibility is assessed according to criteria obtained from the City of Kitakyushu. The final chapter ends with the review of the government’s policy direction on housing for seniors as a response to the changing demands.

1.7 Who is “Senior”?

Discussion of the definitions of “senior,” the most important term used throughout the thesis, will conclude this first chapter. The U.S. Committee on Aging states that the “older” population refers to people 55 years and older, “elderly” to people 65 years and older, and the “oldest-old” refers to those who are 80 years and older. Other definitions are more detailed and specify that the term “young-old” refers to people from 55 years old to 64; “old” to people from 65 to 74, the “old-old” to people from 75 to 84, and the “super-old” to people 85 years and over (Meshida, 1991). Japanese people traditionally defined old age as being 60 years and older, as did most of the other societies influenced by Chinese culture (Maeda, 1993). The sixty-first year after birth, called ‘kanreki’ [return of the calendar], used to have a special meaning. It was often regarded as the beginning of a person’s second childhood.

In most developed countries, older people usually take their first or final retirement at the ages of 60 to 65. This is the reason why a “senior” is often defined as somebody over 65 years old who leaves work and becomes dependent on an old age pension, his or her own savings or a relative’s income. In reality, however, most of seniors in Japan continue to work even after the mandatory retirement from their employment, either for reasons of money or for
Chapter 1. Introduction

the sake of the satisfaction in retaining a meaningful, active role in life (Maeda, 1993). Increased longevity, higher education, improvement of public and private health conditions, and changing social attitudes and job opportunities have contributed to dramatic changes in the Japanese seniors’ lifestyles and mental and physical well-being. Thus, even some seniors over the age of 65 are still physically and economically independent, not to mention very active and capable.

Yet, it is a fact that the seniors become less and less capable of doing daily work as they become older and older. The population aged 65 and older seems to be an appropriate target group for considering social programs, despite the fact that Japan’s largest public pension program, ‘Koseinenkin-Hoken’ [Welfare Pension Insurance Program] currently sets its age criteria at 60 for men and 55 for women, five years younger than the average pensionable age recognized in Western countries. For the purposes of clarity, the following thesis will define “senior” as anyone 65 years and older, since Japanese gerontologists also tend to use age 65 as a dividing line between middle age and old age. The term “young-old” is defined as anyone from 65 years old to 74, and the “old-old” as anyone 75 years and older. The thesis may also use terms such as “the elderly” or “older people” interchangeably with the term “senior.”
2.1 What is Housing for Seniors?

"Home is where the heart is"
"How good it is to be back home"
"Home, sweet home"

While they are physically, psychologically, and socially capable of taking care of themselves, most seniors prefer to live and are actually living in houses that are in many ways identical to those of other age groups (Blank, 1988). However, physical and emotional changes occur with aging. Older people's styles of residential living may shift in response to retirement, widowhood, declining finances, and chronic health problems (Golant, 1987; 1992). As a person becomes less capable of taking care of oneself and starts relying on fixed sources of income such as old-age pensions, there are obstacles and challenges to remaining in the same house and under the same conditions. The requirements of living environments, including housing, change as a person ages. In view of the rapid demographic changes occurring in Japan and the growing demands for particular types of housing, housing for seniors is a priority issue which can not be ignored.

Housing for seniors does not necessarily mean long-term care facilities, institutional housing, or nursing homes. In this thesis, housing for seniors means types of housing or communities planned or designed to promote independent living with some support and care.
services (Kosaka, 1985). The house could be a barrier-free single-family home with some human assistance, or it could be collective housing located in a large retirement community. Overall, there is no single solution for housing for seniors which satisfies every member of the population because each member's needs and choices vary widely.

First, this chapter begins by examining seniors' individual needs, wants, and aspirations in order to assist in developing a sound analysis of how those needs may be fulfilled by various housing schemes. Second, the chapter will review the current housing situation for seniors in Japan. More specifically, changes in trends of seniors' home ownership rates, household types and structures for the elderly population will be delineated to assess their impacts. Third, among the many existing housing arrangements, the transition away from traditional living arrangements (intergenerational or extended-family living arrangements) will be further investigated in the following section. Because there are significant value shifts which accompany the changes in housing arrangements, the development of appropriate social assistance will also be discussed, and new means of intergenerational living will be proposed. In the fourth section, as a response to the changing demands, the particular housing alternative of 'congregate housing' for seniors will be further investigated. The congregate housing scheme is one of the alternatives proposed in the study; its definitions, characteristics, advantages and disadvantages will be also summarized.

2.2 Defining Seniors' Needs and Wants for Housing

Before looking at various types of housing for seniors, an understanding of senior individual's needs, wants, and aspirations will help in analysis of each housing type. Housing
Chapter 2. Understanding Housing for Seniors

fulfills a temporal need for shelter for any age group. The critical importance of housing for seniors originates not only from the idea of housing as a shelter, but also from the recognition that housing is closely linked to other physical, mental, and social elements. Seniors’ housing needs and wants are as diverse as their backgrounds, interests, aspirations and unforeseen futures, in addition to differences in age, lifestyle, and physical health (Goldenberg, 1981; Lawton, 1986). Since seniors’ needs for housing do not differ much across the industrialized countries, this section will introduce a general survey, not limited to Japan, to review and evaluate seniors’ needs and wants. According to a review of the literature (which follows), some of the key elements which should be taken into consideration to plan or design housing for seniors include: safety and security; privacy; independence; familiarity of the neighbourhood; accessibility and convenience; beauty and comfort; social contacts; and affordability.

2.2.1. Safety and Security

Security can be used to indicate a feeling of being safe from intrusion from the outside world. Many seniors rate fear of being attacked or robbed either inside their homes or in their neighbourhood as one of their greatest concerns (Araki, 1985; Golant, 1987). Safety, on the other hand, refers to the need to feel safe from what might be called internal danger, such as fear of falling down while living alone and not being discovered for days (Blank, 1988). The need for a feeling of safety and security from external threats and uncertainties tends to grow greater when people get weaker, and are less physically and mentally capable. Therefore, providing a feeling of safety and security is important to many seniors.
Security may also mean security of tenure. Secure tenure is not a problem for those who own their own homes or have plenty of money. For the rest, however, the threat of rent increases, and even eviction, may be a constant worry, especially in tight housing markets with low vacancy rates in urban areas (Wilson, 1991). The sense of owning one's own home or apartment reduces the fear or threat of being removed.

2.2.2. Privacy

Housing quality is often measured by the privacy afforded to the individual. In other words, privacy is counted as an important social quality. Privacy is described as physical separation from others, as well as the internalization of our thoughts and visions (Hoglund, 1985). However, some institutions, communal supportive housing environments, and even intergenerational single-family homes often require seniors to compromise their privacy. Thus, these settlements should no longer be the only options available for the aging population. The fact that shared rooms in nursing homes and efficiency apartments have become obsolete and outdated throughout the Scandinavian countries cautions that such housing did not fulfill the needs of seniors (Miura and Araki, 1985; Hoglund, 1985). Real privacy must be available to the individual in both design (e.g., private rooms) and operation. In supportive housing, the assistants must respect seniors' privacy in their daily operations, because such housing environments can not be separated from certain support services.

2.2.3. Independence

One of the most important factors concerning seniors is trying to retain their independence (Blank, 1988; Hayakawa, 1993; Hoglund, 1985; Housing Supply Corporation,
Chapter 2. Understanding Housing for Seniors

Kanagawa Pref., 1989). Perhaps a better term for independence would be the “maximum independence consistent with health needs and with realistic constraints on one’s lifestyle” (Lawton, 1986). The aging process leads to a gradual increase in dependence and seniors come to need certain support services in order to function in a regular living environment. Support may be in the form of physical devices or barrier-free designs in housing that provide prosthetic support, or as individuals who assist with daily living tasks. Independent living means the opportunity to live at home with sufficient support services, rather than housing forms for seniors that provide a low level of support at a centralized location, such as institutions and nursing homes.

As some theorists note, independence has been established as a social, clinical, and economic goal:

As a social goal, independence is the freedom to participate in all activities and opportunities afforded the mainstream of society. Clinically, independence is the ability to perform certain activities by oneself. The provision of prosthetic devices and the training of “independent living skills” are ways to reintegrate the disabled individual into society to assume his or her “normal” life pattern. Recently, independence has gained primary importance as an economic goal established by governments that can no longer afford to maintain individuals on social welfare. Independence has gained the support of the society because it has a built-in financial reward. The more elderly people are able to do for themselves, the less society will be required to assist them financially.

(Hoglund, 1985)

In many European countries and in Japan, government policy directions have recently leaned toward supporting seniors in their own homes by providing social programs (housekeeping, meal services, transportation, etc.), rather than by providing new housing developments (Miura and Araki, 1985; City of Kitakyushu, 1994). It is clearly less costly to operate such programs or to subsidize rents than to provide new purpose-built housing. The economic goal, however,
should not be the focus of granting independence to seniors, but should follow after the social and clinical goals.

**2.2.4. Familiarity of the Neighbourhood**

Surveys have revealed that seniors place great value on being able to remain in familiar surroundings, and prefer to stay in their own homes even if the accommodations lack basic comforts and conveniences (Goldenberg, 1981). The decision to remain in their own homes may be based on the desire to continue to live in the same neighbourhood and maintain existing relationships with relatives and friends. As well, a ‘natural’ helping network between neighbours tends to develop quickly in existing communities (Rice and Bain, 1986). Moving to unfamiliar neighbourhood in their old age sometimes causes serious mental distress, as well as affecting on and speeding up their physical well-being (Hayakawa, 1993; Ito., et al., 1994). Integration with the community tends to promote healthy, normal lives for seniors, as well as gives them a feeling of satisfaction and meaning in life. In many cases, however, physical and financial limitations mount as age increases, making it difficult for seniors to remain in the place they currently live. Therefore, providing suitable and adequate housing choices in a familiar neighbourhood becomes a critical planning issue for seniors who need or wish to move.

**2.2.5. Accessibility and Convenience**

Accessibility and convenience to certain resources are crucial factors in helping to achieve maximum independence for seniors (Miura, et al., 1994; Yoshida, 1993). Accessibility can be described as barrier-free housing designs and community planning, such as the absence
of stairs (Goldenberg, 1981; Architecture Research Centre, 1994). It may also mean the location of housing which is accessible to services and amenities. Housing for seniors must be located within walking distance to shops, stores, amenities, or other social and medical services. In addition, many people have a special need to be in touch with the social world beyond their homes and to feel that they have not been abandoned by the world (Wilson, 1991). If close proximity is not achieved, a good transportation system, telecommunications, services delivered to the home, and accessibility for visitors become necessary (Wilson, 1991), enabling seniors to obtain these services quickly and easily. Such conveniences are particularly critical for the seniors who may be less physically mobile or unable to drive a car. Finally, strong social networks can also be considered as accessibility to outside society for seniors.

2.2.6. Beauty and Comfort

Beauty fulfills satisfaction of aesthetic needs. The avoidance of an ‘institutional’ look and atmosphere resulting from large concentrations of seniors under one roof, or from the manner in which support services are provided, is another objective of housing for seniors. Buildings with an institutional appearance tend to segregate seniors physically from the community, and may actually accelerate the aging process (Jameson, 1981). Comfort is often related to the attractiveness of the housing, or to residents’ not feeling stresses due to the elements, or to inadequacies of the housing structure and/or its contents (Blank, 1988). Housing interiors can utilize a variety of colours and textures in an imaginative combination with wood, fabrics, carpeting, and plants in order to fulfill such needs (Goldenberg, 1981).
Chapter 2. Understanding Housing for Seniors

Buildings of a 'homelike' scale, instead of oversized housing schemes, can also reduce seniors' stress, fear, and worry.

2.2.7. Social Contacts

Housing becomes more infused with emotional qualities when people age. The environmental range may close in as physical competence declines. Loneliness, which is usually caused by a separation from a spouse, significant friends, or other family members, or isolation from a community, often results in ill health and depression among seniors (Hoglund, 1985; Hayakawa, 1993). Therefore, when designing housing for seniors or planning a community for seniors, it is important to include means of encouraging social life, interaction, and activity within the housing and the community. Promoting social contacts with relatives, local residents, or even companions in congregate living arrangements tends to create an attractive living environment for seniors (Sakata, 1979).

2.2.8. Affordability

Housing should be made affordable, especially for people who have scant financial means with which to support themselves (Hayakawa, 1993). The problem is very serious when people must spend large portions of their income on housing. Although relatively well-off people may not even be aware of an affordability problem, people with limited incomes may find this the most basic and worrying issue of all (Wilson, 1991). With limited incomes, rising rents for renters, high maintenance costs, and burgeoning property taxes for home owners, an increasing number of elderly people simply do not have sufficient financial means to obtain or maintain decent housing without some kind of assistance.
Chapter 2. Understanding Housing for Seniors

For governments, there are a number of ways to support lower-income elderly renters by funding new public housing projects, housing rehabilitation programs, rent subsidies, and/or congregate housing service programs (Seniors Housing Foundation, 1994). According to Japan’s 1989 Basic Survey on the Life of People, as far as the average per capita income is concerned, the economic situation of seniors in Japan is relatively good. The average per capita income of the households whose heads are in their 60s was C$24,754 (1,609,000 yen: C$1=65 yen (1995.4)), a little larger than the average of all Japanese households which was C$23,862 (1,551,000 yen). However, the discrepancy between high-income persons and low-income persons is great among seniors; while there is a small number of very wealthy seniors, there is a large group of low-income seniors (Maeda, 1993). As well, the survey data shows that average income becomes smaller and smaller as seniors move into their 70s and older. In Japan and in other industrialized nations, housing affordability is the major issue especially among the lower- to middle-income senior renters because of the limited rental options which suit their needs, and frequent discrimination against senior renters by property owners (Hayakawa, 1979). Therefore, the emerging needs require adequate responses by public authorities, because the majority of current market housing schemes for seniors serve only relatively affluent seniors.

It is obviously difficult to generalize about seniors’ needs and wants because seniors possess diverse backgrounds, interests, and aspirations as well as differences in lifestyle and physical health. What would be ideal for some individuals would be totally unsuitable for others. Since seniors’ needs and desires are so diverse, they must be evaluated with attention
given to the needs of the individual. Some needs and wants are universal (such as privacy, and
safety and security) and will not change much over time. However, other needs change
significantly over time as part of the aging process, and require constant adjustment rather than
a standard fixed solution. Providing seniors with many housing options is necessary in order to
respond to their ever-changing needs and demands.

2.3 CURRENT LIVING SITUATIONS OF SENIORS IN JAPAN

2.3.1. Home Ownership Rate

In Japan, most seniors live in their own dwellings. According to a 1990 Japanese
census, 61.2% of Japan’s total number of households owned their own homes. Households
with related members aged 65 years and older showed an even higher rate of home ownership,
at 85.5%. Owning a house essentially means owning a single-family home. Among these
households with senior family member(s) as qualified above, 84.8% lived in single-family

Housing ownership rates among seniors vary according to their household types. Of
extended-family households, typically those in which three generations live together, 91.2%
owned their own homes, and 90.3% of these lived in single-family homes. On the other hand,
housing ownership rates were lower among senior-couple households (81.3%) and among
single-senior households (62.5%) (Management and Coordination Agency, 1988). The
Housing Census also discovered that senior home owners were more satisfied with their living
situations than renters. Ideally, the majority of the independent seniors look after themselves in
their own homes with some assistance from relatives and friends. However, older people’s
styles of residential living can shift in response to retirement, loss of a spouse, and declining financial or health situations. For those reasons, single-family homes may come to be oversized and too difficult to maintain physically and financially. When the need comes for another type of housing, there are concerns that such housing options are sufficient, available, affordable, and suitable for the seniors in transition.

The second problem can be a dilemma of housing occupancy. A single-family home in Japan usually serves a nuclear family with two or three growing children. As such, when the children have grown up and left the house, the house may come to seem oversized. On the other hand, many younger families who need larger spaces can not access single-family homes due to such considerations as their insufficient financial means, scarcity of land and housing shortages in inner cities. The practical dilemma in Japan, as in many industrialized nations, is that housing needs are not synchronized with housing provisions. Some seniors have more space than they may need, and younger families often have greater need for space than they can actually afford. This need could suggest developing a system for exchanging housing between young families and the older ones (not only on a one-to-one basis, but also by a 3 to 4 way swap), to the greater satisfaction of all, including realtors (Leeds, 1973).

2.3.2. Household Type and Structure

Another significant factor related to seniors’ housing conditions is the shift of household type and structure, especially for those in an increasing number of seniors-only-households. The seniors-only-households are defined in this thesis as households which consist only of those of 65 years old (60 for females) and older, whether couples (both or either one of them have to be seniors) or one-person members, with or without other unmarried
family member(s) under 18 years of age. According to the Basic Survey on the Life of People undertaken by the Ministry of Health and Welfare of Japan in 1991, of the approximately 15,600,000 seniors aged 65 years and over: 1,820,000 (11.6%) lived alone; 4,240,000 (27.2%) lived as couples; 8,980,000 (57.6%) lived with child(ren); 520,000 (3.3%) lived with other relatives; and 40,000 (0.3%) lived with non-relatives. The number of seniors who were staying in institutional accommodations was excluded (Yoshida, 1993). The number of the seniors-only-households was approximately 800,000 in 1965, which was then 3.1% of total households. This number increased rapidly to 4,700,000, or 11.6% of total households, by 1991 (Ministry of Health and Welfare, 1991). The 1991 figure can be broken down to 2,220,000 households of single-seniors; 2,300,000 of senior-couples; and 200,000 of others. Both single-senior and senior-couple households increased 2.7 times and 3.15 times respectively, from 1975. In Kitakyushu City, the percentages of seniors-only-households were even higher than the national averages, and were recorded at 22.4% for single-seniors, and 28.0% for senior-couple households (Management and Coordination Agency, 1990).

