2 Planning for age-friendly cities and communities in East Asia

The oriental paradigm

Tzu-Yuan Stessa Chao and Yi Sun

Introduction

Since the 1950s, the number of people aged 60 and over has tripled. The global ageing population reached 600 million in 2000, surpassed 700 million in 2006, and is predicted to reach 2.1 billion by 2050. There is consensus that a rapid increase in the ageing population has become a global phenomenon. It is also concerning that over 211 million older adults (65+), accounting for approximately 36% of the global ageing population, resided in East Asia and the Pacific area in 2010, according to the World Bank (2016). Cities and communities in East Asia share similar experiences with those elsewhere in the world. However, with the rapidly ageing population increasing by 22% every five years, the pressure is higher than in other cities in the world. Take Taiwan, for example; due to longer life expectancy and lower fertility rates, Taiwan's accelerated rate of ageing is more than twice that of European countries and the United States, and it will take only seven years for Taiwan to become a super-aged society (20% of the population aged over 65), whereas it will take over 70 years in most Western countries (Lin & Huang, 2016). Compared to many Western cities, the rapid increase in the number of older adults, higher density urban contexts, and the distinct cultural characteristics of East Asian societies make implementing age-friendly strategies urgent but challenging for many East Asian cities and communities (Sun et al., 2020).

In response to this ageing trend, since the 1960s, the concepts of "successful ageing," "productive ageing," and "active ageing" have been proposed to illustrate the ideal well-being status of older people (Havighurst, 1963; Kerschner & Pegues, 1998; World Health Organization, 2001). Such concepts all emphasise that, with a longer and healthier life expectancy, older adults should maintain both psychological and physical well-being in order to make social and economic contributions to both themselves and society. At the same time, older adults should gain more social support to maintain an independent lifestyle and ensure safety, health, and social involvement in later life (Walker, 2016). Also, all of the above concepts indicate that the quality of the built environment is an essential factor associated with active ageing. Based on the above concepts, while picturing an ideal living situation in old age, the World Health Organization (WHO) has promoted the age-friendly cities and communities (AFCC) guide since 2007 as a prompt action to create a friendly environment for older people.

DOI: 10.4324/9781003144441-4

This initiative expects the development of positive local approaches to help construct a liveable environment that will contribute to the well-being of older adults. As of January 2021, 1,114 cities and communities in 44 countries, covering over 262 million people worldwide, had joined the WHO Global Network for Age-Friendly Cities and Communities (GNAFCC). Surprisingly, of these 1,114 cities and communities, less than 6% (only 66) are East Asian cities, including 19 from China (including all 18 districts of Hong Kong/HK), 24 from Japan, and 23 from South Korea. Several possible reasons for the slow response to the AFCC movement among East Asian cities have been pointed out: Distinct cultural characteristics and high-density urban development mode require a contextualised guide and additional time to adapt the eight domains mentioned in the WHO Global Network for Age-friendly Cities and Communities (GNAFCC) approach to planning practices and policy initiatives in the East Asian society (Chao & Huang, 2016; Tan et al., 2019; WHO, 2007).

Hence, this chapter discusses how to interpret the age-friendly movement in the East Asian context. It argues that the distinct cultural characteristics and urban context present the need for a unique paradigm to deliver age-friendly environments. Taiwan was the first East Asian political body to officially adopt the AFCC in 2010 as an important national policy to address the challenges associated with its ageing population. Two case studies in Taiwan are examined across various spatial levels – community, individual, and institutional – to present a comprehensive perspective for developing an Eastern paradigm for the AFCC movement. This chapter concludes by showing that in the East Asian context, the built environment is more than a collection of physical elements. Rather, it comprises local culture and meaningful lifestyles that are conducive to the well-being of older adults.

Ageing society challenges and policies in the global and local context

The global context

Generally, population ageing is assumed to have multiple impacts on economic growth, savings, investment, consumption, the labour market, pensions, taxes, and intergenerational transfer (Bloom et al., 2010; Tang & MacLeod, 2006). It will affect society as a whole, including changes in family structure, living arrangements, housing needs, migration trends, epidemics, and needs related to health services (Waite, 2009). Despite these apparent challenges, a report by the Organisation for Economic Co-operation and Development (OECD), titled Ageing in Cities-Policy Highlights, clearly identifies that there are many new opportunities for society to take on, such as integrating innovative technologies and approaches in the health sector and acknowledging the possible contributions that the new older population can provide (see Table 2.1).

Since the 1990s, several global policies and actions have been proposed for ageing societies. The United Nations (UN) Principles for Older Persons, which were grouped under five themes, including independence, participation, care, self-fulfilment, and dignity, were adopted by the UN General Assembly in 1991 to establish an age-friendly environment. In 2007, the WHO developed the Global

Table 2.1 Challenges and opportunities in ageing societies.

