

“Downsizing” of Housing and Lifestyles for a Low-Carbon Aging Society

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“Downsizing” is an emerging trend in home remodeling. It is driven by the aging of society, which causes households to grow in number while shrinking in size. This not only generates a housing mismatch, but puts undue stress on household budgets, and reduces energy efficiency of the household sector. We see downsizing as a versatile concept with broader implications for lifestyle alterations in the coming low-carbon, aging society.

1. Downsizing and Home Remodeling

1. Current Status of Home Enlargement and Remodeling

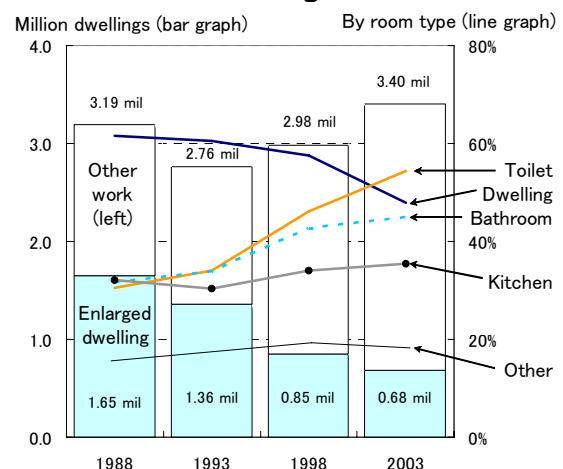
According to the *2003 Housing and Land Survey* (conducted every five years by the Ministry of Internal Affairs and Communications), of the nation’s 28.67 million owner-occupied dwellings, 3.4 million (or 11.9%) had been enlarged or remodeled in the 19 quarters since the previous survey. This amounts to an average rate of 700,000 works per year, which is substantial considering that housing starts in Japan total approximately 1.20 million per year.

The parts of the home most frequently enlarged or remodeled are the toilet (included in 54.3% of additions or improvements), followed by dwelling room (47.9%) and bathroom (44.9%). By age of householder, 60-and-over householders account for a large proportion of the total. Among these older households, the most frequently enlarged or remodeled parts are the bathroom (particularly in the 55-and-over cohort) and toilet (65-and-over cohort). Overall, however, dwelling floor space was increased in only 19.9% of the total works, dropping sharply from 28.7% in the 1999 survey. Thus in recent years, home enlargement and remodeling appears to be concentrated around rooms with plumbing fixtures such as the bathroom and toilet, and less on expansion of dwelling rooms.

According to the *Fiscal 2006 Housing Renovation*

Survey (Housing Renovation Promoting Council), the home renovation market, which includes not only enlargement and remodeling but also non-structural modifications such as equipment replacement and interior work, is estimated at 6.4 trillion yen per year. For free-standing houses, the most common motives to renovate are “ease of use of floor plan or plumbing fixtures,” and “deterioration or obsolescence of structure, interior, or equipment.” For condominiums, the main motives are “preference of floor plan or interior,” “ease of use of floor plan or plumbing fixtures,” and “inadequate storage space.” Other motives include enhancement of earthquake resistance (2.4%), energy conservation (6.8%), and barrier-free access (11.6%).

Exhibit 1 Home Enlargement and Remodeling Trends



Notes: Bar graph (left) shows total number of works, with enlarged dwellings in shaded area. Line graph shows composition of works by room type (right).
 Source: MIC, *Housing and Land Survey* (2003).

2. Downsizing

In the *Housing and Land Survey*, home enlargements are defined as “alterations that increase floor space on the lot containing the existing structure.” Thus we might define downsizing as alterations that decrease floor space. More broadly defined, it includes any alterations that make housing more compact, such reducing the number of rooms, or in the case of collective housing, reducing the number of dwelling units or number of floors. This paper examines demographic and other factors driving the downsizing trend in recent years, and discusses the trend’s broader implications and significance in light of the coming low-carbon, aging society.