Along with the fact of the aging population in Japan, both the size and proportion of seniors-only-households are increasing, even though the dependency ratio of seniors living with their children increases, as they become older. Before the Second World War, almost all seniors used to spend their entire lives living with their children, but the ratio has already decreased to about 60%. Again, these facts furnish evidence of the emerging need to develop suitable housing options which would satisfy the growing number of seniors households.
2.4 INTERGENERATIONAL LIVING

2.4.1. Overview

Even though an increase in both the size and proportion of seniors-only-households is a significant factor in seniors’ housing situation, the majority of this population is still living with their children. Seniors living with their children is a very common living structure in Japan and throughout Asia, and represents a traditional family system. Japanese society has maintained their family system for such a long time, and members appreciate the positive aspects of living with other generations. They place a higher value on the merits of living together as a way of sharing expenses and providing physical and financial assistance to aging parents, than on disadvantages such as generational conflicts, or the lack of independence or individual lifestyles (mostly for seniors). The following are some facts of current and transitional intergenerational living arrangements:

2.4.1.1. Dependency rates. Old-olds live with their children more than young-olds.\(^{10}\) Only 55% of young-olds (between the ages of 60 to 69) live with their children, while as many as 61.2% of seniors over 70 years old do so. Also, widows and widowers are more likely to be dependent on their children. According to the 1992 Basic Survey on the Life of People, only 37% of seniors over 70 years old and living with a spouse also live with their children, while 52.7% of the same age group, but without a spouse, live with their children (Ministry of Health

---

\(^{10}\) The term “young-old” refers to people from 65 years old to 74; the “old-old” to people 75 and older (the definitions in chapter 1.7).
Chapter 2. Understanding Housing for Seniors

and Welfare, 1992). If married, a spouse would be the first person to rely on when assistance is required; children would become the second source of support after the loss of a spouse.

2.4.1.2. Differences in generations. A survey done by the Japanese Management and Coordination Agency in 1989 showed that among four different age groups, ranging from 30 to 69 years old, the younger population expressed a greater preference for living independently, compared to those in their 50s and 60s (Management and Coordination Agency, 1989). Also, women preferred independent living more than men (figure 2). As general living standards continue to improve in Japan, the younger people can expect better financial security such as old-age pensions and their own savings to support themselves in retirement. Furthermore, there are changing views of their lifestyles and families. Women used to sacrifice their middle-age life and time to look after aging parents, especially their in-laws. Today, however, people are beginning to place greater emphasis on the individual meaning of life, rather than on the traditional family system.

FIGURE 2 Age Groups Preferences for Intergenerational Living

![Figure 2: Age Groups Preferences for Intergenerational Living]


2.4.1.3. Community location. In terms of the types of community locations, the percentages of seniors who live with their children increase as the size of a city’s population decreases. There
are a greater number of seniors-only-households in big cities with populations of over one million than in suburban areas. As shown in figure 3, the 1992 Basic Survey on the Life of People revealed that the percentages of seniors living with their children was much higher in suburbs than in big cities (Ministry of Health and Welfare, 1992). The traditional custom remains stronger in the suburbs. Also, houses of an adequate size are more available to accommodate extended-families in the less populated areas. Residents of big cities often migrate from one place to another, and this migration also makes it more difficult to maintain the extended-family type of living arrangement.

FIGURE 3 Seniors’ Living Arrangements, by Community Location and Household Type


2.4.1.4. *Housing Ownership.* Examining which generation actually owns the house serving an extended-family is an interesting point. Although many people think of the situation as children taking their elderly parent(s) into their homes, many of the arrangements are ones in which the home is owned by the elderly parents or persons. The children have either never moved out, or have moved back because of changing circumstances such as marriage, change of employment, or the parent’s ill health.
2.4.1.5. Dependence. Another characteristic of changes in seniors' living patterns is their choice of child with whom they will live. According to Japanese family tradition, it used to be most common that elderly parent(s) lived with their eldest son. Typically, with the father’s retirement, the house would be passed on to the first-born son, and the son became the head of the household, whose duties included taking care of his parents in return. However, situations such as the fading of old family traditions, decreasing fertility rates and also people’s changing living patterns and preferences have made their choices more open (Okazaki, 1991). Therefore, many seniors now live with their daughters, or second or third sons, and without many of the traditional obligations involved.

2.4.2. Causes of the Transition

The great post-war economic growth in Japan changed the family structures, and the nuclear family has become the most common type of family structure. Thus, as the above statistics show, intergenerational living arrangements have become less popular. However, an unwillingness to include a senior family member as a part of the household does not simply imply a deterioration of the traditional family structure. Respect for seniors is still regarded as one of the essential virtues of the Japanese society (Palmore and Maeda, 1985). There are, in fact, many reasons to explain the recent phenomenon.

First, the changing social and economic pressures experienced by industrialized nations throughout the world has also taken its toll on Japan. The Japanese economy has made great progress since 1955, ten years after the end of the Second World War. Between 1955 and 1970, Japan’s industrial production expanded 6.7 times (Oouchi et al., 1971). Even after the first oil crisis of 1973, the Japanese economy has continued to development rapidly.
Chapter 2. Understanding Housing for Seniors

Industrialization inevitably brings about urbanization. These two factors caused a drastic social change in the life of the Japanese people of all classes in both rural and urban communities (Maeda, 1993). Seeking better education and employment opportunities in urban centres, the younger generation is migrating away from rural areas and leaving their elderly parents behind. Furthermore, whether by choice or need, work force participation rates of women have increased, and this leaves them little time to look after their elderly parents.

Second, there are shortages of adequate housing stocks which can hold extended families in urban areas. Size of lots and houses have become much smaller as the price of land has increased; this trend is especially evident within the urban inner cities. Third, the economic independence of seniors provides another explanation for the transition. Many seniors, because of their pensions, investments, and savings, are in a much more favourable economic situation than were previous generations and simply do not require much financial assistance from the younger generation (Ito and Sonoda, 1994). Finally, the most prominent explanation of the separation of elderly parents and grown children may be due to people’s changing views of life and family (Zenkoku Shakai Fukushi Kyougikai, 1994). It can be said that the influence of traditional Asian views on life and family is gradually decreasing over generations, and people are becoming more aware of the importance of individual lives and pursuits.

2.4.3. Social Assistance

Even with the recent changes in seniors’ living situations, the intergenerational living arrangement is still the most common living arrangement, especially for those who are over 75. Some scholars believe that even the young-olds, who currently live independently, are only temporarily separated from their families and, indeed, may be at risk of becoming dependents
Chapter 2. Understanding Housing for Seniors

later on in their lives (Masuda, 1979). As one anthropologist has noted, “Aging in Japan, as elsewhere, is a matter for deep human ambivalence” (Plath, 1972). In fact, because of the very fast and drastic social changes, there coexists contradictory factors related to aging in Japan. While respect for seniors is still regarded as one of the essential virtues of the society, social services for seniors that are indispensable for their well-being are much less developed than those in Western countries (Maeda, 1993). Indeed, the notion that elderly parents must be taken care of only by their own children is obsolete and outdated in a modern society. The living arrangements for an aging population should not be left solely as an individual family’s responsibility.

It is obvious that one of the reasons for Japanese seniors’ traditionally high rates of dependency on their children can be explained by the lack of social systems which could have supported their independent living (Ito and Sonoda, 1994). There are many seniors who have no choice but to live with their children because of inadequate financial means and social programs to support themselves. Therefore, the further development of a social assistance system, such as old-age pensions and medical care, will positively affect seniors’ living arrangements. In addition, improvement of social service programs such as meal services and human support services provided to seniors living in regular homes will also serve to minimize dependence on their children and keep them out of institutions.

The present level of social services for seniors in Japan, both “institutional-care” and “community services,” is not as high as in other industrialized nations. In 1990, the “Ten-Year Gold Plan for the Development of Health and Welfare Services for Seniors” was promulgated by the Japanese government (Ministry of Health and Welfare, et al., 1990). According to this
plan, for example, by the year 2000 the number of home-helpers is to increase from 31,405 (1989) to 100,000; and the number of day-service centres for seniors from 1,080 (1989) to 10,000. In addition, the plan calls for the development of a new type of service agency, to be called the “Family-Care Support Centre.” Approximately 10,000 such centres are to be established throughout Japan before the year 2000. Under the plan, the quality of life of the frail seniors and their caring families will be significantly improved from its present level.

In spite of this significant plan, in terms of the amount, both housing and community care services for the frail seniors, it is unlikely that Japan can keep up to other industrialized nations due to the extremely rapid increase in the aging population (Maeda, 1993). Another shortcoming of the plan (and also of the current government policy on aging) is that the proposed supply of intermediate housing options (between full-independent living and long-term care institutions) seems unsatisfactory in meeting the needs of the low- to middle-income seniors who are semi-independent.

2.4.4. New means of intergenerational living

The intergenerational living arrangements are becoming less popular as a system of old family tradition, but as a function of family living style they are in many cases still a necessity. Thus, it is worthwhile to examine the new and positive sides of intergenerational living arrangements.

First of all, intergenerational living is cost-effective (Ito and Sonoda, 1994). For many people, it has become an unrealistic dream to buy a house in urban centres such as Tokyo. The only way people in the inner cities can achieve this goal is by cooperation. Combining family household incomes, or building extended-family houses on existing lots to offset the high cost
of land are two common methods of cooperation. Such methods are further enhanced by public authorities offering special loan and mortgage programs to encourage familial intergenerational living arrangements. In addition, seniors, as well as the persons who take care of elderly parents or relatives, have their taxable income reduced. The tax reduction for those who care for elderly parents or relatives is designed to preserve Japan’s traditional system of family support for elderly parents (Maeda, 1993).

One of the major drawbacks of intergenerational living arrangements had been that close physical proximity of different age groups, each with their own needs, desires, and preferences, often led to conflict within the extended family. This problem has been more or less solved, however, because housing design has allowed for the creation of two separate households, with separate amenities and facilities, all under one roof. However, these popular new styles of extended-family houses in Japan are not the same as semi-detached houses in Europe or North America. There is still some consideration and desire for human interactions within the houses, and they usually have connecting doorways joining the two different living spaces.

Finally, intergenerational arrangements offer a means of providing care for both growing-up children and seniors (Ito and Sonoda, 1994). With more women working these days, it seems natural that seniors can help the family with child care. In return, the younger generations can assist seniors later on, if and when they require care. Such ideas, however, have some practical contradictions. Seniors are supposed to be encouraged to have an independent social life and activities within the community, but they often become tied to the house with the duties of child care. Also, working women who have been seeking their own
career development have to quit their jobs when the needs of elderly parents make them more dependent. Intergenerational living has to be supported with some services and facilities, such as day-care services for children and short-stay care facilities for seniors, in order to reduce the burden in the case of the elderly parents or their caring families absence from the home.

Intergenerational living arrangements have satisfied many of seniors' needs for a long time. In general, they not only offer a greater sense of safety and security, but they can also allow seniors to 'age in place' by helping to retain strong social contacts within the neighbourhood community and their families. In addition, this type of living arrangement offers a financial stability which is of mutual benefit to all parties. With the new ways of living added to the traditional ones, and enhanced by strong and sufficient social assistance, intergenerational living can help strengthen seniors' abilities to maintain themselves, while allowing more privacy and independence in their own homes and community.

2.5 A Responsive Alternative Housing Model: Congregate Housing

As the statistics show, many seniors in Japan own their own homes, including those in intergenerational living arrangements. However, along with factors such as changing social values, financial stability and urbanization, the rapidly growing population of seniors and the increasing number of seniors-only-households have begun to affect the seniors housing market by creating different demands for alternative models of housing, in addition to single-family homes and intergenerational living arrangements. Of major concern are those seniors who begin experiencing physical and cognitive frailties, and can no longer manage their daily
Chapter 2. Understanding Housing for Seniors

routines adequately in their homes, but have not yet required institutional care. In reality, housing for seniors is not well-developed in Japan, and there are only a very limited number of cases of specially equipped housing for seniors (Maeda, 1993). Alternative housing in its many forms represents an excellent opportunity for seniors with the ability to accept realistic constraints in their lives, who can adopt a way of living that may not be ideal, but which is at least acceptable (Lawton, 1986).

2.5.1. The Model as a Transition from Institutions

Aside from intergenerational living arrangements, living in institutions used to be the only option available for those seniors who needed physical or financial assistance, but could not rely on relatives or friends. Services for seniors such as the provision of living space, meal services, human assistance, and medical care could only be provided effectively and efficiently when there was a centralized and concentrated population (Ito and Sonoda, 1994). Not only were the quantity and quality of institutions insufficient, but they also tended to be built in undesirable locations, thus segregating seniors from the rest of society and severing their social contacts. However, the growing size of senior population has shown that it is no longer practical or cost-effective to bring large numbers of seniors together in undesirable institutional locations to serve their needs.

The rapidly aging society has created greater demands on new types of services and housing for seniors. In the process of aging, reasons such as declining health, retirement, loss of a spouse or significant friends, fear of crime, and displacement due to rental eviction can result in a senior’s growing isolation and loneliness. Without adequate support services in the community, these factors may contribute to individuals’ becoming more physically, socially,
and financially vulnerable than is warranted (Granger and Kaye, 1991), often resulting in premature or unnecessary institutionalization. For decades, policy makers, as well as the society in general, accepted the rather simplistic dichotomy between independent living and long-term care through institutionalization. Today, housing for seniors schemes must venture beyond the mere design of physical structures, and into the service needs of residents. The concept of establishing more decentralized and widespread opportunities for residence, and not just fewer numbers of institutions where large concentrations of seniors inhabit, is a timely issue. More and smaller-scale service-provided housing arrangements in various locations is a prominent alternative target. In order for seniors to postpone or avoid institutionalization and to maintain and promote independence with assistance, intermediate housing models must be responsive to the emerging needs of seniors, whose physical, functional, and mental abilities gradually decline as they age.

2.5.2. Congregate Housing: Definitions and Goals

One response to the current housing issue for seniors is the alternative of 'congregate housing' schemes. Congregate housing is positioned between the more protective environments of skilled and intermediate care facilities such as institutions, and largely independent environments such as retirement communities, private homes, and apartments (Monk and Kaye, 1991). Some theorists have defined congregate housing as:

a residential setting that is non-institutional, but adapted to meet the special needs of the elderly persons through good design of the physical environment and the provision of some support services. It offers the functionally impaired or socially deprived, but not ill elderly, residential accommodations to assist them in maintaining or returning to an independent or semi-independent lifestyle and prevent premature or unnecessary institutionalization as they grow older. (Lawton et al., 1980; Cronin et al., 1983)
This type of housing is sometimes very difficult to define because the degree of service provision differs depending on the project. Other terms used to define this type of housing are: ‘Sheltered Housing’ (England), ‘Shared Housing’ (North America), ‘Service Flat’ (Sweden), ‘Senior Housing’ (Japan), or ‘Silver Housing’ (Japan).

In general, it is clear that the vast majority of seniors prefer normal settings, such as a single-family home, over ones designed more specifically for seniors (Blank, 1988). However, it is also a fact that among semi-independent seniors living in various types of housing, increasing numbers are benefiting from some forms of congregate housing. Congregate housing is a practical solution when independent living, or living with either a family or an extended family of different age groups, is undesirable or impossible for physical, emotional or financial reasons. Seniors are typically candidates for congregate housing’s assisted living facilities if they require regular and continual help in performing activities of daily living or suffer from mild confusion (Golant, 1992). European examples also suggest innovative directions for the improvement and selective implementation of congregate living arrangements as an important response to the frail elderly who must move from their own homes, but who do not require institutionalization (Chellis, Seagle, Jr. and Seagle, 1982).

The problems which arise in institutional arrangements—the lack of privacy for individuals, the unpleasant look and atmosphere, and the large concentration of senior population in isolated locations—have to be addressed when planning for the congregate type of housing. Public authorities in England, Sweden, and in North America have promoted
congregate styles of housing as one of the focuses of seniors housing policy (Yoshida, 1985). Their focus is on shifting resources from institutional to community care. Some of these Western housing models can be applicable to the Japanese context, and there are many possibilities for Japanese planners to learn from the Western experience.

2.5.3. Characteristics of Congregate Housing

Congregate housing mainly serves the needs of reasonably healthy seniors. Some congregate housing has operated in Japan since the late 1970s. The housing can be publicly sponsored or privately owned, and can take the form of a high-rise building or a cluster of homes. The housing does not necessarily mean the construction of new buildings; existing structures can be adapted to congregate use and serve the needs of their residents admirably. The number of residents can range from as low as ten people, to a high of 100 or more. The location of congregate housing is flexible. It can be found in city centres, suburbs, and even rural areas. In most cases, such housing includes provisions of some service packages: a dining room for group meals in addition to individual kitchenettes; a security and emergency alarm system; communal facilities such as lounges and activity areas; housekeeping services; a residential warden; and transportation from the site to shopping areas or social and medical services. The key element in congregate housing is meal provision. The other services may be optional, but meals in a communal dining room are essential.