Challenges	*Opportunities*
Change in local revenue.	New innovation and technologies could be harnessed to maintain the autonomy of older adults.
Ageing labour force, leading to a decrease in the labour supply.	New business models and investment strategies could be explored to bring innovative technologies to the market.
Increase in public spending for health and social care.	The need for remodelling the existing housing stock could stimulate the housing market.
Infrastructure and urban form need to be redesigned to increase the attractiveness of and well-being in cities	The integration of information communication technologies (ICT) could be pursued in various policy fields, in particular, in health sector
Social isolation resulting from a reduced social network.	Older adults could be encouraged to fill a gap in voluntary works in their communities.
Access to services and jobs will become more difficult for older adults.	The demographic transition could influence public trust in government and citizen's engagement.
Housing affordability poses challenges for the quality of life for all generations.	

Source: Data from (OECD, 2015).

Age-Friendly Cities Project and established the Global AFCC Network to foster the exchange of experiences between different cities and communities worldwide. The guide for the global AFCC project encourages a bottom-up approach aimed at providing practical guidance for cities and communities to explore and identify the local issues thereby delivering contextualised strategies to build an age-friendly environment (WHO, 2007). Local communities can select the most relevant domains from the eight AFCC domains proposed by the WHO based on the needs of their local seniors. Cross-departmental partnerships are strongly advocated to provide overarching urban policies for an age-friendly environment (Figure 2.1).

The local context

As in many East Asian countries, Taiwan will encounter enormous challenges in the areas of productivity and competitiveness, with the projection of an average fertility rate no higher than 1.5% in women of childbearing age by 2040. The census from the Ministry of the Interior (MOI) in Taiwan indicates that the fertility rate has been continuing to drop since 1981, and the old-age dependency ratio (population aged 65 and over to population aged 15–64) has tripled at the same time (see Figure 2.2). The MOI also reported that as of 2020, the total population in Taiwan had decreased for the first time, by 41,885 people (0.18%).

With the fertility rate dropping and the population ageing, by 2025, one in five citizens in Taiwan will be above the age of 65. This change in the demographic structure of Taiwan has raised public awareness of whether the current healthcare and social welfare systems and built environment fit this ageing society (Chao, 2015). In addition, with the ageing trend, the decrease in household size from the

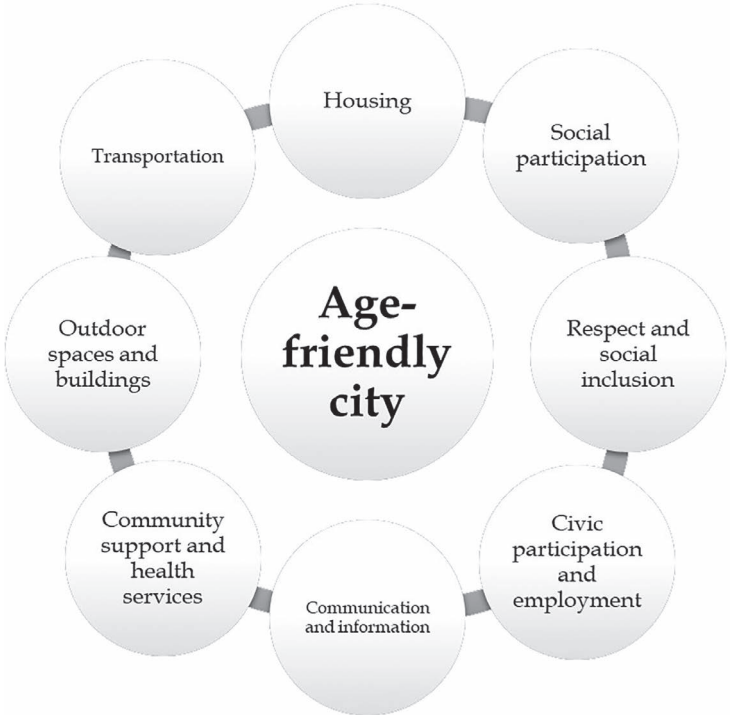

Figure 2.1 The domains of the AFCC.

Source: By the authors from (WHO, 2007).

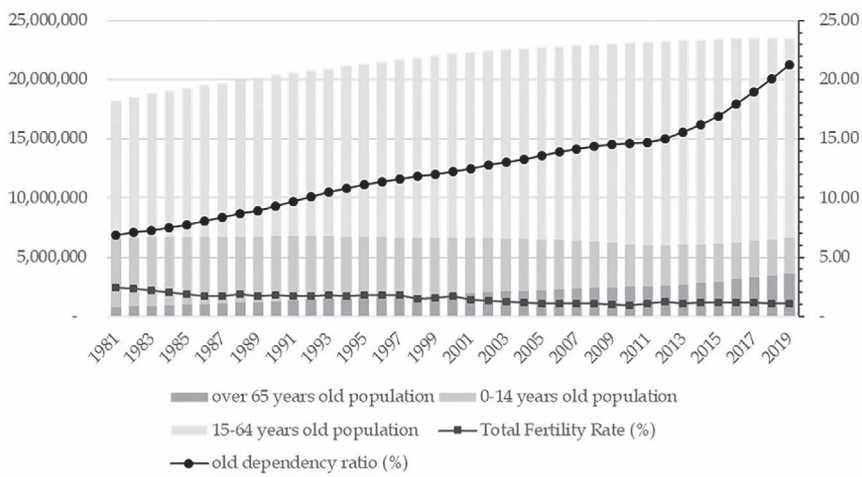

Figure 2.2 Ageing trend in Taiwan from 1981 to 2019.