2. Aging and Downsizing

1. The Shrinking Family

While Japan’s population is already in decline, the number of households is projected to continue growing to 2015 (*Household Projections for Japan*, released in October 2003 by the National Institute of Population and Social Security Research). This is occurring because as the society ages, households are shrinking in size. By household type, larger households such as nuclear families and three-generation families are rapidly decreasing in number, while single-person and married-couple households are

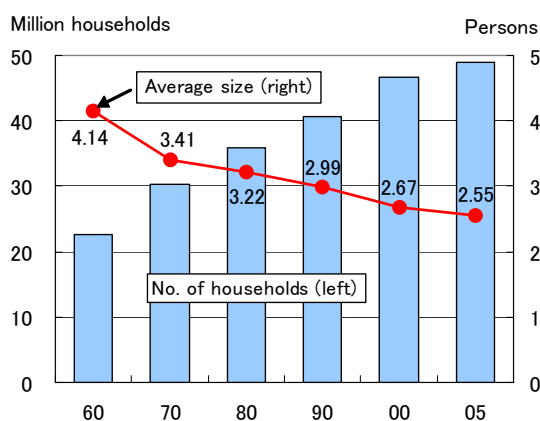
on the increase. Compared to 1960, ordinary households have shrunk in size from 4.14 members to 2.55 members in 2005, and projected to continue shrinking to 2.37 members by 2025. Thus we can expect families to keep shrinking as the society continues to age.

Downsizing can alleviate housing mismatch

The rising number of households has been accompanied by growth in total number of dwellings, which is expected to continue growing despite the declining population. In 2003, total dwellings stood at 53.89 million units, of which 6.59 million were vacant (including second homes, rented housing, and housing for sale). The number of vacant units has increased by 2.12 million units (47.3%) from a decade ago, and the present vacancy rate of 12.2% is expected to continue rising.

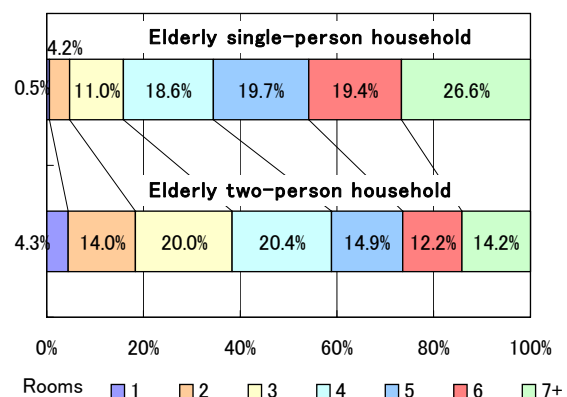
One cause of the rising vacancy rate is the mismatch between existing housing stock and the changing composition of households. Most families buy their first home while the family is growing. However, even after the children grow up and leave home, the rest of the family usually continues to live in the same dwelling. This pattern is evident in suburban New Towns, which sprang up during the economic growth era of the 1960s and 1970s. Many elderly couples still live in large free-standing houses long after the children have left home and started independent households.

Exhibit 2 Trend in Number and Size of Ordinary Households



Source: MIC, *Population Census*.

Exhibit 3 Dwelling Size Composition of Elderly Households (2003)



Source: MIC, *Housing and Land Survey (2003)*.

According to the *2003 Housing and Land Survey* (MIC), dwellings now occupied by elderly single-person and married-couple households tend to be rather large, with an average of 4.36 rooms and 5.47 rooms respectively. To alleviate this housing mismatch, we believe that an effective method is to downsize the existing housing stock by decreasing the number of rooms.

Relief for household budgets

According to household consumption expenditure data for 2006, the average single-person household spends 163,699 yen per month, compared to 344,326 yen for a five-person household (68,865 yen per person). Thus on a per capita basis, a single-person household costs 2.38 times more to maintain than a five-person household. This is because large households enjoy economies of scale from sharing fixed living costs such as utility bills among more persons.

With the size of households projected to shrink in the future, economies of scale will work against the growing number of elderly single-person and married-couple households, causing per capita consumption expenditure to rise. These elderly households will need additional sources of income to maintain or improve their present standard of living.

Although elderly households have less current

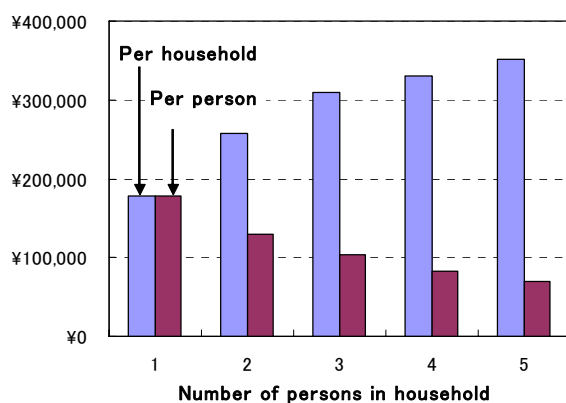
income than the average household, they also have more savings and less outstanding debt. In particular, their home ownership ratio is high and home loans are paid down. Moreover, with fewer children to inherit wealth, they are relatively free to dispose of tangible assets as they wish. In this context, it makes sense to downsize dwellings to remove unneeded rooms and thereby relieve the pinch on household budgets.