Congregate housing is not a nursing home. No skilled nursing or medical care is offered. A resident in a congregate setting must be ambulatory (though he or she may use a walker or wheelchair) and capable of handling basic daily living tasks (Horne and Baldwin, 1988). There is usually no provision for bed care in a congregate setting. Furthermore, the
Chapter 2. Understanding Housing for Seniors

better congregate living facilities not only have these necessary services packages for seniors, but they also have friendship information systems within the community (Woodward, 1987). Aside from the importance of service facilities, the housing must be innovatively designed to promote seniors’ independence, and to ensure maximum satisfaction in their housing.

‘Ippan Yuryou Roujin Home’ [private congregate housing for seniors], a privately sponsored congregate housing project for seniors in Kitakyushu City, has been gradually increasing the number and improving the quality of housing for seniors since the late 1970s. There were approximately 178 such facilities throughout Japan in 1992 (Ministry of Health and Welfare, 1992). However, since these housing developments currently serve only the relatively affluent seniors, the planning of more affordable housing schemes for low- to middle-income seniors must be considered. To this end, more community-based and publicly funded housing developments were initiated in the late 1980s. Two examples are ‘Itawari Jutaku’ [silver housing], which was marketed by rental congregate housing projects to provide physically independent seniors with barrier-free housing design and the human resources of ‘life support advisors’; and ‘Care House’ [care house], a type of housing project which evolved from one type of nursing homes and came to more closely resemble ordinary housing with social assistant systems. Under the Japanese government’s Gold Plan, the number of public ‘Care House’ will be increased to accommodate 100,000 elderly residents before the year 2000.

These community housing schemes operate on an ‘open service system’ as opposed to the ‘closed system’ of the private ones. Essentially, services and facilities are not necessarily provided within the physical boundaries of the housing complex, because they are encouraged
to utilize the existing or newly provided communities resources. Again, it is important to provide a sufficient quantity of quality congregate housing to satisfy the growing numbers of the seniors age group, especially since this type of housing is still in short supply, but in great demand.

2.5.4. Advantages and Disadvantages of Congregate Housing

There are many advantages to providing supportive and protected age-segregated settings. Since many seniors have similar retirement-oriented life styles, as well as relatively homogeneous social and medical needs, they require similar goods and services. Those services can be provided or delivered more effectively and efficiently at lower average costs as a result of congregate living (Golant, 1987; Ito and Sonoda, 1994). In addition, the congregate housing schemes offer the possibility of overcoming isolation and loneliness by providing the opportunity for communal activity, social interaction, and improved mental health that would not have been possible for that person living alone or in an institution (Horne and Baldwin, 1988). The housing schemes allow seniors to retain their independence and offer the security of assistance in the monitoring of their mental and physical health, in the planning of their activities, as well as in the case of an emergency. Finally, the housing schemes are usually barrier-free and designed for persons who need assistance with the simple act of getting around.

Nevertheless, some argue that congregate living arrangements have many drawbacks. Zoning, neighbourhood concerns, and excessive restrictions on the design of a congregate housing all create problems. As in any setting where several residents will share common areas of the facility, it is important that there be the right mix of personalities (Horne and Baldwin, 1988). Also, such living arrangements tend to isolate seniors from the rest of society and
Chapter 2. Understanding Housing for Seniors

prevent them from sharing their wisdom and experiences with the younger generations. These factors, some believe, can contribute to low morale and feelings of uselessness and rejection in some seniors (Goland, 1987). Another weakness is that it is sometimes too costly to provide a new housing complex or retirement community because of both the scarcity of vacant land in convenient locations and governmental financial restrictions. To overcome such disadvantages, and to make responsible decisions about designs and operations of the housing and service system type (open or closed), a sound analysis of the characteristics of potential residents, allocation sites, existing services in the allocation communities, and alternative ways of project financing will be required.
Chapter 3. Projecting Aging of a Population

CHAPTER 3

PROJECTING AGING OF A POPULATION

3.1 INTRODUCTION

Since the growth and transformation of housing needs for seniors in Japan has primarily followed demographic changes, in this chapter the demographic “aging of a population” is investigated. Analysis of demographic factors lends a clearer context to the thesis study, and provides both a better understanding of housing issues for seniors in Japan as well as in Kitakyushu City and the need for proactive planning to address them in a timely manner. Knowing past demographic trends and projecting future population and its compositional changes are fundamental to any kind of planning. Planners need to have some ideas of likely future changes in the size, composition and distribution of the population in their particular areas in order to undertake future planning actions. For example, in this thesis, without projecting the anticipated growth in numbers of the seniors population, it would be impractical to speculate on the state of future housing demand and supply for seniors, and to propose any policy responses for their future needs. Due to the limited scope of this thesis, its demographic analysis will focus only the demographic changes which are affecting the future society in Kitakyushu City.

An additional reason for including demographic analysis is that it is useful for planners as professionals to employ such quantitative reasoning techniques, as well as
Chapter 3. Projecting Aging of a Population

qualitative research skills. Population projections pursue various methods and approaches, and produce numbers or “answers.” Although it may take years to know how closely the projected numbers compare to actual counts, it is necessary to have some idea of growth rates, the volume of migration, and the population’s distribution patterns in order to facilitate appropriate policies and sound planning. Because the practice of planning always involves both theoretical frameworks and practical reasoning, the application of statistical methods in this chapter provides a crucial contribution to the thesis.

This chapter uses Kitakyushu City as a case study in which demographic methods are applied to project the population over the next twenty years. The issues investigated concern the potential changes in the size of each age cohort of the city’s population, and how they will affect future housing needs in the city. The proportional growth of the older population poses a considerable challenge to public policy because people’s needs change as they age. The analysis will further examine shifts of seniors’ household structure. The chapter’s case study is based on published census data from Kitakyushu City, provided mainly by the Japanese Management and Coordination Agency.

3.2 EXPLANATIONS FOR THE DEMOGRAPHIC TREND IN JAPAN

The United Nations defines an “aging society” as a society with people 65 years and older comprising over 7% of its total population; an “aged society” means that people in the same senior age group constitute at least 14% of the total population. Japan earned the description of an “aging society” in 1970. By 1990 the seniors population had reached 12.0% of the total national population (12.7% in Kitakyushu City) (Management and
Japan’s demographic shift to an “aged society” can be explained in the following three ways: First, the speed of aging in Japan’s population is remarkable. Japan will age very rapidly over the next twenty years, compared with past trends and with other developed countries. The population of 65-to-74-year-olds in Japan is expected to experience an average annual growth rate of 2.7% (2.4% is the world average), and the population of 75-year-olds and over, 2.9% (U.S. Dept. of Commerce, 1987). Such growth rates are exceeded only in developing countries, where the size of the senior population is relatively small to begin with and the percentage increases are correspondingly large. It will take only 26 years for Japan to double its proportion of seniors from 7% to 14% (1970 to 1996) (Ministry of Health and Welfare, 1983), compared with 115 years for France and 66 years for the United States (U.S. Bureau of the Census, 1984). Second, there is improved longevity. For many reasons, people live much longer than previously. In 1994 the life expectancy in Japan was 84 years for females and 78 for males, which was the highest in the world. It is also true that the demographic shift is not a change in the advanced age that some people attain, rather it is a change in the proportions reaching advanced ages. Third, because more babies were born 60 to 80 years ago than in previous generations, there is more demographic momentum in Japan’s society.

Today’s increasing numbers of seniors are part of a world-wide trend primarily attributable to relatively high birth rates 65 or more years ago, reductions in infectious and parasitic diseases, reductions in infant and maternal mortality, and improved nutrition. Improvements in public and private health services, education, and economic circumstances
have also enhanced longevity. The main reason for the aging population, therefore, lies in the combination of both decreased fertility rates and mortality rates.

In Japan, although the aging of the population started much later than in developed Western countries, the faster speed of aging is also explained by lower fertility and mortality rates. Since the end of the first baby boom in 1949, after the Second World War, the birth rates have decreased very sharply; now Japan has one of the lowest birthrates in the world, and the rates were reduced by one-half within 10 years in Japan (Maeda, 1993; Okazaki, 1991).

3.3 POPULATION PROJECTION

3.3.1. Definition of Projection

The concept of a population projection is different from that of a population estimation. Although similar in the way they each involve generating a number that is intended to indicate the size of the population of a given area at a specific point in time, the two concepts use a different time period and type of data to generate population values (Raymondo, 1992). In general, a population estimation refers to the size of the population of an area in the recent past or between census years, while a population projection refers to the size of the population at some point in the future. A population projection is a conditional statement which requires a special set of assumptions. Therefore, projection itself is never wrong since it is merely the result of numerical calculations based on assumed conditions (Davis, 1993). The assumptions on which a projection is based, however, may be flawed,
nevertheless, used carefully and with knowledge of its limitations the technique remains a useful planning tool, as the following chapter will demonstrate.

3.3.2. Purpose and Use of Projections for Planning

Population projections are frequently used for planning purposes. Planners need to have some ideas of likely future changes in the size, composition and distribution of the population in their particular geographic areas in order to undertake future planning. For example, at the national level, population change affects the government’s financial situation by changes in revenues and expenditures, or demands for services. At the local level, the changes create different types of demands on housing, transportation, services (e.g., shops, schools, or hospitals), public utilities, amenities, and many other things. Population projections are used to estimate the likely demographic impact of planning decisions and policy changes (Newell, 1988).

The level of detailed information required in projections varies widely, depending on the purposes and processes of projections for planning. A simple population total is sufficient for some planning purposes, but more often some compositional information is needed to reveal important demographic and socio-economic differences which have direct bearing on current and future policy-making. Since this chapter is concerned with the changes in age structure of the population over the next twenty years in Kitakyushu City, detailed information which disaggregates the statistics of the total population into narrower age groups (i.e., five-year cohorts) will be needed. Also, for the purpose of planning seniors housing, it is essential to produce projections of households by size, type and living dependency rates of seniors.
3.3.3. Population Change

When projecting a population for an area, one must consider the processes of birth, death, and migration in order to understand the patterns and the change of the population components. The relationship between these variables is perhaps best seen in the basic demographic equation:

\[ P_1 = P_0 + B - D + IM - OM \]

Where:
- \( P_1 \) is the projected population
- \( P_0 \) is the population at a previous point in time, \( P_0 \)
- \( B \) is the number of births since \( P_0 \)
- \( D \) is the number of deaths since \( P_0 \)
- \( IM \) is the number of in-migrants since \( P_0 \)
- \( OM \) is the number of out-migrants since \( P_0 \)

The net contribution (B-D) to the change in population through births and deaths is termed "reproductive change" or "natural increase (decrease)," while the net impact (IM-OM) on its stock resulting from migration is termed "net migration" or "social increase (decrease)."

The variables, IM and OM, can be further broken down into internal and international migration. Generally speaking, the volume of internal migration is more than that of international migration, and has more impact on the regional economy. Also, because of Japan's tight immigration policy, ignoring international immigration to Kitakyushu City should not significantly affect the statistics in this study.

The two processes, in population change natural increase and migration must be treated separately in terms of projecting total population change, because the determinants and consequences of these two processes are quite different.
3.4 PROJECTING NATURAL INCREASE

3.4.1. Cohort Survival Model

The best way to project population composition by age groups is to use a cohort survival model. This model is useful for projecting natural increases with the biological determinants of population growth in regions or small areas. However, the model’s weakness is that it completely ignores net migration. Therefore, the natural increase in Kitakyushu City will be calculated first by using the cohort survival model, and numbers of net migration will be added later to the numbers of the natural change. Since the city is homogenous in terms of ethnicity, the case study will leave out components of the population such as race and ethnicity.

The model begins by breaking the total population into age groups (consisting of five-year intervals up to 85 years and over), called cohorts. Each cohort is further subdivided into male and female cohort. A beginning baseline population is necessary; in this study the most recent census data (the 1990 population census) for Kitakyushu City was most appropriate (table 1 in appendix A). The analysis takes each of these cohorts and projects them separately. A summary of the model’s other major elements follows.

3.4.1.1. Age-specific survival rates. Age and sex specific survival rates (five-year cohorts up to 85 and over) are needed. These are the probabilities of living at least five more years, so each is found by subtracting from 1.00 the probability of dying in
the next five years, given the specified age and sex. The national survivorship rates in Japan in 1990 were used for this analysis (table 2 in appendix A).

3.4.1.2. Birth rates. Female age-specific five-year fertility rates (seven cohorts from 15-19 to 45-49) are derived by dividing the number of babies born during a five-year period to mothers of a specified age, by the number of women in the population who are of the specified age. The city's 1985-1990 birth rates, and three sets of projected five-year period birth rates from 1990 to 2005 are used for these purposes (table 3 in appendix A).

The projected fertility rates of the city (table 3 in appendix A) clearly show that numbers of babies will be constantly decreasing and the compositional change of women's child-bearing age also will be significant. The demographic reasons for the lower fertility rates and the age shifts can be explained by the decreasing numbers of women who are married in the age groups, and the declining number of married women having children. The socio-economic reasons may be that as women become more independent, both socially and economically, women's attitudes toward marriage and work change. Higher education and employment opportunities for women, as well as expensive education and other costs for children also encourage women to have no children or postpone having children, thus resulting in fewer children (Tuya, 1991).

3.4.1.3. Proportion of male/female births. The proportion of sex of newborn babies is used to distinguish the number of babies born male or female. Generally speaking, slightly more than half of babies born are male. The number used in the case study
Chapter 3. Projecting Aging of a Population

was the average proportion of males births from 1986 to 1990 in Kitakyushu City, which was 0.515 (table 4 in appendix A).

3.4.2. Method of Projection of Natural Increases

The first step of the projection is to calculate the number of babies born in 1995 into the 0-4 age cohort. This is found by multiplying the numbers of possible mothers in each of seven female age groups (from 15-19 through 45-49) in the range of childbearing years by the fertility rates in table 3 in appendix A accordingly, adding the results, and then multiplying the final number by the percentage of male births (0.515) for the male cohort (0.485 for the female cohort). To project the numbers of males and females in the cohorts 5-9 to 75-79 in the next period, one must multiply the proper survival rate by the component of the 1990 population which is of the same sex and is five years younger. The last cohort to be projected is the 85 years and over age group. This is done by simply adding the two projected numbers of the last two cohorts using the same technique. The entire process is explained in table 5 in appendix A. The year 1995 projected compositional population is shown in table 6 in appendix A. The method is carried over three more times in order to project the year 2000, 2005 and 2010 populations (table 6 in appendix A). Each time, it is based on the previous projected compositional population, by using the same survival rates and the projected birth rates accordingly.

3.4.3. Analysis

Table 7 in appendix A shows that the projected populations from 1995 to 2010 are constant in size, starting at about 1,050,000 and not exceeding 1,085,000, but different in
composition. Since this model has not taken net migration into account, it is not yet appropriate to make the final analysis for changes in age structure. However, the calculations already show clearly that the city's population is aging. For instance, in the first three cohorts, 0-4 to 10-14, the numbers are stable over the next twenty years, but the numbers in the 15-19 to 20-24 age groups are decreasing significantly. The major proportions of the population are the "babyboomer" age groups who were born during the two five-year periods of 1945-1950 and 1970-1975, and who are, of course, aging. The most significant increase shown over the next twenty years is in the age groups over 60. After discussing projection techniques for net migration in the next section, and adding such findings to the results of the process just described, the demographic base model will be complete.

3.5 PROJECTING NET MIGRATION

Two of the three elements of demographic change, births and deaths, were projected in the previous section. Now, the last element, migration, is considered. This component of population growth and change is the most difficult to forecast, since research has not been prolific in offering models of accuracy comparable to the natural increase method (Krueckeberg and Silvers, 1974). The most sophisticated models of migration are usually tied to some nothions of economic push and pull as the prime determinant of migration (Krueckeberg and Silvers, 1974). Future numbers of migration may be projected in several ways: subjectively through use of judgment; by symptomatic techniques from analysis of the regional economy and society (e.g., the use of building permits, school enrollments); by
extrapolation techniques from past data (e.g., the use of exponential trends); and by some combinations of these procedures (Isard, 1960; Murdock and Ellis, 1991).

Where the cohort survival model is utilized for the particular reason described in the previous section, it is also necessary to disaggregate figures for net migration by age (five-year cohorts) to produce final integrated products. Because statistics on migration of such a detailed character are not obtainable and the time constraints are considerable, it is important to select a method which best fits the situation in order to maximize use of the available census data.

3.5.1. Methods of Projection of Migration

Given limited data available from the census, it is necessary to make a sound judgment for choosing a projection method from the various options. Data available (table 8 in appendix A) include:

1) two sets of in- and out-migration data during each previous one-year period, broken into five-year cohorts up to 34, ten-year cohorts to 64, and 65+ (1970/1980);

2) in- and out-migration data during a five-year period from 1985 to 1990 (in five-year cohorts up to 80+);

3) total net migration of Kitakyushu City from 1976 to 1990 (each year).