Source: The Ministry of the Interior, Taiwan (2021).

three-generation household with an average of six people per household in the 1970s to an average of 2.7 in 2020 in Taiwan makes it challenging for families to maintain family support for older adults. Hence, older adults will have to rely on the government to address their increasing needs in relation to health and social care in the near future (Fann & Hsu, 2010; Chen & Wu, 2019).

To better prepare for the ageing society in Taiwan, three key policies have been announced to facilitate a more supportive environment to address these challenges, including the restructuring of long-term care services, providing sufficient affordable housing units, and upgrading the physical environment through urban planning and design regulations. First, the central government approved the "National Ten-Year Long-Term Care Plan 2.0" (LTC Plan 2.0) in December 2016, with the aim of prolonging healthy life expectancy, maintaining life functions, and improving quality of life. To promote the policy goal of "ageing in place," a community-based three-tier system, including integrated service centres, combined service centres, and long-term care stations, was established to deliver care services close to home (see Figure 2.3). Besides, in January 2017, the Long-Term Care Services Act was

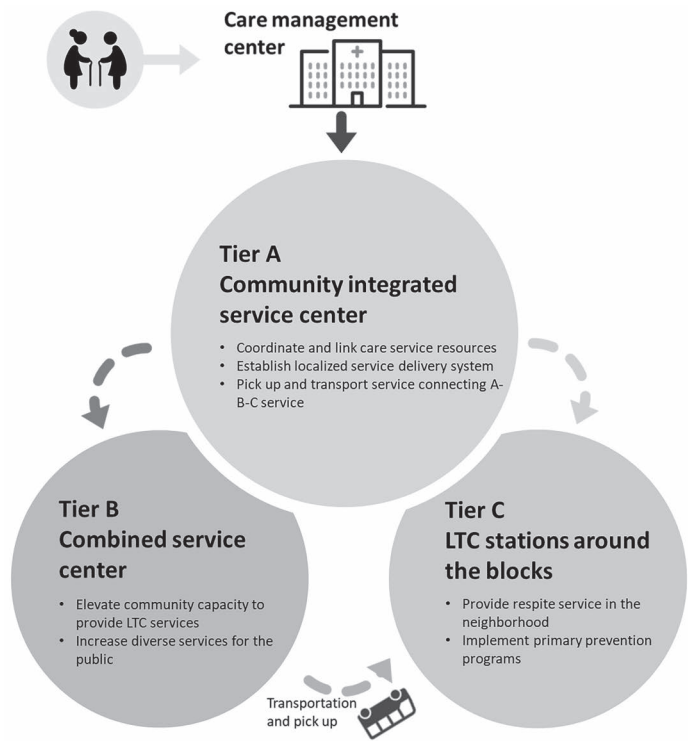

Figure 2.3 Long-Term Care 2.0 in Taiwan.

Source: (MHW, 2016).

amended with articles that list additional funding sources for LTC services, including an earmarked tax of 10% of the estate and gift tax and the tobacco and alcohol tax (Yeh, 2020). In four years, the total government budget for LTC increased more than eightfold, from 5,000 to 40,000 million NT dollars (MOI, 2020).

In terms of facilitating a supportive environment for older adults, Taiwan's government introduced AFCC in 2010 and initiated the National Social Housing Programme (NSHP) 2017–2024. Out of the total of 120,000 new units the NSHP plans to deliver, 20% of the flat units will be prioritised for vulnerable groups, including older adults living alone (MOI, 2017). According to the census, the actual number of older adults living alone was over 477,000 as of 2021, and adopting the AFCC to deliver ageing-in-place seems to be an effective approach. The responsibility for the implementation of the AFCC falls on the Health Promotion Administration, Ministry of Health and Welfare (MHW), at the central government level. Accordingly, as soon as the AFCC began to be promoted, Taiwan took a top-down approach, unlike the bottom-up approach recommended by the WHO. By 2015, all 22 cities and counties in Taiwan had officially committed to the AFCC, and the health departments led all the projects. Hence, other departments in charge of the physical environment, such as the urban planning and construction divisions, provide supporting roles. Chao and Huang (2014), based on the experience of the national AFCC 2010–2012 project, proposed an eight-step top-down AFCC model in Taiwan following the WHO's AFCC concept, which considers the ageing trend and local policy contexts (see Figure 2.4).