2. Increased Longevity (Graceful Aging)

In marking Respect-for-Senior-Citizens Day (September 17, 2007), MIC announced the most recent data on the elderly population. The age 65-and-over population stood at 27.44 million, bringing the elderly ratio at a new high of 21.5%. Of these, the 65-to74 cohort increased 330,000 from the previous year to 14.75 million, while the 75-and-over cohort grew by 540,000 to 12.69 million. This cohort now comprises 46.2% of the elderly population, and is projected to grow to 52.2% by 2020. Meanwhile, the number of persons aged 80-and-over rose above 7 million for the first time, reaching 7.13 million. Thus Japan is fast becoming an ultra-aged society.

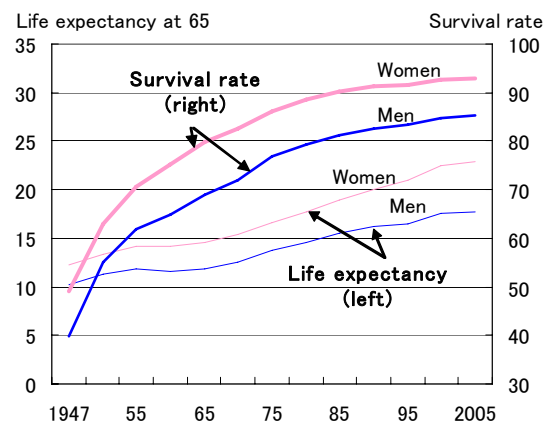
But aging also has a bright side, because it means that people are living longer. Nowadays, it is normal to reach the age of 80. As of 2006, the average life expectancy in Japan is 79.00 years for men, and 85.81 years for women. Among

Exhibit 4 Monthly Household Expenditure by Household Size



Source: MIC, *Annual Report on the Family Income and Expenditure Survey* (2006).

Exhibit 5 Life Expectancy and Survival Rate at Age 65



Source: MHLW, *Abridged Life Table for Japan*.

people who turn 65 in 2006, men can expect to live another 18.45 years to age 83, and women another 23.44 years to age 88. Moreover, the survival rate from birth to 65 is 86.1% for men and 93.3% for women, meaning that around 90% of the population can expect to reach 65. Thus graceful aging will be a real possibility for most people.

Downsizing and universal design

To address the growing longevity, various long-term care arrangements have already been developed including designated nursing homes, elderly health care facilities, fee-charging nursing homes, and assisted living facilities. However, such LTC-oriented arrangements fail to address the needs of elderly persons who can remain healthy for longer periods after retirement. Instead, what this growing senior segment needs is housing with universal design—improvements and innovations that make housing more usable for people regardless of their physical abilities or disabilities. This would allow seniors to live independently for as long as possible.

Nursing homes and assisted living facilities are already replacing the suburban house with yard as the last residence of seniors who need long-term care. But the large housing mismatch still exists among healthy seniors who wish to live independently as long as possible. According to the *2003 Housing and Land Survey*, of the

13.79 million households with persons 65-and-over, only 2.11 million (15.3%) have altered their dwellings in some way to accommodate elderly needs. In the future, as people live longer, demand will grow for more compact housing suited to the household composition and physical abilities of the elderly. Downsizing and universal design in housing can actively accommodate these changing needs.