Two methods could be considered in this study. The first method is to take table 8.3 in appendix A, apply it to four different mathematical functions, choose one function which best fits the past migration trend, and project the future trend of migration flow by the curve

---

11 Tables 8.1 and 8.2 can not be compared or integrated because the periods and the cohort groupings which the Statistics Bureau surveyed for each were different.
chosen. In order to make a sound judgment, the R-squared and the mean absolute percentage error (MAPE) of each function is taken into account to measure the suitability of an actual curve. The next step is to break down the projected total number of net migrations into each five-year cohort. In this case, the ratios of the most recent data in each cohort (table 8.2 in appendix A) is used to multiply the total projected number by each ratio of each cohort.

The second method would be a very simple technique using an average number from the past five-year period, as will be explained later.

3.5.2. Mathematical Extrapolation

Extrapolative techniques are methods which use patterns of population change established from past time periods to project the population for future periods (Murdock and Ellis, 1991). This thesis considers four functions that are commonly employed in demography: linear; exponential; quadratic; and hyperbolic.

*Linear:* \( y = a + b \times x \)

The equation states that \( y \) varies linearly with \( x \). The linear function describes a population trend of relatively constant numeric change (positive or negative).

*Exponential:* \( y = a \times b^x \)

The equation states that \( a \) and \( b \) are constants, the latter raised to the power of \( x \). The relationship between the two variables is non-linear. The exponential function describes the path over time of a population undergoing a constant rate of change.

*Quadratic:* \( y = a_0 + a_1 \times x + a_2 \times x^2 \)
A quadratic function is the second degree of polynomial function. The concavity of the quadratic function depends on the value of the co-efficient $a_2$. This function better represents populations that are rapidly increasing or decreasing.

**Hyperbolic**: $y = a + \frac{b}{x}$

The hyperbolic function is a non-linear function approximating either the growth curve of the modified exponential function, or the decay curve of the exponential function.

One of the major ways of choosing the appropriate mathematical function for projection purposes is based on the **mean absolute percentage error** (MAPE). MAPE is a measure of the prediction error which is defined as:

$$\text{MAPE} = 100/n \sum \left| \frac{Y_i - Y'_i}{Y_i} \right|$$

where $Y_i$ = the $i$th observed value of the dependent variable;
$Y'_i$ = the $i$th predicted value of the dependent variable; and
$n$ = the number of observations.

In general, the function which produces the lowest MAPE is accepted as the most appropriate function to predict future likelihood. **R-squared**, the co-efficient of determination, is another indicator to measure suitability of curves. Generally, the higher the R-squared co-efficient, the better the fit of the function to the data is.

### 3.5.3. Migration Projections Using Two Different Methods

#### 3.5.3.1. Method one: mathematical extrapolation.

The city's net migration over the next twenty years will be projected by employing the past trend of table 8.3 in appendix A in the four mathematical functions just described. As the data shows, the city's trend of net
migration is rather stable with approximately 8,000 to 9,000 out migrants every year, except during the years 1978 and 1987, when migration out-flows were much higher than usual. Because the city’s industry depended heavily on a major steel factory, changes of that company’s policy based on economic factors (e.g., recession, the global phenomena of transition from heavy industry to high-technology) severely affected the migration patterns of the city. It can be assumed that in both years, under poor economic conditions, thousands of workers (mostly non-permanent workers) were laid-off and migrated from the city. Therefore, it is appropriate to consider the two years as exceptions when applying the functions. Having removed those years from the data, the MAPE, R-squared, and graphs (graph 1) of the four functions follow.

<table>
<thead>
<tr>
<th>Function</th>
<th>MAPE</th>
<th>R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Function</td>
<td>7.862335</td>
<td>0.440098</td>
</tr>
<tr>
<td>Exponential Function</td>
<td>8.237746</td>
<td>0.436717</td>
</tr>
<tr>
<td>Quadratic Function</td>
<td>4.821188</td>
<td>0.729014</td>
</tr>
<tr>
<td>Hyperbolic Function</td>
<td>4.948702</td>
<td>0.699745</td>
</tr>
</tbody>
</table>

As far as MAPE and R-squared are concerned, the quadratic function fits best according to the graph, indicating the lowest MAPE and the R-squared closest to 1.00. However, because of its quadratic curve, the curve starts dropping from 1990 and then continues down to -15,000 by the year 2010. This is unacceptable. Therefore, although second best according to the above two criteria, the hyperbolic curve is accepted. It is also important to note that the city is not an exception in terms of trying to attract more people to settle there by polishing the socio-economic restructuring policies begun in 1988. Therefore,
the balance of the migration will be stable, or the growth rates of out-migration may rather decrease over the next decades. The projection is shown in table 9.1 in appendix A.

3.5.3.2. Method two: calculating the average of table 8.2. It is obvious from table 8.3 in appendix A that the city's total net migration has been quite stable during the past fifteen years. Assuming that net migration over the next twenty years will also be stable, the data of social decrease from table 8.2 in appendix A is used and divided by five in order to get
Chapter 3. Projecting Aging of a Population

average numbers for one year in each cohort. The numbers are then applied as projected net migrations (shown in table 9.2 in appendix A).

Since the results from the two different methods are not much different, using the result of either one is acceptable. However, the city's out-migration is constant but slightly growing every year, thus stable but constant total number of out-migrants projected by the second method, calculated at approximately 8,000 each year, can be considered low and unsatisfactory. In order to make projections more dynamic, the first method is more acceptable for use in the case study.

3.5.4. Analysis

Table 10 in appendix A shows the numbers of in- and out-migrants and their rates against total population in each cohort. People move or settle down depending on their ages, with some age groups moving more often than others. In the city, and in general, the numbers of senior migrants are much lower than those of other age groups, such as the age groups active in the work force or those seeking higher education away from the city.

People move or settle down for various reasons. The main reason for moving for the high volume migrants in the 20-24 through 35-39 age groups is related to employment. Some age groups are totally dependent on reasons caused by other age groups, such as children depending on their parent(s). So, what reasons can be found for seniors moving? A migration survey done in the city in 1990 shows remarkable facts about seniors' migration (Aging Sougou Kenkyuu Centre, 1991). Compared to the reasons motivating other age groups to move, seniors' migration tends to be caused by their retirement, loss of a spouse, changes in their health conditions, and most common, housing issues. A high percentage
(33.4%) indicate their reasons for moving as always related to housing matters: moving to live with relatives; moving to institutions, perhaps due to changes in health condition; and moving to appropriate-sized housing, usually due to changes in family size, e.g., through the loss of spouse (Aging Sougou Kenkyuu Centre, 1991). When seniors get older, their living situation usually gets more severe. Thus, the fact of their aging directly affects future housing markets.

3.6 ANALYZING THE RESULTS OF THE PROJECTIONS

By integrating the results of two demographic projections, the cohort survival model and the migration projection, we can determine total population. Table 11 in appendix A shows the past trend (1970-1990) and the projected population (1995-2010) of Kitakyushu City. In order to make the data easier to analyze and visually approachable, the final result is aggregated into ten-year cohorts, and then graphed (graph 2).

3.6.1. Changes in Age Structure

The city’s population has become old during the last few decades, and it will become even older during the next twenty years. The population has been and will be relatively constant in size (slightly over 1 million people), but changes in age structure will be dynamic. Except for the large proportions of the babyboomer population (born during 1945-1950 and 1970-1975) showing aberrations in the graphs, the curve of each age group rather smoothly inclines or declines.
Chapter 3. Projecting Aging of a Population

Graph 2: Past and Future Population Trends, by Ten-Year Age Cohort

Following is a brief highlight of findings for the ten-year cohorts.

**0-9 and 10-19:** The younger age groups will constantly decrease in size and as a proportion of total population. This is explained by the fact of decreasing fertility rates. These groups are also predicted to live much longer than allowed by historical standards.
Chapter 3. Projecting Aging of a Population

20-29: At some points over the years (1970-75 and 1995-2000), the babyboomer trends appear in this age group. This group started from high volume in size and proportion, but will decline significantly later in the projections.

30-39: The babyboomers appear twice in the curve showing the last sign of the past high fertility rates at the very end of the projections. Their curve goes up and down, but this age group will end up being a similar size with a slight decline as a proportion of the total population, because the general population also continues to grow.

40-49: This age group’s curve resembles that of the 10-19 age group, but is a little bit shifted up in size. This group will also gradually decline in size and as a proportion of the total population.

50-59 and 60-69: These are constantly increasing curves. Over the year 2000, these age groups will nearly double in size at some points and will also increase in proportion of total population.

70-79 and 80 plus: Along with the previous two groups, these cohorts will grow strongly throughout the projection period, more than tripling in size. These groups will also have the strongest increase as a proportion of the total population, when compared to other age groups.

The changing composition of the population signals huge effects on society in terms of the proportional changes of people engaged in economic productivity and those who are dependent on others. Such a change is exacerbated by the fact that demands for housing,
recreation, daily commodities or health care services change with age. Finally, this chapter leads to examining housing needs pressed for by the increasing elderly population which will affect future housing markets and policy implication by the national and local governments.

3.7 **Shift of Household Structure and Housing Types for Seniors**

Having examined demographic change, it is prudent to also look at changes in the household structure. Table 12 in appendix A indicates that the growth rates of the seniors-only-households, whether singles or couples, has increased vis-à-vis the total number of private households with members 65 years old and over, from 25% to 50% during the past twenty years in Kitakyushu City.\textsuperscript{12} The data is important because it shows that an increasing number of seniors are not living in intergenerational arrangements, but rather alone or with other seniors. As Japan’s population ages, both number and proportion of seniors-only-households are increasing. Before the Second World War, almost all seniors lived with their children until death, but the ratio has already dropped to about 60% in Japan, and 50% in Kitakyushu City specifically.

The growth of the seniors age group, as projected in this chapter, is a primary factor in increasing the demand for particular types of housing. One of the desired solutions is to fill the gap between two factors: seniors’ wishes to live as independently as possible for as long as possible; and their increasing worries over health conditions and the need for more medical and human care as they age. Although seniors’ home ownership rates are quite high

\textsuperscript{12} In table 12, seniors who are living with other seniors (relatives or friends) but not as couples, or who are living in institutional facilities or hospitals are not counted.
today, the rates will decrease in the future due to scarce future stocks of housing and decreased affordability. In consideration of the above, even seniors who have been living in or owning a house may consider moving to adequate and convenient living environments and facilities.

In order to fulfill seniors' requirements, a comprehensive range of housing including quality-built forms with adequate-sized units, accessible facilities and appropriate human support services, are needed. The provision of good quality housing and support enables seniors to re-establish themselves in society and re-shape the whole community. Thus, government as well as other housing players must take heed of seniors' increasing demands and address them in planning for future housing markets.
CHAPTER 4

GREATER VANCOUVER CASE STUDY

4.1 RESEARCH OBJECTIVES

As a response to the seniors’ new and growing demands for supportive (congregate) housing options, and to fill the gaps in the unbalanced housing supply in Kitakyushu City, this chapter, as a case study, presents an analysis of housing alternatives for seniors. A case study was conducted in Greater Vancouver in order to evaluate innovative and successful housing models for seniors. Three different supportive (congregate) housing projects (Abbeyfield Houses, Queens Park Place, and Ambleview Seniors Housing Co-op) in different Greater Vancouver neighbourhoods were chosen for the analysis. This chapter starts from an evaluation of some key housing elements such as the means of service delivery which should be considered when planning such housing projects. Furthermore, this chapter presents an overview and description of the planning process for each housing project, followed by a summary of the major research findings pertaining to the Greater Vancouver housing projects. An assessment of alternative housing models for seniors in Greater Vancouver later helps to expand housing options and opportunities for accommodating those seniors who are currently unsatisfied with their housing situations in Kitakyushu City. Finally, analysis of the results was used to develop some implications for housing policy which could improve the housing situation for seniors in Kitakyushu City in the final chapter.
4.2 Research Method

The case study was conducted using both primary and secondary research method. Especially, primary research was the main source of the information, and designed as a case study consisting of both observation of housing projects and residents, and a series of interviews with key housing players.

4.2.1. Observations

Actual observation, looking at the site and making measurements of what was seen, was critical in the case study. Site visits to three housing projects were conducted in order to observe the conditions, functions, uses, and general impression of the buildings themselves and the surrounding areas. Forty-five minutes to two hours were spent for each visit in each housing project.

4.2.2. Interviews

A series of interviews with key housing players and residents was the main component of the research. In order to achieve complete and less biased conclusions, the housing projects were evaluated from the perspectives of groups holding different criteria for judgment. A set of questions was asked to three groups of housing players: senior residents, members of non-profit societies and a representative of development firms, and city planners. Since housing for seniors needs to be developed hand-in-hand with some support services, two separate interviews were also undertaken with service providers. Finally, information
was also gained in interviews with city officials of Kitakyushu in order to ascertain project feasibility and constraints. The list of interviewed key informants is attached in appendix B.

The purpose of the interviews with senior residents of the housing projects was undertaken to ascertain their needs in the housing, their reasons for moving in, and to determine how fulfilled they feel in the living arrangements. Interviewing members of non-profit societies and developers helped to review their roles and the initiatives involved in the area’s housing projects. The difficulties in starting and operating the housing projects as well as potential areas of improvement were also addressed in order to provide feedback useful for planning of similar types of housing projects. Finally, the project evaluation was completed by interviewing city planners. The purpose was to examine how they viewed the projects and assessed the existing and future demands for housing for seniors, and to review their current and future initiatives and supports for the type of projects. The interview questionnaires are attached in appendix C.

4.3 BEYOND MERE DESIGN OF HOUSING: SERVICE DELIVERY

Before starting an analysis of the housing projects, some key housing elements need to be defined in order to get better understanding of housing for seniors. Housing for seniors is defined in this thesis as types of housing or communities planned or designed to promote seniors’ independent living with some support and care services. Amongst various types of housing for seniors, this case study, deals in particular with supportive (congregate) housing with some degree of service provision for low- to middle-income seniors.
Chapter 4. Greater Vancouver Case Study

Moving to unfamiliar neighbourhood in their old age sometimes cause serious mental distress for seniors, as well as additional stresses on their physical well-being. When seniors' homes become inadequate to suit the aging process, the need to minimize such moving to different dwellings in different neighbourhoods is best met by supporting them in the community where they currently live. This requires the planning of housing for seniors with service provision in mind. Congregate housing which provides services within the housing is one scenario; locating housing for seniors adjacent to or nearby the services they need is another (City of North Vancouver, 1994). Between these two approaches is the potential to bring services into the amenity spaces of a seniors building.

4.3.1. Services Within Housing

One housing alternative in response to the above issues of service provision is the idea of 'congregate housing' schemes which were also analyzed in chapter 2.5. Congregate housing is a residential setting that is non-institutional, but adapted to meet the special needs of seniors through good design of the buildings and the provision of some support services within the housing. It offers relatively healthy seniors residential accommodations to assist them in maintaining or returning to an independent or semi-independent lifestyle and prevent unnecessary institutionalization as they age. This type of housing is sometimes very difficult to define because the degree of service provision within housing differs depending on a project. Congregate housing was one option looked at in the case study as an intermediate housing approach.
4.3.2. Housing Adjacent to Services

Locating housing adjacent to services, which means using more community resources, is one of the progressive solutions for future housing developments. In contrast to the costly private housing developments with full-service provision in Kitakyushu City (e.g., 'Yuyu Ichiban-kan,' in figure 1), locating the housing projects close to services (e.g., a hospital, a long-term care facility, and a community centre) can reduce the size of the developments as well as the development costs. In addition, as Wilson stated, responsibility for dealing with both housing and service needs belongs properly at the community level, where needs can be most clearly assessed and resources most easily coordinated (Wilson, 1991). In other words, this model can make projects affordable to low- to middle-income groups of seniors with efficient and appropriate service delivery. In the case study, the models were chosen according to such criteria as good uses of community resources.

4.4 HOUSING CRITERIA OF THE PROJECTS

Besides the above key housing elements such as the means of service delivery, there was another important housing criteria for choosing the case study’s projects in Greater Vancouver. The housing criteria which also applied to all the models was the following:

- **New developments.** All three projects are relatively new developments in the region (developed in the late 1980s to early 1990s), as a response to the current distinctive needs and directions for housing for seniors;

- **Small-scale developments.** The building scales containing up to 46 units were chosen, to fit the objective of avoiding an ‘institutional’ approach;
Chapter 4. Greater Vancouver Case Study

- Location. Good location relates to accessibility and convenience, so sites close to transportation routes, shops, amenities, social and medical services were chosen;

In the 1990s the lack of federal and provincial governments' funding programs have made the objective of providing affordable supportive housing for seniors in British Columbia very challenging. One planner explained that senior governments no longer give priority to providing more housing for seniors, which is compensated by rent subsidy programs. Therefore, new methods of financing and developing such housing with the cooperation and collaboration of various housing players appear to hold the greatest potential (City of North Vancouver, 1994). Thus, the financial criteria for choosing the case study's projects was:

- Innovative ways of financing. Each housing project should be unique in the way it is financed, and promote new methods of development cost reduction;

- Development partnerships. Projects which involved more than two housing players were selected for the above reasons.