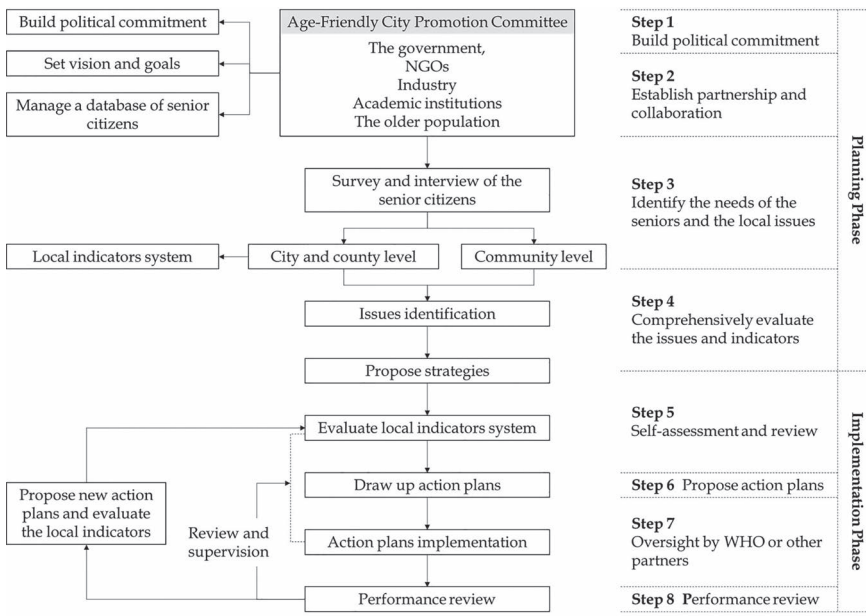

Figure 2.4 The top-down approach process of the age-friendly cities project in Taiwan.
Source: (Chao & Huang, 2014).

Difference between the West (mostly Europe and the United States) and the East Asian (Taiwan) AFCC implementation experience

As mentioned in the Introduction, we can further explore the local interpretations of the AFCC in East Asian cities from two crucial perspectives: bureaucracy and local culture (Grossmann et al., 2012; Chen et al., 2015). There are two distinct differences between the Taiwan model and most Western AFCC projects from the perspective of the bureaucracy. First, a strong political commitment from the mayor is the crucial factor for successful cross-departmental collaboration within City Hall. Second, quantitative local indicators were established to evaluate and monitor the outcome of the AFCC at a very early stage, whereas the WHO did not establish these core indicators until eight years after the initial promotion of the AFCC (WHO, 2015). This reflects an institutionalised governance framework with hierarchical coordination between state bureaucracies and horizontal exchange of information and resources between Taiwan's state and non-state sectors (Sun et al., 2017). Chao and Huang (2016) also confirmed the "high-power distance" phenomenon associated with the promotion of AFCC projects at the institutional level in Taiwan. The level of commitment from political leaders significantly impacts the public's perception of policies. The AFCC project promotion has adopted a top-down rather than a bottom-up approach in order to employ the traditional East Asian cultural practice that suggests obedience to authority. It has been confirmed that only when the government expresses its determination and commitment is it easier for community leaders to become motivated to draw up AFCC action plans. Take the Jinhwa community in Tainan City as an example; a survey of 997 older residents indicated that most older adults in Taiwan are unwilling to challenge authorities, including community leaders, and are unaware of their right to challenge authority (Chao & Chen, 2019). Hence, such characteristics indicate the importance of an informative leader and highly interdepartmental collaboration in East Asian AFCC promotional activities.

Regarding the distinct cultural characteristics of East Asian cities, according to related studies, the hybrid culture mixing Taoism, Buddhism, and Confucianism formulates a special sense of "eudaimonic well-being" among older adults in Taiwan (Liu, 2016; Chao & Huang, 2016; Chen et al., 2015; Lin et al., 2015). They tend to seek a tranquil life and avoid possible conflicts during old age. These cultural characteristics are the main factors that guide the global AFCC model in the local Taiwanese context. Chao and Huang further indicate that a difference can be observed at the individual and community levels. At the individual level, it is essential to investigate the needs of older adults in communities, as illustrated in step 4 of the operation process, shown in Figure 2.3 (identification of issues), suggested by the WHO. To collect opinions of local older adults, focus group discussions are usually conducted in the West. However, in Taiwan, due to the strong influence of collectivism in East Asian cultures and peer pressure, most interviewees tend to avoid expressing their actual needs and opinions. Also, due to the emphasis on filial piety in East Asian culture, older adults usually provide neutral answers to avoid any potential embarrassment (Chao & Huang, 2016). It is shameful for older adults to admit that their family cannot meet their needs. As a result, it is difficult to

obtain the direct opinions and genuine feelings of older adults through focus group discussions in Taiwan. Insufficient information could also mislead policymakers which may hide older adults' actual needs.