3. Aging of New Towns

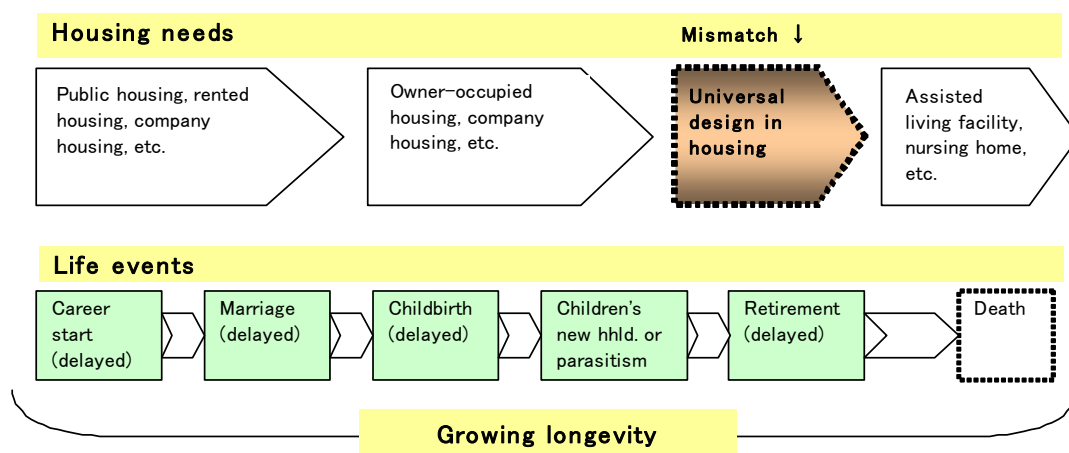
The sprawling suburban New Towns that emerged from the 1960s are rapidly aging. Many residents who moved into town while in their 30s are now reaching retirement.

Unfortunately, New Town dwellings were never designed to accommodate elderly persons. Many are medium-rise buildings with four to five floors and no elevator, and located on hilly terrain. As a result, elderly residents have already moved out in large numbers, creating vacancies. Unless drastic measures are taken, entire neighborhoods could degenerate, leaving some elderly persons left to suffer a lonely death.

New Town regeneration through downsizing

A good way to start is to make alterations that accommodate elderly persons, such as improving barrier-free access, remodeling floor plans, and moving elderly households to the first floor.

Exhibit 6 Growing Longevity and the Housing Mismatch



Source: NLI Research Institute.

Germany offers an instructive case in this regard. Following reunification in 1999, cities in former East Germany began shrinking at an alarming rate. The city of Leinefelde, Germany became famous for its successful “Shrinking Policy.” Among other things, the policy called for downsizing of New Towns, which were particularly hard hit, by reducing the number of dwellings and converting vacant spaces to other uses.

In Japan, last year the Urban Renaissance Agency launched a downsizing initiative to reduce the number of dwellings at the Hibarigaoka Danchi (public housing complex) in Higashi Kurume City, western Tokyo. As aging accelerates in Japan, the focus of urban policy needs to shift more rapidly from growth and expansion to contraction and maturation.

3. Climate Change and Downsizing

1. Household GHG Emissions on the Rise

Media coverage of climate change has recently increased, partly in anticipation of its significance at the upcoming G8 Summit in Toyako, Hokkaido. In December 2007, the United Nations Climate Change Conference (COP13) was held in Bali, Indonesia. Although greenhouse gas (GHG) emission targets were not on the table, the conference set up a new

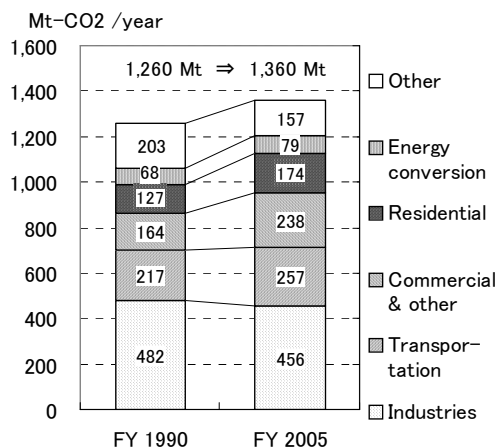
negotiating process to encourage participation by large emitters such as the U.S., China and India. The goal is to conclude a post-Kyoto agreement setting new numerical targets and arrangements for technology transfer to developing countries by the end of 2009.

Under the Kyoto Protocol, which took effect in February 2005, the first commitment period for GHG reductions began in April 2008. Despite committing to reduce emissions to 6% below 1990 levels, Japan’s emissions actually increased by 7.8% from 1.26 billion tons in fiscal 1990 to 1.36 billion tons in fiscal 2005. By sector, the industries sector decreased 5.5%, while the household sector increased 36.5%, and now comprises 12.8% of total emissions.