4.5 Overview of the Housing Projects

For the case study, three different housing projects for seniors (Abbeyfield Houses, Queens Park Place, and Ambleview Seniors Housing Co-op) in Greater Vancouver were chosen for the analysis, with the above housing criteria in mind. The overview of the three housing projects was summarized in table 13 in appendix D.
4.5.1. Abbeyfield Houses

Abbeyfield Houses (Marpole, Vancouver, opened in September 1993) was chosen as a new direction of congregate housing for seniors which was operated by a non-profit society. Under the Abbeyfield housing guideline established in London, England in 1956, there are currently more than 1,000 Abbeyfield-type homes throughout the world. The primary purpose is to provide a small family-style home for seniors who no longer want to live alone, but who want to remain as independent as possible. Thus, they offer a friendly, supportive atmosphere with a balance between privacy and companionship, security and independence.

The purpose-built house, Coach House, containing nine bedrooms, was built in the backyard of the same lot as the Heritage House (nine bed-sitting rooms) to make the project economically viable. The mandatory feature of the congregate housing is its meal provision. In Abbeyfield houses, two hot meals per day are served in a communal dining room, seven days a week. A city planner\textsuperscript{13} mentioned that its “a good use of human capital” was another significant factor related to its success. The houses are operated by volunteers (the Abbeyfield Houses of Vancouver Society), thus the project saved the developer profit, and some overhead, real estate fees as well as the administration and operation costs.

4.5.2. Queens Park Place

Innovative service provision is the primary characteristic of Queens Park Place (New Westminster, opened in March 1994). This 46-unit low-rise condominium project was developed by VanCity Enterprises (VCE) in partnership with the Pacific Health Care Society

\textsuperscript{13} Interview with John Jossep, Planner, Housing and Properties Department, City of Vancouver, BC.
Chapter 4. Greater Vancouver Case Study

(Queens Park Care Facility). The development site is attached to the Care Facility, a long-term care and rehabilitation facility. Thus, the residents can take advantage of living in close physical proximity to the hospital with full benefit of its health-related and food services. The services are provided on as-needed, fee-for-service basis. The system offers flexibility by responding to the changing needs of the residents over time, and does not require a large concentration of seniors with costly over-service provision. In addition, the units were made affordable (sales prices from $96,000 to $120,000 in 1994; with 25% down, the mortgage payment is about $650 per month) because: 1) the site was rezoned ‘institutional’ which allowed only smaller unit sizes; 2) VCE successfully had the soils of the site which was once a former worksyard mediated; and 3) VCE as a socially responsible development company did not charge for the extra value of independent living, or for the close proximity to the hospital.

4.5.3. Ambleview Housing Co-op

Ambleview Seniors Housing Co-op (West Vancouver, opened in January 1988) is unique in the financial mechanism of its development. It is a 42-unit low-rise apartment building located two blocks from a major West Vancouver shopping street. Amenities include common lounge areas and a common meeting-room with a kitchen. The housing design and service is not particularly distinctive. Its financing arrangements set Ambleview Housing uniquely apart from other non-subsidized seniors co-operatives. In essence, it is an equity co-operative, built on a non-profit basis, but unlike conventional non-profit co-

---

14 The Pacific Health Care Society is the largest long-term care/geriatric rehabilitation organization in the Lower Mainland, operating Queens Park Hospital in New Westminster and Fellburn Hospital in Burnaby, BC.
operatives, there is an opportunity for capital gain comparable to normal market appreciation. As well, the 60-year pre-paid lease provides for a mandatory buy-back clause by the municipality to ensure the economic viability of the project through to termination of the lease. By avoiding the normal development route, the co-op saved the developer profit and some overhead as well as real estate fees. By working on a pre-sell basis, they were able to minimize the development risks. Overall savings were therefore in the range of 19 to 25% below market values.

4.6 PLANNING PROCESS OF THE HOUSING PROJECTS

In order to analyze the positive ingredients of the projects' success, it is important to understand who initiated the housing projects; who got involved in the process; and what happened in the process.

4.6.1. Abbeyfield Houses

The Abbeyfield Houses of Vancouver Society was formed in 1987 and registered in the province as a non-profit society following the guidelines of the British concept. The main purpose of the Society is to provide a small family-style home for seniors. The Society is often connected to churches, but there is no discrimination regarding residents' religions.

Each Abbeyfield House is unique in its way of financing, its land and house acquisition. In some cases, new houses were built on church land (in this case, they can get mortgages because of the equity of the church land); for other cases, existing structures were converted into housing for seniors on land leased from municipalities. For the Vancouver
Society, it took years before they actually found the heritage house on sale in Marpole. In 1989 the Society proposed that the city buy the house, renovate it, and lease it back to them so that they could run it as housing for seniors. The city agreed to the idea and proposed to build a second house in the backyard in order to house more seniors and offset the cost of the land and the construction. They also favoured the idea of keeping the heritage house. Therefore, the neighbourhood concern was minimal about physical dimensions of the houses, such as over-scale building due to the additional house and shortage of parking spots.

The city hired an architect and had the houses built according to seniors' needs. The fund-raising was done by the Society to cover the costs of building an elevator and an atrium which connect the two houses. This project was made possible with extensive city support in terms of a land lease and assistance through the rezoning process, as well as with the dedication of Abbeyfield Society volunteers.

4.6.2. Queens Park Place

VanCity Enterprises (VCE) started the project as a 'concept' of seniors' independent living. VCE conducted various studies such as marketing research, a needs survey, and focus groups study to justify their intention and to prove the housing needs in New Westminster. A gerontologist was also hired who worked as a consultant for a couple of years to determine the concepts. The project partner, Pacific Health Care Society, was a sponsoring agency and "a real leader in this type of projects (Jim Hurst),"15 while VCE did all the financing.

VCE and Pacific Health Care Society approached the city for support, however, no funding was available from federal and provincial governments. The city supported the idea,

---

15 Interview with Jim Hurst, Planning Analyst, City of New Westminster, BC.
went through primary design issues, and rezoned the site. There were not many rezoning risks since the area had recently undergone densification and the neighbourhood concern was minimal. The project site had previously been used as a gas station and worksyard. Therefore, environmental concerns were a consideration in the development. The process took longer because of the land mediation. Even with the mediation costs, the project was still economically feasible. One VCE representative commented that it was “lucky enough to buy the land that cheap. Also the partnership with the Society made the project beneficial to both VCE and the middle-income seniors.”

4.6.3. Ambleview Housing Co-op

In 1986 the Municipality of West Vancouver acquired two sites for seniors housing in Ambleside area, centrally located in the heart of the Municipality. One site was for a care facility; another for low-cost, non-profit housing for seniors. In absence of government-assisted funding, there was a call for proposals. The idea of an equity co-op, which was proposed by an architecture group, appeared to have the greatest potential, so the municipality accepted the proposal.

The co-op organization was formed with 15 original members who signed up at the first meeting. During the designing and building process, which took one and a half years, weekly meetings took place. These initial co-op owners had a lot of input in the design stage, and supervised the construction. This form of tenure was deemed preferable for a variety of reasons, including the degree to which residents would have control over design, occupancy, operating costs, and management policy. Most importantly, it proved to be the most cost-

16 Interview with Rene David, Acquisitions and Development, VanCity Enterprises, Ltd.
effective alternative. The process also strengthened the relationships among the future residents. It was concluded that the most desirable alternative for lower-cost housing for seniors could be provided by a private group of individuals collaborating for the benefit of each other.

4.7 RESEARCH FINDINGS

The analysis of the research findings helped to understand the residents, their needs and preferences regarding housing and services, and the evaluations of each housing project. The assessment will be used to develop policy implications for Kitakyushu City in the following chapter. The findings were summarized for each individual project, as well as in terms of findings similar for all three projects.

4.7.1. Who are the Residents?

All three projects originally targeted seniors from 55 to 65 years old and over. However, on average they all ended up being 15 to 20 years older than the original target age requirements. As well, in all three projects, single females or widows occupy 70% to 80% of the single-occupancy units. This phenomenon can be explained as a demographic characteristic of the developed nations. Average is longevity 5 to 7 years longer for females than for males in most developed nations (U.S. Dept. of Commerce, 1987), and also a “female likes this type of congregate living arrangement more than a male (Jim Hurst).”\textsuperscript{17} The planner thus stated that “housing for seniors should address needs for women rather than

\textsuperscript{17} Interview with Jim Hurst.
Chapter 4. Greater Vancouver Case Study

needs for everybody. Men and women make different choices for housing (Jim Hurst).” The research findings clearly indicated that there are more demands for congregate housing options among women than men. In addition, the expectation and concern for security, and attention to the quality of the meal service (taste, nutrition) could be higher among female seniors.

Abbeyfield Houses tended to attract older seniors, in their late 80s and over than the other two projects. This type of project attracted a “special kind of seniors whose housing options narrowed down much more than other relatively affluent or healthy seniors living in a caring community (Nell Farmer).”18

4.7.2. Previous Dwelling?

This category exposed some interesting facts. Some people spend their entire lives in the same houses. Others move more flexibly, according to their needs and financial status at different stages of their life cycles. Obviously, the residents in the case study were the latter. For most of its residents, Abbeyfield was the next step from rental places. They may have sold their own houses at some point in their old age, and moved to smaller units before going to Abbeyfield. Many of the Queens Park Place residents had traded down from larger homes such as single-family homes or townhouses. Most of the Ambleview Co-op residents had sold their single-family homes immediately before they moved in or they have tried apartment living before the co-op. The findings highlight the fact that the life cycle leads the changes in people’s needs for housing, and that some people are flexible enough mentally or financially to explore various housing options if available.

18 Interview with Nell Farmer, board member of Abbeyfield Houses of Vancouver Society.
4.7.3. Reasons for Moving in?

The reasons causing the senior residents to decide to move into the projects was another factor examined. The answers were diverse among the projects, depending on residents’ lifestyles, financial and health status, and other reasons. The following section highlights some of the answers which were found significant as well as common among the residents.

4.7.3.1. Abbeyfield Houses. One significant reason motivating residents to move to Abbeyfield was loneliness. Loneliness, which is usually caused by a separation from a spouse, significant friends, or other family members, or isolation from a community, often results in ill health and depression among seniors (Hoglund, 1985; Hayakawa, 1993). One of the residents reported that “I went out to a mall every day, because there were always people around (Audrie Jackson).” Some residents did not want to cook for themselves anymore, but did not want to be in a big facility in which they might feel institutionalized. Affordability was also an issue since some of them are on the SAFER program. Besides the room charge, which includes shelter, regular meals, and basic utilities, the residents need only a little income to spare.

4.7.3.2. Queens Park Place. In Queens Park Place, a significant number of residents seemed to have health related reasons, either pertaining to themselves or to their spouses, for the decision to move to the place. A significant numbers of residents had a spouse in long-term

19 Information gained in an interview with Audrie Jackson, board member of Abbeyfield Houses of Vancouver Society.
20 Shelter Aid For Elderly Renters (SAFER); the program provides direct cash assistance to eligible residents of BC, age 60 and over who live in rental accommodations and pay more than 30% of their total income for rent.
care at the hospital. One resident said that “in this situation (living across from the hospital), this is the only time I can ever bring my husband home again to make him lunch and have private time.” Of course, the convenience of being located close to the hospital and amenities such as the Canada Games Pool, parks, and a shopping mall was also a major reason for the choice.

4.7.3.3. Ambleview Housing Co-op. Ambleview Co-op was particularly attractive to seniors who owned homes but had limited incomes. One resident described his situation: “My wife and I sold a house and moved to an apartment in West Vancouver. After living two to three years in the first apartment, the rent went up so high, so we moved to another apartment, and the same thing started there. I thought, this is ridiculous, I do not want something that my rent goes up every year, my pension stays the same. Then, my cousin, who was the first chairperson in the co-op, said I have got the answer for you and brought me in! (Bud Anderson).” The reasons could be characterized as a combination of physical and financial reasons, because some residents found their previous houses over-sized, or too difficult to maintain. The co-op promotes local residents, which is beneficial for those who want to remain in their familiar neighbourhoods.

4.7.4. Advantages & Disadvantages

The reasons for residents’ housing choices were tied into the advantages of living there, in other words, the elements which they liked. On the other hand, there are always the

---

21 Information gained in an interview with Jim Hurst, who had recently bought a condominium from someone who had moved to Queens Park Place.
22 Interview with Bud Anderson, a resident of Ambleview Seniors Housing Co-op.
downsides of housing projects. Making their choices can depend on residents’ pressing needs, long-term vision, and how residents weigh the pros and cons of the projects:

4.7.4.1. Abbeyfield Houses. Companionship was counted as the top priority for Abbeyfield residents. Companionship requires the right mix of personalities within the houses, otherwise it is likely to create personal conflicts among residents. This is one criteria which board members of Abbeyfield heed when screening the applications. As well, companionship may require that the residents compromise their privacy to a certain degree. The residents could still maintain a sense of control by involvement in the decision-making process which runs the houses. They experienced freedom, unlike being in an institution, and independence, since “volunteers are only there to guide and to help the residents (Nell Farmer).” Some may, however, feel that they have lost a sense of being involved in a wider community with other age groups.

The services provided in the houses were another major attraction of the congregate housing choice. The contributions of “housemothers” (Nell Farmer) were important, because these housekeepers’ duties included: preparing meals, sleeping in the suite located in the houses, and monitoring residents’ mental and physical conditions. Eating properly and regularly becomes a big issue as people get older and do not bother cooking regularly for themselves. Having regular, nutritious meals is an important factor in maintaining health. For the residents, the great advantages of having the housekeepers also included the added safety and security for residents in the case of emergency.

The small-scale heritage house created a comfortable “home-like” atmosphere. The disadvantage, however, was the very small size (172-250ft²) of its bed-sitting rooms.
Because of the original design of the old heritage house, some bed-sitting rooms shared a bathroom. As well, getting rid off of most of one’s possessions in order to move into one small room was another difficulty encountered when choosing to live in Abbeyfield. In light of the special living arrangements which Abbeyfield offers residents, there were a lot of rooms which the residents had to compromise. One-third of the rooms were still vacant. Some people might not be able to afford moving into even such a small room. A city planner suggested that the room charges needed adjusting downwards to reflect market values (John Jossep). Seniors who appreciated the advantages of the housing could thus make an informed decision to move in.

4.7.4.2. Queens Park Place. The concept of ‘Independent Living for Seniors’ with service provision from the hospital was the greatest advantage of this housing choice. Queens Park Place was built on the premise that most seniors can live independently into the latter stages of life with the assurance that assistance is available to them on occasions when it is needed. The services were provided on an as-needed, fee-for-service basis, or as part of the Medical Services Plan of BC. Residents could receive care in their own home or at the facility. Since these services were also open to the community, in the initial sales prices VCE did not charge residents for the concept of independent living or living near the care facility. It was advantageous for some residents to live closer to their loved ones who were in long-term care at the hospital. At the time of survey, only 3 to 10 different sets of people used each service regularly. The Lifeline system was installed in only 3 units. Considering the aging process of the residents, demands for the services will increase more and more over time. Having flexible “aging in place” features is ideal for housing developments for seniors. One critical
point to be considered is that a service coordinator was contracted for the first two years by VCE. Continuing to have the service coordinator may cost residents after the initial two-year period.

Another characteristic of the residents was that many of them had traded down from larger dwellings to live in the seniors housing project. For many seniors, accessibility, convenience, safety, and security are all important issues. It was easier, physically and financially, to maintain the smaller units without large individual backyards. Also, living in a condominium building is sometimes more secure than living in a house. The project building was designed barrier-free and accessible with an elevator, wider hallways, etc. Many people, however, had to address “difficulties to adjust themselves to condominium living, especially for the first year (Tom Hardman).”

Another benefit was that recreational opportunities were also located within and nearby the building. The four-lane highway of McBride Avenue, however, separates the site from Queens Park, one of the major parks in the area, which prevented the residents' mobility and enjoyment of the amenity. The building itself, as well as the neighbourhood, was criticized for being too quiet, both day and night. That silence made some residents “feel like they were living in a morgue (Tom Hardman).” Although the site is located next to large residential developments, it is a sunken area closed off from a major street. Thus, there is little vehicle or pedestrian traffic to enliven the site, except for people coming to the hospital. The project is also far from major bus routes, major shopping areas, or entertainment.

---

23 Interview with Tom Hardman, a resident and a strata council member at Queens Park Place.
Chapter 4. Greater Vancouver Case Study

Besides minor construction defects, one major architectural defect was that the reading rooms on each floor were too small to be usable.

4.7.4.3. *Ambleview Housing Co-op.* The greatest advantage of moving into the co-op was its affordability. Extensive municipal support included: a land lease and land rezoning, help with organizing the co-op society (no development and real estate fees), and the pre-sold marketing. The units (the shares of the co-op) were sold 19% to 25% below the market values. As well, this unique equity co-op offered an opportunity for capital gain comparable to normal market appreciation. Unlike other market housing, there was no risk or worry about selling their unit shares, residents could simply sell them to the co-op society. This form of housing is seen to be a housing solution for many senior homeowners. One disadvantage, the flip side of the same coin, can be that they do not profit as fully from rises in equity as they would in a condominium. The profits can be different, depending on appraised values,\(^24\) which likely creates conflicts among the residents. The ownership is not as flexible as strata title for the individual either.