In addition, at the community level, in most ageing communities in Taiwan, older adults usually have a strong emotional commitment to their communities throughout their lives. These lifelong residents of the communities also consider ageing-in-place a virtue and develop strong place dependence on the community environment (Butcher & Breheny, 2016). Due to this emotional place attachment, older adults will be more likely to react strongly to changes in the physical environment proposed in the AFCC action plans (Sun et al., 2020). Regarding implementing the AFCC through spatial planning tools, Taiwan's AFCC experience provides a comprehensive point of view to illustrate the practical issues at different spatial scales, exemplifying how the bureaucracy and local Eastern culture influence the decision-making process.

Individual and community level – the daily lifestyle and self-rated health of the older adults in community-based AFCC contexts

The urban-rural gap in AFCC projects

Spatial inequality refers to the government distributing public resources differently among regions and areas, which results in an urban-rural gap in both the quantity and quality of public infrastructures and services (Potrafke & Roesel, 2020). In Taiwan, only 13% of the total land, 480,186 hectares, comprises urban areas, with 414 statutory urban (zoning) plans, and 78% comprises rural areas with only building codes applied. Due to the urbanisation trend, a considerable proportion of the youth labour force in rural areas has moved to the cities, which has resulted in a severe ageing phenomenon in rural areas for decades (Figure 2.5a). As of the end of 2019, Taiwan's population in urban areas was 18,669,744. With 79% of the total population becoming urban dwellers, one-third of the ageing population (approximately 780,000 older adults) live in rural areas (Figure 2.5b). These rural older adults tend to be more socio-economically vulnerable and have lower educational levels, lower household incomes, and fewer public resources. In rural areas, the population tends to be older. Moreover, according to the National Health Interview Survey Report conducted by MHW, in 2013, the self-rated health of older adults in rural areas is significantly poorer than that in urban areas (Figure 2.6).

Canada's federal government was the first to advocate that the AFCC schemes should differ in rural areas. The *Age-Friendly Rural and Remote Communities: A Guide* indicates that older adults who wish to "age in place" in rural communities may face barriers to remaining in their homes and staying active in their communities due to limited transportation and medical services (Canada Federal/Provincial/Territorial Ministers Responsible for Seniors, 2011). In Taiwan, the limitations are similar. There is an urban-rural gap in the AFCC projects, especially in Taiwan's top-down model. Mayors in the six affluent metropolitan areas, such as Taipei City and Kaohsiung City, are motivated to invest more resources in the AFCC, whereas

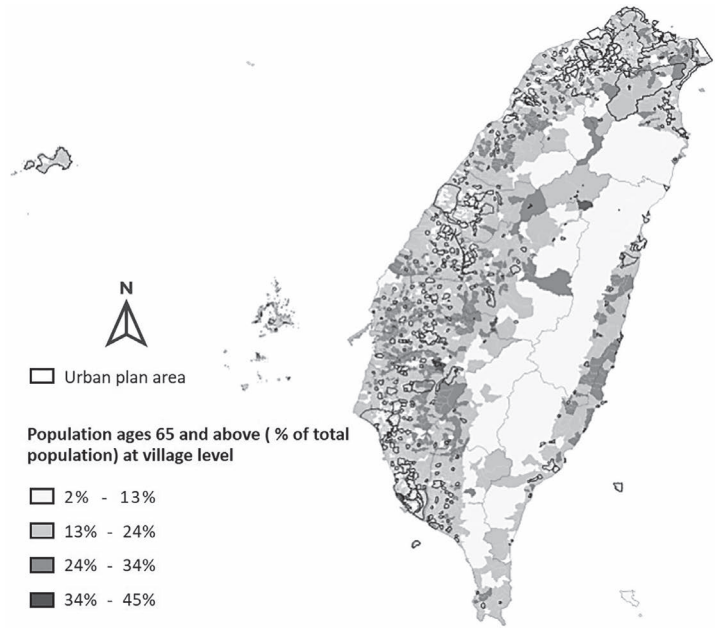

Figure 2.5a Ageing population distribution.

Source: The authors (2022).

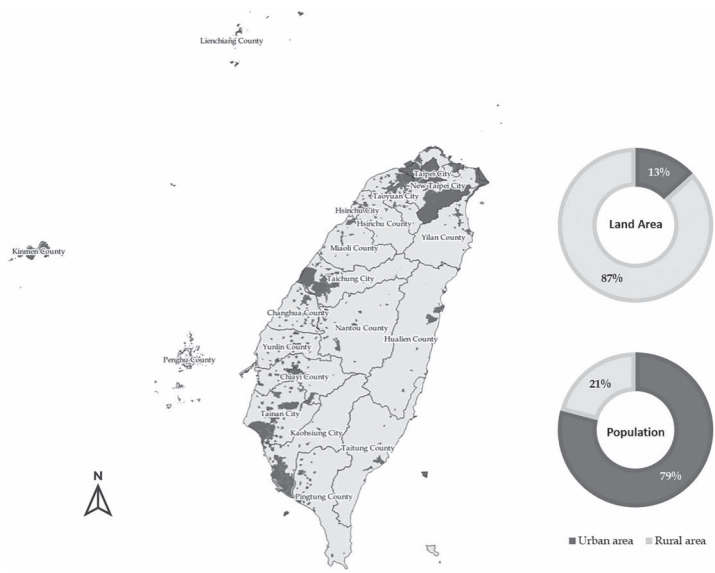

Figure 2.5b Urban and rural areas in Taiwan.