Downsizing and energy efficiency of housing

Undoubtedly, the household sector’s rising energy consumption stems in part from lifestyles that pursue convenience and comfort. However, another key factor is the demographic trend toward smaller households. As households shrink in size, the energy efficiency of housing tends to decline. According to the *2006 Family Expenditure and Income Survey* (MIC), the cost of utilities is 10,267 yen per month for a single-person household, compared to 28,064 yen for a five-person household. On a per capita basis, the cost of utilities for a single-person household is thus almost twice as high as for members of a five-person household.

Exhibit 7 GHG Emissions by Sector



Source: Ministry of the Environment.

Thus despite the projected decrease of population and household size, the growth in number of households will likely cause energy consumption to rise in the household sector. The government has promoted measures to improve the energy performance of housing and encourage the public to switch to energy saving lighting and appliances. Thus far, however, the results are not impressive—of the nation’s 46.86 million dwellings (in 2003), only 3.09 million dwellings (6.6%) have solar water heaters, 280,000 dwellings (0.6%) have solar power generators, and 4.60 million dwellings (9.8%) have insulated glass windows or doors.

Compared to free-standing houses, collective dwellings are more energy efficient with respect to heating and cooling. Thus looking ahead, further GHG reductions in the household sector will require that the ratio of collective housing be increased. Downsizing can improve energy efficiency of housing in several ways—the existing public housing stock can be converted to a more energy efficient structure, communities can be made more compact to accommodate the decreasing population, and dwelling size can be reduced to accommodate smaller households.

4. The Low-Carbon Aging Society

1. Lifestyle Implications

In the post-Kyoto commitment phase, countries will clearly have to increase GHG reduction targets above present levels. For Japan, emission reductions in the household sector will pose a major challenge. Inevitably, it means that we must revise our current lifestyles and create new ones suited to the coming low-carbon and aging society.

Carbon reduction begins with the reevaluation of habits in daily life. Adjusting thermostats, changing how we use water, electric power, and automobiles, and changing how we make purchase decisions—these and many other factors must be reconsidered in order to put our

lifestyles on a “carbon diet.”

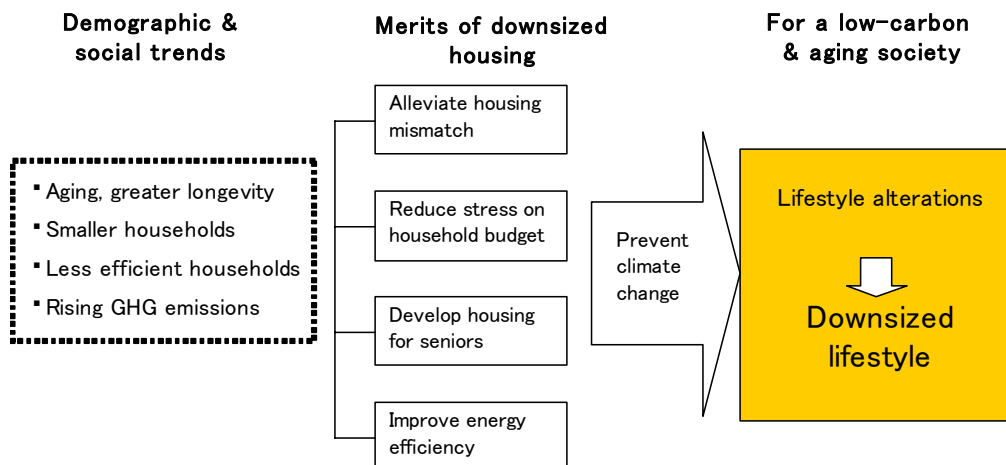
One recent development in this regard is the emergence of carbon offsets tied to the purchase of merchandise or services. Carbon offsets are now available even for magazine subscriptions and travel packages.

2. Downsized Lifestyle

As we discussed, the downsizing trend in home remodeling is driven by the rapid aging of the society, which reduces the size of households while increasing the number of households. This generates a growing mismatch between housing needs and the stock of owner-occupied homes, while reducing the economic efficiency of households as well as energy efficiency of housing. Downsizing is an effective response to these issues, and needs to be encouraged.

But more importantly, downsizing has broader social implications for lifestyles in the coming low-carbon, aging society. Just as homes need to be downsized to accommodate the aging society, lifestyles will also need to be downsized to conserve energy and reduce carbon emissions. As such, the downsizing approach addresses key issues and concerns of the low-carbon, aging society.

Exhibit 8 How Downsized Housing can Promote Downsized Lifestyles



Source: NLI Research Institute.