In terms of the building design, a city planner regretted “not having provided more ‘aging in place’ concepts such as an ability to change the common dining facilities (for future communal meals) from the beginning (Richard Wagner).”\(^25\) At the time of designing the building, the members were very concerned with keeping the budget as low as possible, and they were also relatively young seniors. The whole building is graying, however, and such physical and architectural changes cannot be easily done.

\(^{24}\) After occupancy, units are professionally assessed each year. Member shares are redeemed by the co-op according to the established formula (original cost / original assessment × new assessment).

\(^{25}\) Interview with Richard Wagner, Social Planner, District of West Vancouver, BC.
The residents expressed a very high sense of belonging to the place and high satisfaction with the overall project (Lorna Lyons).\textsuperscript{26} Such positive attitudes were created by the residents' full involvement in the planning process of both design and construction of the building. Unlike the other subsidized housing projects, the members favoured the capacity to control who lives in the building and to maintain their own self-run community. As a concept of co-operative living (helping each other in the building), the project started with many committees such as maintenance, decorating, finance, gardening, and entertainment. However, as everybody in the building aged, they grew tired of the tasks. By contracting out most of the maintenance work to a management company, they lost a significant portion of the co-op living concept.

Location was a critical factor in the project's success. The residents enjoyed the site located close to Ambleside shopping area, a major transportation route, and other amenities such as the seawall, ocean, and parks. The concept of co-operative living is still unfamiliar for a majority of people. Therefore, it may be difficult to market co-op housing if location and terms of membership are unfavourable. Even after the occupation of the building, more co-op education is needed to encourage the residents to participate fully and to run the housing efficiently and effectively.

4.7.4.4. Local Community. The local communities also gained some benefit from the projects. The Abbeyfield project proved an excellent example of keeping heritage character in the neighbourhood, by conserving an old structure and converting it a modern, functional use. Smaller-scale developments fit better in existing single-family neighbourhoods, while

\textsuperscript{26} Interview with Lorna Lyons, Bob Burgess Domain Consulting, Ltd., who was doing research on co-op housing.
Chapter 4. Greater Vancouver Case Study

the Ambleview co-op project created a transitional area from single-family residential to high-density residential. The Queens Park Place project brought a neighbourhood feel to the newly developed area. All three of the distinctive housing projects stimulated social awareness of ‘aging.’

This chapter has detailed the overview and the planning process of three housing alternatives for seniors in Greater Vancouver. The extensive analysis and evaluation of the housing projects were also the main objectives of the chapter. The projects were all unique and innovative, and each in its own way responded to the pressing demands of seniors. Also, the benefits from the housing projects were enormous to public authorities, residents themselves, and also the local communities. The housing projects studied in Greater Vancouver suggested many possibilities for future housing developments for seniors in Kitakyushu City. The policy implications to Kitakyushu City based on the knowledge which was gained from the analysis are explored in the following chapter, in order to improve the current housing situation, as well as to open up more housing options for the city’s seniors.
5.1 Developing Policy Implications for Kitakyushu City

Based on the knowledge which was gained from the research analysis of alternative housing in Greater Vancouver, the final chapter has developed policy implications for the planning of affordable supportive (congregate) housing for seniors in Kitakyushu City. In order to overcome the disadvantages and difficulties of the housing projects cited in the previous chapter, responsive planning actions are required. In addition, considering the current government policy and constraints on Kitakyushu City, some modifications of the projects are necessary to make them suitable and applicable for the city.

5.2 General Housing Policy of Kitakyushu City

In spite of the new and growing demands for congregate housing for seniors, current government policy in Kitakyushu City is focused on 'community care'—essentially, supporting seniors in their own dwellings by encouraging them to have their houses adapted, and by providing a limited set of social programs. Even though Kitakyushu City recognized the demands of such supportive facilities especially for senior renters,\(^{26}\) housing supply of

---

\(^{26}\) Interview with Hiroko Imamura and Masahiro Shono, Public Health and Welfare Bureau, City of Kitakyushu.
Chapter 5. Conclusion

this category is still not significant (refer to figure 1). There are many financial constraints creating difficulties. By considering both the growth of seniors’ needs for support services, and the growing social costs of responding to the aging issue, community care is one of the appropriate solutions for the long-term planning, and preparation for the coming aged society.

Before reaching the point of renovating every home to include barrier-free ‘age in place’ features and ensuring that every community has all the necessary social and medical services available, however, it is critical to fill the gaps in current unbalanced housing supply. A top priority is providing more options for seniors who have different lifestyles, financial and health status, and planning must respond to their diverse housing needs.

5.2.1. Policy Implications

Providing a sufficient number of options for choices is a key aspect of planning. Within the national framework, two housing categories, ‘Senior Jutaku’ [senior housing] and ‘Itawari Jutaku’ [silver housing] (refer to figure 1), which are currently in great demand and in short supply, need to be the top priority of planning. In order to achieve the critical goal, various housing models, service provision arrangements, and methods of cost reduction need to be explored.

What usually poses problems for housing developments is the city’s financial constraints and availability of land. Land acquisition (actual sites or alternative sites for swapping) in desirable locations can be the most difficult task, but is the first step of developments. Good initiatives by municipalities were presented in the research analysis for both the Abbeyfield and Ambleview projects. In addition, in order to compensate the lack of
national government funding, Kitakyushu City also needs to initiate and support this type of project by rezoning sites, and easing of regulations.

Smaller-scale developments (20-50 units) are recommended. Large-scale developments (200-300 units) were the most economically viable solution to offset the independent-service costs, but only on the outskirts of cities, because they required large tracts of land. Smaller pieces of land for smaller-scale developments are much easier to obtain in convenient locations near services and amenities. Also, having a number of smaller housing projects in different communities can allow local seniors to remain in their familiar neighbourhoods. Low-rise buildings are recommended to enhance seniors' mobility.

The housing developments for seniors should be considered at the wider community level. The city has a role in attracting suitable nearby development, and providing barrier-free walkways, benches and lights, railings along stairs, and casual meeting places for surrounding areas.

More sense of community within and around housing projects can be achieved by citizen participation in planning processes. This is the element which is essentially lacking in Japanese planning; participation creates a sense of belonging and strengthens social ties. Also, planners need to approach seniors proactively. Finding out seniors’ needs helps planners to design more suitable housing; Educating seniors on how to invest money helps seniors to reduce the repetitive costs on their housing renovations.
Chapter 5. Conclusion

5.3 Service Provision for Housing

Housing projects for seniors should not be developed without service provision. Within the national framework, the supportive housing category of ‘Yuryo Rojin Home’ [private congregate housing for seniors] (figure 1) offers excellent independent services for senior residents. The privately developed projects, however, currently serve only affluent seniors. Therefore, the projects have difficulties in filling up the buildings (the current vacancy rates are as high as 20% to 30% for both buildings) (City of Kitakyushu, 1992). The building complex with full-service provision has not proved to be economically viable for all parties.

One possibility to overcome costly developments but to provide adequate services was suggested in the research analysis. Queens Park Place shows an ideal solution, with its as-needed, fee-for-service basis projects. The basic service provision of Abbeyfield is also worthy of consideration.

Inadequate knowledge of available housing options and services in a community sometimes leads seniors to make wrong decisions, which likely cause unnecessary moving or institutionalization (Val MacDonald). Establishing an accessible network of information for seniors is counted as one of the services.

5.3.1. Policy Implications

The research analysis presented alternative means of service provision to avoid costly full-service provision. Both means, basic service provision within housing (such as a

---

27 Interview with Val MacDonald, Seniors’ Housing Information Program, Burnaby, BC.
congregate housing option) and housing adjacent to services, are worth considering for Kitakyushu City.

The partnership with care facilities (hospitals and nursing homes) is highly recommended in order to utilize existing services to housing projects. Creating a strong tie with those facilities is mandatory. More dialogue is needed between the Health and Welfare Bureau and the Housing (Planning) Bureau of the City of Kitakyushu, in order to reduce the duplication of services and to plan and operate this type of project efficiently and effectively. Research on areas adjacent or near existing care facilities in the city, in order to investigate land availability (or potential), is required to justify this alternative.

The continuity of service provision is necessary, as well as potential adaptation and addition of services responding to the changing demands of seniors. For example;

- when designing a building, plan for the long-term and include ‘aging in place’ features (e.g., designing a common lounge big enough for future conversion and use as a communal dining room);

- plan with long-term cost-benefit analysis in mind (e.g., for some services, such as a service coordinator at Queens Park Place, cutting the services after the trial period affects the project negatively);

- upgrade the existing information centre (or system) for seniors, making it more accessible by providing information counters in various places, and by providing more staff training.

5.4 Development Partnerships

It is no longer efficient to develop housing for seniors by utilizing only one housing player. Considering all the ingredients required for supportive (congregate) housing for
seniors, as summarized in the research analysis, cooperation and collaboration of various key housing players brings success to the housing projects while reducing the development costs.

The concept of development partnerships has been used in Japan, however, only in large-scale developments; otherwise, there are no distinctive examples of this kind. Currently, there is no existing case of housing for seniors developed by partnerships in Kitakyushu City.

5.4.1. Policy Implications

With some modification, all three housing projects surveyed in the research present the great potential in the field. The legal constraints seem not to be a big issue in Kitakyushu City. Therefore, various housing players are encouraged to participate, cooperate, and collaborate for housing developments for seniors. The potential options include partnerships amongst two or more parties of the following: the city; care facilities; developers; social welfare corporations; community resources; or voluntary sectors.

5.5 Community Resources and Non-Profit Societies

In order to reduce the development costs, using community resources and the human capital of volunteers is important. As noted in the research, the projects could in this way save a lot of costs such as development fees, and the administration and operation costs. It is also advantageous when responsibility for dealing with both housing and service needs belongs properly at the community level, where needs can be most clearly assessed and resources most easily coordinated.
Chapter 5. Conclusion

Two housing models in the research were operated by non-profit societies, a fact which proposes the future avenue of affordable housing developments for both renters and homeowners. Currently, no such society as Abbeyfield operates housing projects in Kitakyushu City. The co-op housing concept is totally foreign to the city as well. The Japanese mentality which considers owning land as a permanent asset likely blocks acceptance of the original co-op concepts of not owning any shares (Keiichi Yamaga). The equity co-op is a new possibility for meeting such demands as the holding of shares. It is particularly attractive to seniors who are homeowners with limited incomes.

5.5.1. Policy Implications

Using resources within a local community is a key aspect of planning. The resources include human capital, and variety of available or potential services. Establishing a social network system helps to provide services efficiently and effectively. The housing projects run by the voluntary sector introduce new directions of affordable housing for senior renters. A proper legal registry system is required to screen their activities and the means of financing in order to protect residents as well as community members. If the land is leased from the city, city staff should be involved in administration and coordination. Appropriate intervention and assessment by the city may be needed to ensure that their charges reflect lower than market values, or to ensure maintenance of the standard of care and services within the house. In order to encourage people to participate in voluntary work, it is important to make tasks less demanding and time-consuming. Thus, there is a need to recruit a sufficient number of volunteers (especially young people) to operate projects. It is good to

---

28 Interview with Keiichi Yamaga, Chief, Senior Citizens Welfare Section, City of Kitakyushu.
provide a variety of services based on volunteers' interests and abilities (e.g., accounting, transportation, housekeeping, meals).

Among co-op projects the equity co-op may be the most applicable option for Japanese homeowners. First of all, appropriate co-op education for potential members as well as the neighbouring community is required. It is beneficial to start with having city planners fully understand the concept and financial mechanisms. Some modifications are required, for example, adjusting to local regulations and the local characteristics and demands of potential residents, in terms of systems of operation and shares.

Both non-profit housing and equity co-op ideas can be applicable not only for housing developments for seniors, but also for housing for persons with disabilities, or low-income families.

5.6 Conclusion

Theorists have pointed out that in many rapidly aging developed countries such as the United States, England, and Sweden, public policy on aging has usually evolved according to the 'rates of societal aging' (Ito and Sonoda, 1994). The latter term, expressed as a percentage, refers to the number of seniors, aged 65 years and older, in the total population. In 1993 Japan's rate of societal aging was 13% (It was also 13% in Kitakyushu City in 1990). As projected in chapter 3, however, the rate will increase up to 25% by the year 2010 in Kitakyushu City. The speed of its population aging is significant when compared with that of other developed countries.
Chapter 5. Conclusion

Because of the rather gradual aging speeds in other developed countries, policy responses on aging could be made in a step-by-step manner, following their needs according to each stage of the aging rates. However, despite the fact that intermediate housing and facilities are still in short supply but in great demand in Kitakyushu City, current government policy is moving directly towards the response of the latest stage of the aging rates, ‘community-care.’ Kitakyushu City’s current (housing policy) initiatives to promote seniors’ independent living are mainly accomplished through provision of seniors units including extended-family units in public housing complexes; and special loan and mortgage programs to encourage familial intergenerational living arrangements or to make some adaptations to enable seniors to remain in their own dwellings. The policy short cut, however, is often driven by the economic goal of the government to minimize funding to seniors, and will likely cause negative impacts on their housing situation and living environments. So far only 30 units have been provided as ‘Itawari Jutaku’ [silver housing] (figure 1) to fill two housing categories for low- to middle-income seniors by the city. Therefore, the sufficient provision of such intermediate housing for seniors is still required as a policy response to the current stage of the aging rates.

In addition to differences in lifestyle and physical health, seniors possess diverse backgrounds, interests, and aspirations, and can vary in age by thirty years or more. Seniors’ housing needs and desires are just as diverse, and the city’s pressing need for an innovative response to such housing issues for seniors is further complicated by the fact that no single housing model will provide a simple and final solution. Congregate housing such as silver housing is one responsive intermediate housing option which keeps seniors in the community
and out of institutions. Although the congregate housing model poses many advantages, it is likely that Kitakyushu City will need to respond with a housing policy which provides a mixture of approaches in order to meet seniors' diverse needs as well as to overcome the city's financial constraints.

The city's roles in planning such intermediate housing projects include to encourage and support various funding and programs, alternative means of service provision, or the involvement of other housing players, both public and private, necessary for development of a new initiative. The city should extend its role in supporting initiatives which are based on partnerships and innovative use of resources such as human capital, and available and potential services to develop future seniors housing. For senior residents, there is also a role for the city in providing them sufficient and accessible information of available housing options and financial and care services in a community, to allow them to age-in-place. In addition, the city has a role in promoting seniors' involvement in planning processes in order to reflect their housing and service demands adequately to housing projects. Another policy implication would be to explore transferring the Greater Vancouver housing models to the Japanese context while taking careful consideration of cultural and lifestyle differences.

The policy implications for Kitakyushu City emerged in this final chapter reflect the city's various roles and support future housing projects for seniors in the city. Based on the experiences in Greater Vancouver about housing alternatives and public/private initiatives, such exposure may help not only to inform the understanding of the type of housing, but also enrich future proposals and plans for Kitakyushu City.