Source: The authors (2022).

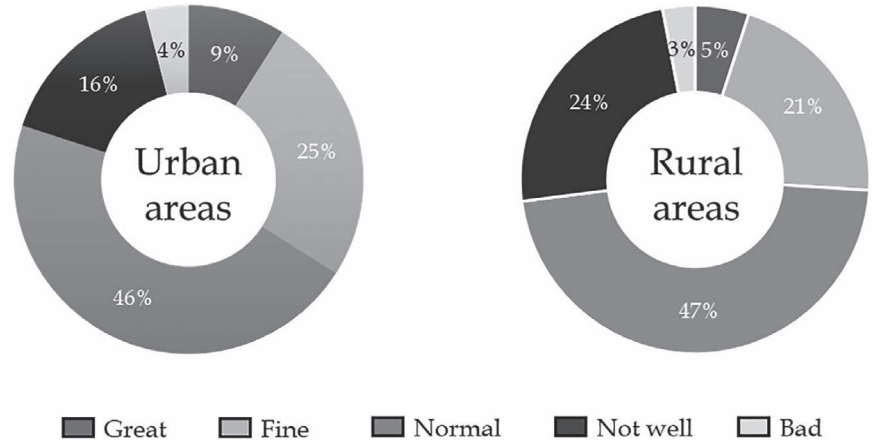

Figure 2.6 The self-rated health status of the older adults in rural and urban areas.
Source: (MHW, 2013).

many rural villages in financially disadvantaged counties do not even have any care facilities due to their small population size and poor financial conditions.

Nevertheless, the ageing trend in rural areas reflects the fact that more older adults live alone or only with their spouses (Pleschberger et al., 2019). They rely more on the government-led care system and community members, especially if most of their children are living in the cities (York Cornwell & Cagney, 2014). The idea of community-based support systems was introduced in Japan because of cultural considerations and the increasing risk of rapid health deterioration among older adults (Lin et al., 2015). Although studies indicate an urgent need for more resources in rural areas of ageing societies, there is a lack of evidence-based information or databases about rural older adults' lifestyles and living conditions, which makes it challenging to develop action plans that meet their actual demands. To gain insight into the daily life and self-rated health of older adults living in rural areas in Taiwan, Chao et al. (2021) conducted a cross-disciplinary study using mixed methods, including a space-time path research method, Global Positioning System (GPS) tracking technology and the Short Form-36 (SF-36) evaluation of conscious health scale. The research investigated the older villagers' daily mobility, lifestyle, and self-rated health in Xishi Village, Pingtung County, one of the oldest counties in Taiwan.

Case study: older residents' daily life in rural areas where there is a lack of social resources

Xishi Village in Pingtung County, a typical rural village without any statutory zoning plan to provide compulsory public infrastructures, was selected for the case study Chao et al. (2021). The population of Xishi Village reached 2,796 in

August 2018, among which the older population aged 65+ comprised 19.59% (547 people). The surrounding urban areas are all developed alongside the Taiwan Provincial Highway, with Xishi Village located on the west side of the urban development axis. Without sufficient public infrastructure provided by statutory zoning plans, the Xishi villagers have to travel to the nearby Neipu urban planning area or further to urbanised areas such as the Pingtung, Zhutian, and Chaozhou townships to access better medical or public services (see Figures 2.7–2.8).

In this study, 20 older residents were selected and provided with GPS Tracker Watches, which captured their daily GPS locations at 5-minute intervals over a week. The tracking results for these 20 older adults were divided into three types based on whether the path was within the village or township. For the first type,

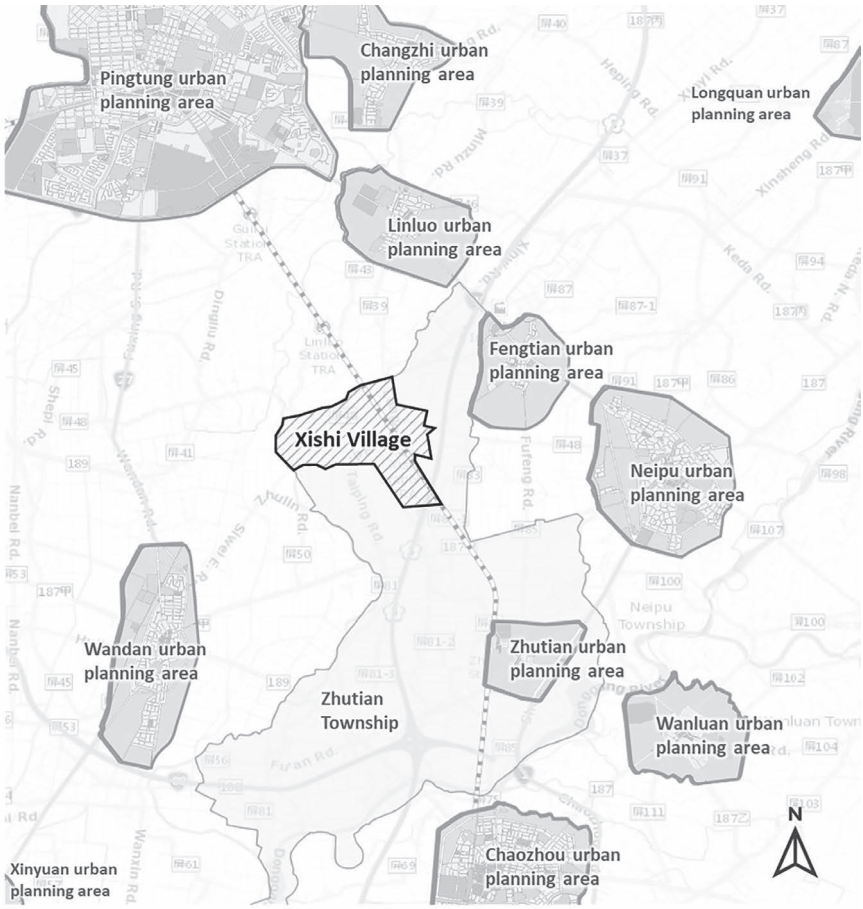

Figure 2.7 The location of Xishi Village and the urban planning areas are nearby.
Source: By the authors (2022).

Figure 2.8 Land use in Xishi Village.

Source: By the authors (2022).

30% of the participants had the least mobility, where their paths were limited to within the village. As a result, their self-rated health scores and moving distance were lower than the average among the 20 participants. This shows that the daily life periphery of this type of older adult is limited in Xishi Village, where there is a deficiency in the provision of service functions to meet their basic needs. This directly affects their quality of life. The investigation also showed that these older adults have poor physiological functions, which restrict their daily activities and lead to lower-than-average self-rated health scores.

For the second type, 20% of the participants' daily mobility extended beyond the village but was limited to Zhutian Township. Their self-rated health scores were higher than the average of the total 20 participants. However, their daily moving distance was still below average. This indicates that these older adults believe that their basic daily needs can be met within the local township, but their conscious health scores remain at a medium level. Up to 50% of the participants' daily mobility ranged beyond Zhutian Township. Their self-rated health for both physical and mental conditions was higher than average. The mobility tracking results indicated that when the built environment was unable to meet the participants' needs related to daily activities, half of them could devise adjustment strategies to go beyond the neighbourhoods defined by the administrative units (Table 2.2). Also, the correlation analysis demonstrated that mental health is associated with daily moving time and distance (Chao et al., 2021).

Table 2.2 Statistics of the tracking survey.

Statistics of the tracking survey	*Average*	*Type 1*	*Type 2*	*Type 3*
Physical component summary	74.94	62.58	78.88	80.78
Mental component summary	77.30	70.85	76.76	81.38
Average daily elliptical area (Km2)	9.77	0.94	4.25	17.27
Average daily moving distance (Km)	10.84	2.90	6.19	17.48
Average daily outing time (Hours)	4.77	2.37	3.53	6.70

Source: Data from Chao et al. (2021).

In addition, a correlation analysis was conducted. The findings indicated that the older villagers' physical health, mental condition, average daily moving distance, and average daily outing time were all statistically significant in relation to their daily activities (Chao et al., 2021). This finding was consistent with other studies that have found that leisure and entertainment activities and social participation are essential factors affecting conscious health (Lin et al., 2013). Therefore, for many rural older adults living alone, it is vital to have easy access to social activities that can effectively enhance their self-rated health status and help them maintain good physical and mental health. Furthermore, in terms of gender, male participants scored higher than females in the SF-36 scores for both physical and mental conditions. This survey result was similar to the findings of Tseng et al. (2003) concerning 17,515 older adults in Taiwan.

Nevertheless, the latest national census has confirmed that the average life expectancy for men in Taiwan is 78.1, while that for women is 84.7 (MOI, 2021). Interestingly, the self-rated health result is inconsistent with the actual life expectancy in Taiwan. According to the Annual Citizens Living Conditions Intentions Survey conducted by the MOI, older men consistently have better satisfaction scores regarding their health conditions than older women. In addition, the analysis of daily mobility among genders indicated that men scored higher in the average daily elliptical area, the average daily moving distance, and the average daily outing time than women in the case of Xishi Village. This reflects that the rural areas in Taiwan are still influenced by the conservative "male breadwinner model" and that older female villagers may be more vulnerable and need more local care services, most activities centered within the village. Hence, community-based AFCC schemes in rural areas should consider how to motivate older female villagers to stay active by understanding their lifestyle and obstacles related to mobility.