Bibliography


Appendix A

**TABLE 1** Baseline Population of Kitakyushu in 1990

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0~4</td>
<td>26,255</td>
<td>24,968</td>
</tr>
<tr>
<td>5~9</td>
<td>31,220</td>
<td>29,694</td>
</tr>
<tr>
<td>10~14</td>
<td>36,198</td>
<td>34,463</td>
</tr>
<tr>
<td>15~19</td>
<td>42,173</td>
<td>40,611</td>
</tr>
<tr>
<td>20~24</td>
<td>31,496</td>
<td>34,427</td>
</tr>
<tr>
<td>25~29</td>
<td>27,767</td>
<td>32,135</td>
</tr>
<tr>
<td>30~34</td>
<td>30,128</td>
<td>31,412</td>
</tr>
<tr>
<td>35~39</td>
<td>36,256</td>
<td>38,153</td>
</tr>
<tr>
<td>40~44</td>
<td>42,750</td>
<td>46,475</td>
</tr>
<tr>
<td>45~49</td>
<td>36,252</td>
<td>39,727</td>
</tr>
<tr>
<td>50~54</td>
<td>32,402</td>
<td>37,056</td>
</tr>
<tr>
<td>55~59</td>
<td>32,330</td>
<td>37,483</td>
</tr>
<tr>
<td>60~64</td>
<td>28,561</td>
<td>31,922</td>
</tr>
<tr>
<td>65~69</td>
<td>19,571</td>
<td>26,675</td>
</tr>
<tr>
<td>70~74</td>
<td>13,482</td>
<td>19,648</td>
</tr>
<tr>
<td>75~79</td>
<td>10,489</td>
<td>15,712</td>
</tr>
<tr>
<td>80~84</td>
<td>5587</td>
<td>9820</td>
</tr>
<tr>
<td>85+</td>
<td>2848</td>
<td>6587</td>
</tr>
<tr>
<td>Total</td>
<td>485,765</td>
<td>536,968</td>
</tr>
</tbody>
</table>


**TABLE 2** National Survival Rates of Japan in 1990

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0~4</td>
<td>0.9932</td>
<td>0.99449</td>
</tr>
<tr>
<td>5~9</td>
<td>0.99804</td>
<td>0.99853</td>
</tr>
<tr>
<td>10~14</td>
<td>0.99904</td>
<td>0.99937</td>
</tr>
<tr>
<td>15~19</td>
<td>0.99805</td>
<td>0.99816</td>
</tr>
<tr>
<td>20~24</td>
<td>0.9961</td>
<td>0.99854</td>
</tr>
<tr>
<td>25~29</td>
<td>0.99627</td>
<td>0.99819</td>
</tr>
<tr>
<td>30~34</td>
<td>0.99592</td>
<td>0.99767</td>
</tr>
<tr>
<td>35~39</td>
<td>0.99454</td>
<td>0.99682</td>
</tr>
<tr>
<td>40~44</td>
<td>0.99123</td>
<td>0.99521</td>
</tr>
<tr>
<td>45~49</td>
<td>0.98599</td>
<td>0.99276</td>
</tr>
<tr>
<td>50~54</td>
<td>0.97645</td>
<td>0.9888</td>
</tr>
<tr>
<td>55~59</td>
<td>0.96366</td>
<td>0.98376</td>
</tr>
<tr>
<td>60~64</td>
<td>0.94786</td>
<td>0.9751</td>
</tr>
<tr>
<td>65~69</td>
<td>0.92024</td>
<td>0.95998</td>
</tr>
<tr>
<td>70~74</td>
<td>0.87196</td>
<td>0.93066</td>
</tr>
<tr>
<td>75~79</td>
<td>0.78672</td>
<td>0.87435</td>
</tr>
<tr>
<td>80~84</td>
<td>0.66414</td>
<td>0.77335</td>
</tr>
<tr>
<td>85+</td>
<td>0.42099</td>
<td>0.49121</td>
</tr>
</tbody>
</table>

Source: Census 1990

**TABLE 3** Birth Rates by Mothers’ Age in Kitakyushu (actual: 1990 / projected: 1995-2005)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15~19</td>
<td>0.02668</td>
<td>0.02499</td>
<td>0.0231</td>
<td>0.02275</td>
</tr>
<tr>
<td>20~24</td>
<td>0.26742</td>
<td>0.21926</td>
<td>0.18609</td>
<td>0.18341</td>
</tr>
<tr>
<td>25~29</td>
<td>0.79606</td>
<td>0.62654</td>
<td>0.55429</td>
<td>0.54284</td>
</tr>
<tr>
<td>30~34</td>
<td>0.42254</td>
<td>0.46844</td>
<td>0.51821</td>
<td>0.56026</td>
</tr>
<tr>
<td>35~39</td>
<td>0.10421</td>
<td>0.13677</td>
<td>0.18182</td>
<td>0.24308</td>
</tr>
<tr>
<td>40~44</td>
<td>0.01622</td>
<td>0.0173</td>
<td>0.02771</td>
<td>0.04877</td>
</tr>
<tr>
<td>45~49</td>
<td>0.00064</td>
<td>0.00153</td>
<td>0.00366</td>
<td>0.00768</td>
</tr>
</tbody>
</table>

Source: Statistics Information Division, Ministry of Health & Welfare

**TABLE 4** Proportion of Male/female Births

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>0.522</td>
<td>0.478</td>
</tr>
<tr>
<td>1987</td>
<td>0.513</td>
<td>0.487</td>
</tr>
<tr>
<td>1988</td>
<td>0.519</td>
<td>0.481</td>
</tr>
<tr>
<td>1989</td>
<td>0.507</td>
<td>0.493</td>
</tr>
<tr>
<td>1990</td>
<td>0.517</td>
<td>0.483</td>
</tr>
<tr>
<td>Average</td>
<td>0.515</td>
<td>0.485</td>
</tr>
</tbody>
</table>

Source: Statistics Bureau, City of Kitakyushu
### Appendix A. Tables for Population Projection

#### TABLE 5.1 Cohort Survival Model, Baseline Population in 1990

<table>
<thead>
<tr>
<th>Age</th>
<th>Cohort Numbers</th>
<th>Survival Rates</th>
<th>Birth Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>0 ~ 4</td>
<td>M1</td>
<td>F1</td>
<td>MS1</td>
</tr>
<tr>
<td>5 ~ 9</td>
<td>M2</td>
<td>F2</td>
<td>MS2</td>
</tr>
<tr>
<td>10 ~ 14</td>
<td>M3</td>
<td>F3</td>
<td>MS3</td>
</tr>
<tr>
<td>15 ~ 19</td>
<td>M4</td>
<td>F4</td>
<td>MS4</td>
</tr>
<tr>
<td>20 ~ 24</td>
<td>M5</td>
<td>F5</td>
<td>MS5</td>
</tr>
<tr>
<td>25 ~ 29</td>
<td>M6</td>
<td>F6</td>
<td>MS6</td>
</tr>
<tr>
<td>30 ~ 34</td>
<td>M7</td>
<td>F7</td>
<td>MS7</td>
</tr>
<tr>
<td>35 ~ 39</td>
<td>M8</td>
<td>F8</td>
<td>MS8</td>
</tr>
<tr>
<td>40 ~ 44</td>
<td>M9</td>
<td>F9</td>
<td>MS9</td>
</tr>
<tr>
<td>45 ~ 49</td>
<td>M10</td>
<td>F10</td>
<td>MS10</td>
</tr>
<tr>
<td>50 ~ 54</td>
<td>M11</td>
<td>F11</td>
<td>MS11</td>
</tr>
<tr>
<td>55 ~ 59</td>
<td>M12</td>
<td>F12</td>
<td>MS12</td>
</tr>
<tr>
<td>60 ~ 64</td>
<td>M13</td>
<td>F13</td>
<td>MS13</td>
</tr>
<tr>
<td>65 ~ 69</td>
<td>M14</td>
<td>F14</td>
<td>MS14</td>
</tr>
<tr>
<td>70 ~ 74</td>
<td>M15</td>
<td>F15</td>
<td>MS15</td>
</tr>
<tr>
<td>75 ~ 79</td>
<td>M16</td>
<td>F16</td>
<td>MS16</td>
</tr>
<tr>
<td>80 ~ 84</td>
<td>M17</td>
<td>F17</td>
<td>MS17</td>
</tr>
<tr>
<td>85 +</td>
<td>M18</td>
<td>F18</td>
<td>MS18</td>
</tr>
</tbody>
</table>

Proportion of male birth = 0.515

#### TABLE 5.2 Cohort Survival Model, Projected Population in 1995

<table>
<thead>
<tr>
<th>Age</th>
<th>Cohort Numbers</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ~ 4</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 ~ 9</td>
<td>M1 x MS1</td>
<td></td>
<td>F1 x FS1</td>
</tr>
<tr>
<td>10 ~ 14</td>
<td>M2 x MS2</td>
<td></td>
<td>F2 x FS2</td>
</tr>
<tr>
<td>15 ~ 19</td>
<td>M3 x MS3</td>
<td></td>
<td>F3 x FS3</td>
</tr>
<tr>
<td>20 ~ 24</td>
<td>M4 x MS4</td>
<td></td>
<td>F4 x FS4</td>
</tr>
<tr>
<td>25 ~ 29</td>
<td>M5 x MS5</td>
<td></td>
<td>F5 x FS5</td>
</tr>
<tr>
<td>30 ~ 34</td>
<td>M6 x MS6</td>
<td></td>
<td>F6 x FS6</td>
</tr>
<tr>
<td>35 ~ 39</td>
<td>M7 x MS7</td>
<td></td>
<td>F7 x FS7</td>
</tr>
<tr>
<td>40 ~ 44</td>
<td>M8 x MS8</td>
<td></td>
<td>F8 x FS8</td>
</tr>
<tr>
<td>45 ~ 49</td>
<td>M9 x MS9</td>
<td></td>
<td>F9 x FS9</td>
</tr>
<tr>
<td>50 ~ 54</td>
<td>M10 x MS10</td>
<td></td>
<td>F10 x FS10</td>
</tr>
<tr>
<td>55 ~ 59</td>
<td>M11 x MS11</td>
<td></td>
<td>F11 x FS11</td>
</tr>
<tr>
<td>60 ~ 64</td>
<td>M12 x MS12</td>
<td></td>
<td>F12 x FS12</td>
</tr>
<tr>
<td>65 ~ 69</td>
<td>M13 x MS13</td>
<td></td>
<td>F13 x FS13</td>
</tr>
<tr>
<td>70 ~ 74</td>
<td>M14 x MS14</td>
<td></td>
<td>F14 x FS14</td>
</tr>
<tr>
<td>75 ~ 79</td>
<td>M15 x MS15</td>
<td></td>
<td>F15 x FS15</td>
</tr>
<tr>
<td>80 ~ 84</td>
<td>M16 x MS16</td>
<td></td>
<td>F16 x FS16</td>
</tr>
<tr>
<td>85 +</td>
<td>M17 x MS17 + M18 x MS18</td>
<td>F17 x FS17 + F18 x FS18</td>
<td></td>
</tr>
</tbody>
</table>

* (F4xBR4 + F5xBR5 + F6xBR6 + F7xBR7 + F8xBR8 + F9xBR9 + F10xBR10) x 0.515

** (F4xBR4 + F5xBR5 + F6xBR6 + F7xBR7 + F8xBR8 + F9xBR9 + F10xBR10) x 0.485
### TABLE 6 Projected Population by Age and Sex (1995-2010), by Cohort Survival Model

<table>
<thead>
<tr>
<th>Age</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>0-4</td>
<td>27,648</td>
<td>26,038</td>
<td>26,434</td>
<td>24,894</td>
</tr>
<tr>
<td>5-9</td>
<td>26,076</td>
<td>24,830</td>
<td>27,193</td>
<td>26,161</td>
</tr>
<tr>
<td>10-14</td>
<td>31,159</td>
<td>29,650</td>
<td>26,025</td>
<td>24,794</td>
</tr>
<tr>
<td>15-19</td>
<td>36,163</td>
<td>34,441</td>
<td>31,129</td>
<td>29,632</td>
</tr>
<tr>
<td>20-24</td>
<td>42,091</td>
<td>40,536</td>
<td>36,093</td>
<td>34,378</td>
</tr>
<tr>
<td>25-29</td>
<td>31,373</td>
<td>34,377</td>
<td>41,927</td>
<td>40,477</td>
</tr>
<tr>
<td>30-34</td>
<td>27,663</td>
<td>32,077</td>
<td>31,256</td>
<td>34,315</td>
</tr>
<tr>
<td>35-39</td>
<td>30,005</td>
<td>31,339</td>
<td>27,551</td>
<td>32,002</td>
</tr>
<tr>
<td>40-44</td>
<td>36,058</td>
<td>38,032</td>
<td>29,841</td>
<td>31,239</td>
</tr>
<tr>
<td>45-49</td>
<td>42,375</td>
<td>46,252</td>
<td>35,742</td>
<td>37,850</td>
</tr>
<tr>
<td>50-54</td>
<td>35,744</td>
<td>39,439</td>
<td>41,781</td>
<td>45,918</td>
</tr>
<tr>
<td>55-59</td>
<td>31,639</td>
<td>36,641</td>
<td>34,902</td>
<td>38,998</td>
</tr>
<tr>
<td>60-64</td>
<td>31,155</td>
<td>36,874</td>
<td>30,489</td>
<td>36,046</td>
</tr>
<tr>
<td>70-74</td>
<td>18,010</td>
<td>25,607</td>
<td>24,913</td>
<td>29,881</td>
</tr>
<tr>
<td>75-79</td>
<td>11,756</td>
<td>18,286</td>
<td>15,704</td>
<td>23,832</td>
</tr>
<tr>
<td>80-84</td>
<td>8,252</td>
<td>13,738</td>
<td>9,248</td>
<td>15,988</td>
</tr>
<tr>
<td>85+</td>
<td>4,910</td>
<td>10,830</td>
<td>7,547</td>
<td>15,944</td>
</tr>
<tr>
<td>Total</td>
<td>499,149</td>
<td>550,115</td>
<td>507,307</td>
<td>558,303</td>
</tr>
</tbody>
</table>

### TABLE 7 Projected Population by Age (1995-2010), by Cohort Survival Model

<table>
<thead>
<tr>
<th>Age</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>0-4</td>
<td>53,686</td>
<td>51,328</td>
<td>54,123</td>
<td>57,376</td>
</tr>
<tr>
<td>10-14</td>
<td>60,809</td>
<td>50,819</td>
<td>53,263</td>
<td>50,923</td>
</tr>
<tr>
<td>15-19</td>
<td>70,605</td>
<td>60,761</td>
<td>50,779</td>
<td>53,220</td>
</tr>
<tr>
<td>20-24</td>
<td>82,627</td>
<td>70,471</td>
<td>60,645</td>
<td>50,682</td>
</tr>
<tr>
<td>25-29</td>
<td>65,750</td>
<td>82,404</td>
<td>70,280</td>
<td>60,481</td>
</tr>
<tr>
<td>30-34</td>
<td>59,740</td>
<td>65,571</td>
<td>82,174</td>
<td>70,083</td>
</tr>
<tr>
<td>35-39</td>
<td>61,344</td>
<td>59,553</td>
<td>65,363</td>
<td>81,909</td>
</tr>
<tr>
<td>40-44</td>
<td>74,090</td>
<td>61,080</td>
<td>59,300</td>
<td>65,084</td>
</tr>
<tr>
<td>45-49</td>
<td>88,627</td>
<td>73,591</td>
<td>60,669</td>
<td>58,907</td>
</tr>
<tr>
<td>50-54</td>
<td>75,183</td>
<td>87,699</td>
<td>72,817</td>
<td>60,030</td>
</tr>
<tr>
<td>55-59</td>
<td>68,280</td>
<td>73,909</td>
<td>86,201</td>
<td>71,566</td>
</tr>
<tr>
<td>60-64</td>
<td>68,029</td>
<td>66,535</td>
<td>71,098</td>
<td>83,981</td>
</tr>
<tr>
<td>65-69</td>
<td>58,199</td>
<td>65,487</td>
<td>64,048</td>
<td>69,289</td>
</tr>
<tr>
<td>70-74</td>
<td>43,617</td>
<td>54,794</td>
<td>61,692</td>
<td>60,336</td>
</tr>
<tr>
<td>75-79</td>
<td>30,041</td>
<td>39,536</td>
<td>49,532</td>
<td>55,820</td>
</tr>
<tr>
<td>80-84</td>
<td>21,990</td>
<td>25,237</td>
<td>33,192</td>
<td>41,405</td>
</tr>
<tr>
<td>85+</td>
<td>15,739</td>
<td>23,491</td>
<td>29,516</td>
<td>38,164</td>
</tr>
<tr>
<td>Total</td>
<td>1,049,264</td>
<td>1,065,610</td>
<td>1,076,603</td>
<td>1,083,046</td>
</tr>
</tbody>
</table>
### TABLE 8.1 In- and Out-migration of Kitakyushu 1969-1970

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>3,900</td>
<td>5,465</td>
<td>-1,565</td>
<td>3,133</td>
<td>3,899</td>
<td>-766</td>
</tr>
<tr>
<td>5-9</td>
<td>2,665</td>
<td>4,070</td>
<td>-1,405</td>
<td>2,651</td>
<td>3,689</td>
<td>-1,038</td>
</tr>
<tr>
<td>10-14</td>
<td>1,865</td>
<td>2,850</td>
<td>-985</td>
<td>1,431</td>
<td>2,136</td>
<td>-705</td>
</tr>
<tr>
<td>15-19</td>
<td>7,360</td>
<td>8,150</td>
<td>-790</td>
<td>6,111</td>
<td>5,016</td>
<td>1,095</td>
</tr>
<tr>
<td>20-24</td>
<td>10,360</td>
<td>12,780</td>
<td>-2,420</td>
<td>6,040</td>
<td>7,251</td>
<td>-1,211</td>
</tr>
<tr>
<td>25-29</td>
<td>7,535</td>
<td>9,985</td>
<td>-2,450</td>
<td>6,012</td>
<td>6,599</td>
<td>-587</td>
</tr>
<tr>
<td>30-34</td>
<td>4,445</td>
<td>6,255</td>
<td>-1,810</td>
<td>4,532</td>
<td>5,581</td>
<td>-1,049</td>
</tr>
<tr>
<td>35-44</td>
<td>5,095</td>
<td>7,675</td>
<td>-2,580</td>
<td>4,000</td>
<td>5,581</td>
<td>-1,581</td>
</tr>
<tr>
<td>45-54</td>
<td>2,155</td>
<td>3,375</td>
<td>-1,220</td>
<td>2,312</td>
<td>3,265</td>
<td>-953</td>
</tr>
<tr>
<td>55-64</td>
<td>1,220</td>
<td>1,865</td>
<td>-645</td>
<td>1,021</td>
<td>1,618</td>
<td>-597</td>
</tr>
<tr>
<td>65+</td>
<td>1,160</td>
<td>1,300</td>
<td>-140</td>
<td>1,122</td>
<td>1,626</td>
<td>-504</td>
</tr>
<tr>
<td>Total</td>
<td>47,760</td>
<td>63,770</td>
<td>-16,010</td>
<td>38,365</td>
<td>46,261</td>
<td>-7,896</td>
</tr>
</tbody>
</table>

Source: *Kokusei Chousa* (Population Census of Japan)

### TABLE 8.2 In- and Out-migration of Kitakyushu, 1985-1990

<table>
<thead>
<tr>
<th>Age</th>
<th>In 1985-1990</th>
<th>Out 1985-1990</th>
<th>Difference</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>7,115</td>
<td>10,346</td>
<td>-3231</td>
<td>0.080445</td>
</tr>
<tr>
<td>5-9</td>
<td>5,523</td>
<td>8,422</td>
<td>-2899</td>
<td>0.072179</td>
</tr>
<tr>
<td>10-14</td>
<td>9,751</td>
<td>11,770</td>
<td>-2019</td>
<td>0.050269</td>
</tr>
<tr>
<td>15-19</td>
<td>15,411</td>
<td>24,142</td>
<td>-8731</td>
<td>0.217384</td>
</tr>
<tr>
<td>20-24</td>
<td>13,550</td>
<td>18,385</td>
<td>-4835</td>
<td>0.120381</td>
</tr>
<tr>
<td>25-29</td>
<td>10,684</td>
<td>14,506</td>
<td>-3822</td>
<td>0.09516</td>
</tr>
<tr>
<td>30-34</td>
<td>8,631</td>
<td>12,443</td>
<td>-3812</td>
<td>0.094911</td>
</tr>
<tr>
<td>35-39</td>
<td>7,062</td>
<td>10,526</td>
<td>-3464</td>
<td>0.086246</td>
</tr>
<tr>
<td>40-44</td>
<td>3,865</td>
<td>6,175</td>
<td>-2310</td>
<td>0.057514</td>
</tr>
<tr>
<td>45-49</td>
<td>2,663</td>
<td>4,482</td>
<td>-1819</td>
<td>0.045289</td>
</tr>
<tr>
<td>50-54</td>
<td>2,205</td>
<td>3,705</td>
<td>-1500</td>
<td>0.037347</td>
</tr>
<tr>
<td>55-59</td>
<td>1,594</td>
<td>2,638</td>
<td>-1044</td>
<td>0.025993</td>
</tr>
<tr>
<td>60-64</td>
<td>1,644</td>
<td>1,472</td>
<td>172</td>
<td>-0.00428</td>
</tr>
<tr>
<td>65-69</td>
<td>775</td>
<td>1,178</td>
<td>-403</td>
<td>0.010034</td>
</tr>
<tr>
<td>70-74</td>
<td>689</td>
<td>1,018</td>
<td>-329</td>
<td>0.008191</td>
</tr>
<tr>
<td>75-79</td>
<td>532</td>
<td>750</td>
<td>-218</td>
<td>0.005428</td>
</tr>
<tr>
<td>80+</td>
<td>383</td>
<td>283</td>
<td>100</td>
<td>-0.00249</td>
</tr>
<tr>
<td>Total</td>
<td>92,077</td>
<td>132,241</td>
<td>-40164</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Statistics Bureau, City of Kitakyushu

### TABLE 8.3 Net Total Migration

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>-5,731</td>
</tr>
<tr>
<td>1977</td>
<td>-7,523</td>
</tr>
<tr>
<td>1978</td>
<td>-10,554</td>
</tr>
<tr>
<td>1979</td>
<td>-7,734</td>
</tr>
<tr>
<td>1980</td>
<td>-8,035</td>
</tr>
<tr>
<td>1981</td>
<td>-8,037</td>
</tr>
<tr>
<td>1982</td>
<td>-7,245</td>
</tr>
<tr>
<td>1983</td>
<td>-8,922</td>
</tr>
<tr>
<td>1984</td>
<td>-8,928</td>
</tr>
<tr>
<td>1985</td>
<td>-8,929</td>
</tr>
<tr>
<td>1986</td>
<td>-9,585</td>
</tr>
<tr>
<td>1987</td>
<td>-11,796</td>
</tr>
<tr>
<td>1988</td>
<td>-8,964</td>
</tr>
<tr>
<td>1989</td>
<td>-8,384</td>
</tr>
<tr>
<td>1990</td>
<td>-7,981</td>
</tr>
</tbody>
</table>

Source: *Kokusei Chousa* (Population Census of Japan)
### TABLE 9.1 Method One: Projected Social Decrease

<table>
<thead>
<tr>
<th>Age</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>705</td>
<td>708</td>
<td>710</td>
<td>712</td>
</tr>
<tr>
<td>5-9</td>
<td>633</td>
<td>636</td>
<td>637</td>
<td>639</td>
</tr>
<tr>
<td>10-14</td>
<td>441</td>
<td>443</td>
<td>444</td>
<td>445</td>
</tr>
<tr>
<td>15-19</td>
<td>1,906</td>
<td>1,914</td>
<td>1,920</td>
<td>1,923</td>
</tr>
<tr>
<td>20-24</td>
<td>1,055</td>
<td>1,060</td>
<td>1,063</td>
<td>1,065</td>
</tr>
<tr>
<td>25-29</td>
<td>834</td>
<td>838</td>
<td>840</td>
<td>842</td>
</tr>
<tr>
<td>30-34</td>
<td>832</td>
<td>836</td>
<td>838</td>
<td>840</td>
</tr>
<tr>
<td>35-39</td>
<td>756</td>
<td>759</td>
<td>762</td>
<td>763</td>
</tr>
<tr>
<td>40-44</td>
<td>504</td>
<td>506</td>
<td>508</td>
<td>509</td>
</tr>
<tr>
<td>45-49</td>
<td>397</td>
<td>399</td>
<td>400</td>
<td>401</td>
</tr>
<tr>
<td>50-54</td>
<td>327</td>
<td>329</td>
<td>330</td>
<td>330</td>
</tr>
<tr>
<td>55-59</td>
<td>228</td>
<td>229</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>60-64</td>
<td>-38</td>
<td>-38</td>
<td>-38</td>
<td>-38</td>
</tr>
<tr>
<td>65-69</td>
<td>88</td>
<td>88</td>
<td>89</td>
<td>89</td>
</tr>
<tr>
<td>70-74</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>75-79</td>
<td>48</td>
<td>48</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>80+</td>
<td>-22</td>
<td>-22</td>
<td>-22</td>
<td>-22</td>
</tr>
<tr>
<td>Total</td>
<td>8,766</td>
<td>8,805</td>
<td>8,830</td>
<td>8,848</td>
</tr>
</tbody>
</table>

### TABLE 9.2 Method Two: Taking the Ratios of Data 2 (F. 8)

<table>
<thead>
<tr>
<th>Age</th>
<th>Net-mig.</th>
<th>Ratio</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>-3231</td>
<td>0.08045</td>
<td>646</td>
</tr>
<tr>
<td>5-9</td>
<td>-2899</td>
<td>0.07218</td>
<td>580</td>
</tr>
<tr>
<td>10-14</td>
<td>-2019</td>
<td>0.05027</td>
<td>404</td>
</tr>
<tr>
<td>15-19</td>
<td>-8731</td>
<td>0.21738</td>
<td>1,746</td>
</tr>
<tr>
<td>20-24</td>
<td>-4835</td>
<td>0.12038</td>
<td>967</td>
</tr>
<tr>
<td>25-29</td>
<td>-3822</td>
<td>0.09516</td>
<td>404</td>
</tr>
<tr>
<td>30-34</td>
<td>-3812</td>
<td>0.09491</td>
<td>586</td>
</tr>
<tr>
<td>35-39</td>
<td>-3464</td>
<td>0.08625</td>
<td>693</td>
</tr>
<tr>
<td>40-44</td>
<td>-2310</td>
<td>0.05751</td>
<td>462</td>
</tr>
<tr>
<td>45-49</td>
<td>-1819</td>
<td>0.04529</td>
<td>300</td>
</tr>
<tr>
<td>50-54</td>
<td>-1500</td>
<td>0.03735</td>
<td>300</td>
</tr>
<tr>
<td>55-59</td>
<td>-1044</td>
<td>0.02599</td>
<td>209</td>
</tr>
<tr>
<td>60-64</td>
<td>172</td>
<td>-0.0043</td>
<td>34</td>
</tr>
<tr>
<td>65-69</td>
<td>403</td>
<td>0.01003</td>
<td>81</td>
</tr>
<tr>
<td>70-74</td>
<td>329</td>
<td>0.00819</td>
<td>44</td>
</tr>
<tr>
<td>75-79</td>
<td>218</td>
<td>0.00543</td>
<td>44</td>
</tr>
<tr>
<td>80+</td>
<td>100</td>
<td>-0.0025</td>
<td>-20</td>
</tr>
<tr>
<td>Total</td>
<td>-40164</td>
<td>1</td>
<td>8,033</td>
</tr>
</tbody>
</table>

### TABLE 10 Migration Ratio by Cohort Group (1990)

<table>
<thead>
<tr>
<th>Age</th>
<th>Migrants</th>
<th>Total pop.</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>17,461</td>
<td>51,223</td>
<td>0.340882</td>
</tr>
<tr>
<td>5-9</td>
<td>13,945</td>
<td>60,914</td>
<td>0.228929</td>
</tr>
<tr>
<td>10-14</td>
<td>21,521</td>
<td>70,661</td>
<td>0.304567</td>
</tr>
<tr>
<td>15-19</td>
<td>39,553</td>
<td>82,784</td>
<td>0.477786</td>
</tr>
<tr>
<td>20-24</td>
<td>31,935</td>
<td>65,923</td>
<td>0.484429</td>
</tr>
<tr>
<td>25-29</td>
<td>21,074</td>
<td>61,540</td>
<td>0.342444</td>
</tr>
<tr>
<td>30-34</td>
<td>15,588</td>
<td>74,409</td>
<td>0.236369</td>
</tr>
<tr>
<td>35-39</td>
<td>10,040</td>
<td>89,225</td>
<td>0.112525</td>
</tr>
<tr>
<td>40-44</td>
<td>7,145</td>
<td>75,979</td>
<td>0.094039</td>
</tr>
<tr>
<td>45-49</td>
<td>5,910</td>
<td>69,458</td>
<td>0.085087</td>
</tr>
<tr>
<td>50-54</td>
<td>4,232</td>
<td>69,813</td>
<td>0.060619</td>
</tr>
<tr>
<td>55-59</td>
<td>3,116</td>
<td>60,483</td>
<td>0.051519</td>
</tr>
<tr>
<td>60-64</td>
<td>1,953</td>
<td>46,246</td>
<td>0.042231</td>
</tr>
<tr>
<td>65-69</td>
<td>1,282</td>
<td>33,130</td>
<td>0.051524</td>
</tr>
<tr>
<td>70-74</td>
<td>666</td>
<td>24,842</td>
<td>0.026809</td>
</tr>
<tr>
<td>75-79</td>
<td>504</td>
<td>19,476</td>
<td>0.026364</td>
</tr>
<tr>
<td>80+</td>
<td>329</td>
<td>12,741</td>
<td>0.025744</td>
</tr>
<tr>
<td>Total</td>
<td>224,318</td>
<td>1,022,733</td>
<td>0.219332</td>
</tr>
</tbody>
</table>
### Table 12: Percentage of Seniors-only Households (HH) in Kanyakurna for Total Number of HH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>5-9</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>10-14</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>15-19</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>20-24</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>25-29</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>30-34</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>35-39</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>40-44</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>45-49</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>50-54</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>55-59</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>60-64</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>65-69</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>70-74</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>75-79</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>80+</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>5-9</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>10-14</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>15-19</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>20-24</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>25-29</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>30-34</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>35-39</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>40-44</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>45-49</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>50-54</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>55-59</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>60-64</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>65-69</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>70-74</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>75-79</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>80+</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Appendix B

List of Interviewed Key Informants

**Abbeyfield Houses**

**W. Charles Cooper**  
Abbeyfield Houses Society  
Burnaby

**Judy Davis**  
Nell Farmer  
Audrie Jackson  
Board members  
Abbeyfield Houses of Vancouver Society

**John Jossep**  
Planner  
Housing and Properties Department  
City of Vancouver

**Queens Park Place**

**Rene David**  
Acquisitions and Development  
VanCity Enterprises Ltd.

**Tom Hardman**  
Resident

**Jim Hurst**  
Planning Analyst  
City of New Westminster

**Kathy Taylor** (telephone interview)  
Service Coordinator  
Queens Park Hospital

**Ambleview Housing Co-op**

**Bud Anderson**  
Resident

**Bernie Holt**  
Resident / chairperson

**Lorna Lyons** (telephone interview)  
Bob Burgess Domain Consulting Ltd.

**Richard Wagner**  
Social Planner  
District of West Vancouver

**City of Kitakyushu**

**Hiroko Imamura**  
Senior Citizens Advice Corner  
Coordinator  
Public Health & Welfare Centre

**Masahiro Shono**  
Director  
Public Health & Welfare Bureau

**Keiichi Yamaga** (telephone interview)  
Senior Citizen’s Welfare Section

**Others**

**Donna Eisses**  
Assistant Coordinator  
Hospital Liaison Services  
Continuing Care Division  
Vancouver Health Department

**Val MacDonald**  
Seniors’ Housing Information Program
Appendix C. Questionnaires

Appendix C

Questionnaires

For Abbeyfield Society, VanCity Enterprises, and Ambleview Co-op Board members (Question 6 to 9 were also asked to the residents)

1. Please explain the process of the planning / developments.
2. Who got involved in the projects (e.g., process)?
3. What were the difficulties in starting the project, if any?
4. What are the difficulties in operating the project, if any?
5. Were there any neighborhood concerns?
6. Who are the residents? - age / sex / marital status
   - previous residence
   - reasons for leaving previous place
   - reasons for choosing the housing
7. What are advantages and disadvantages of living in the housing?
8. What do you like and dislike about the housing?
9. What housing service(s) do you use, like, and satisfy on and off site?
10. Is there any room for improvement about the housing or services? Please specify.
11. What are the key factors for success, if any?

For city planners (including the above questions 1 to 11)

1. How do you view the projects?
2. How do you estimate seniors' demands on the type of housing?
3. What kind of initiatives did you take for the projects?
4. What kind of initiatives will you undertake in the future for this type of developments?
## Appendix D

### TABLE 13 The Overview of the Housing Projects in Greater Vancouver

<table>
<thead>
<tr>
<th></th>
<th>Abbeyfield Houses</th>
<th>Queens Park Place</th>
<th>Ambleview Co-op</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. location</td>
<td>1275 West 67th Avenue Vancouver, BC</td>
<td>55 Blackberry Drive New Westminster, BC</td>
<td>606 14th Avenue West Vancouver, BC</td>
</tr>
<tr>
<td>3. type of housing</td>
<td>Congregate housing / rental</td>
<td>Seniors’ condo. complex / strata title</td>
<td>Equity co-op housing / co-ops</td>
</tr>
<tr>
<td>4. concepts</td>
<td>- provide a small family-style home for seniors who no longer want to live alone, but want to remain independent - help them to remain in their own community - run by a dedicated group of volunteers who guide them</td>
<td>- VanCity Enterprises provide socially responsible affordable housing - “Independent Living” - assist available to seniors on occasions when it is needed (service sponsored by the hospital)</td>
<td>- largely a resident-driven project with extensive municipal participation and support - equity co-op is attractive to senior’s homeowners with fixed income</td>
</tr>
<tr>
<td>5. development partners</td>
<td>City of Vancouver (leased land) / Abbeyfield Housing Society (non-profit)</td>
<td>VanCity Enterprises / Pacific Health Care Society (Queens Park Care Facility)</td>
<td>District of West Vancouver (leased land) / Ambleview Co-op Society</td>
</tr>
<tr>
<td>6. # of units</td>
<td>18 units (9 for each house)</td>
<td>46 units</td>
<td>42 units</td>
</tr>
<tr>
<td>7. unit size</td>
<td>172 - 250 ft²</td>
<td>622 - 850 sq'</td>
<td>750 - 1,100 sq'</td>
</tr>
<tr>
<td>8. price</td>
<td>$1,000 - 1,250 / month</td>
<td>$96,000 - 120,000</td>
<td>$54,400 - 83,300</td>
</tr>
<tr>
<td>9. criteria for resident selection</td>
<td>age: 65+ / healthy &amp; independent - who do not require nursing care / compatibility - who can live in harmonious relationship with others</td>
<td>age: 55+ / rental not allowed (no investment purpose)</td>
<td>age: 60+ (one or both for a couple) / healthy &amp; independent (no nursing care allowed) / have to reside 1. West Vancouver (WV) residents, 2. WV workers, then 3. open to anybody</td>
</tr>
<tr>
<td>10. facilities</td>
<td>communal living room, dining room, laundry room, kitchen, elevator, atrium</td>
<td>lounge with kitchen, activity room, guest suite for visitors, reading rooms in each floor, greenhouse, raised planters, elevator</td>
<td>meeting room, activity room, laundry room, lounge, kitchen, patio, elevator</td>
</tr>
<tr>
<td>11. services within the housing</td>
<td>meal provision (hot lunch &amp; dinner) / house-coordinator / emergency alarm system / social activities</td>
<td>emergency response service (lifeline) / social activities</td>
<td>social activities</td>
</tr>
<tr>
<td>12. adjacent services</td>
<td>food service (cafeteria &amp; delivery) / bathing / pastoral care / transportation to shops / day health program / health monitoring service / respite care / rehabilitation service / service coordinator who organizes activities, monitors residents’ physical and mental conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. access</td>
<td>3-4 blocks to bus &amp; shops</td>
<td>0.8 mile to shops</td>
<td>2 blocks to bus &amp; shops</td>
</tr>
</tbody>
</table>