Institutional level – location choice of social welfare facilities under statutory urban planning contexts

Implement age-friendly facilities based on spatial equity

The social welfare policy in Taiwan is influenced by "Welfare Pluralism" and a "Mixed Welfare Economy," and there is also a trend towards the privatisation of social welfare (Chiang & Ying, 2005; Yao, 2004). In this context, except for a few

public and public-to-private facilities, most social welfare facilities are provided and operated by the private sector. Private service providers must meet operational requirements, land use regulations, and building codes by law. For example, after being reviewed and approved by the local planning authorities, senior daycare centres (SDCs) can be located in residential, commercial, cultural, and educational zones. In the past four decades, private owners have chosen locations for social welfare facilities according to market demand, operation, and construction costs (such as house and land prices), physical environmental conditions, and the degree of public rebound. Such models, where service provision is based on the market mechanism, work when the ageing population only makes up less than 10% of the total population. However, in a super-aged society, the imbalance and insufficiency of social welfare services in some deprived areas where there is a lack of market forces will lead to social conflicts and inequality issues.

The MHW is responsible for enforcing social welfare laws and regulations regarding decisions related to the quantity and quality of social welfare facilities, including SDCs. In order to avoid an uneven distribution of resources and accelerate the deployment of social welfare facilities, the MHW announced guidelines indicating that each school district or administrative district should provide at least one social welfare facility as the national quantity standard. The local authorities have to follow such standards to ensure the provision of local facilities. In 2014, the MHW further announced a national policy to provide SDCs in response to the trend towards ageing. The "Taiwan 368 Care Service Plan" aimed to establish one SDC in every township in Taiwan by the end of 2016 by subsidising private daycare service providers. As of 2020, however, there were still 100 townships, mostly rural and remote communities, without any daycare centres. The lack of profit was the main reason behind the absence of private service providers in these areas.

Figure 2.9a illustrates the current demand for SDCs by township based on population, where a darker colour represents a higher demand. Figure 2.9b shows the current supply of SDCs. Most of the townships do not have enough senior daycare services. Figures 2.10a and 2.10b further illustrate the future demand for senior daycare based on the ageing trend. Six major metropolitan areas will encounter a significant shortage of SDCs. The two figures indicate that the supply of social welfare facilities in a single county and city is insufficient. However, there are also problems of inequality in terms of supply among counties and cities. Chiou (2014) pointed out the inadequacy of welfare institutions for people with disabilities. In 2016, the Taiwan Social Welfare League (TSWL) conducted a service evaluation and found a gap between the number of geriatric psychiatric daycare centres and older people service cases in various counties and cities, indicating that there is still an inadequacy in both quality and quantity of social welfare facilities. In addition, the TSWL advocated the urgent need for new public-private-non-governmental organization (NGO) partnerships directed towards providing social welfare facilities (TSWL, 2016).

In response to the concept of ageing in place, the MHW has emphasised home-based and community-based senior care services as a primary policy since 2016. To address the shortage of senior care services mentioned above, the MHW has sought aid from spatial planning departments. One of the roles of the spatial

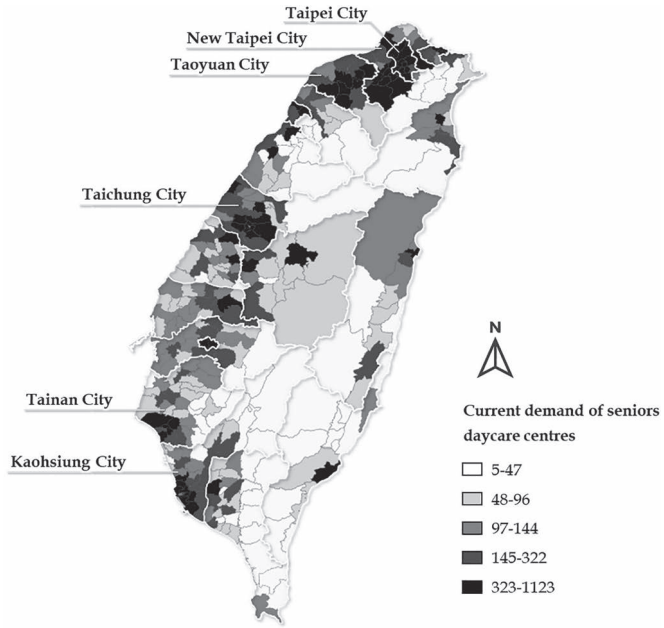

Figure 2.9a Current demand for SDCs.

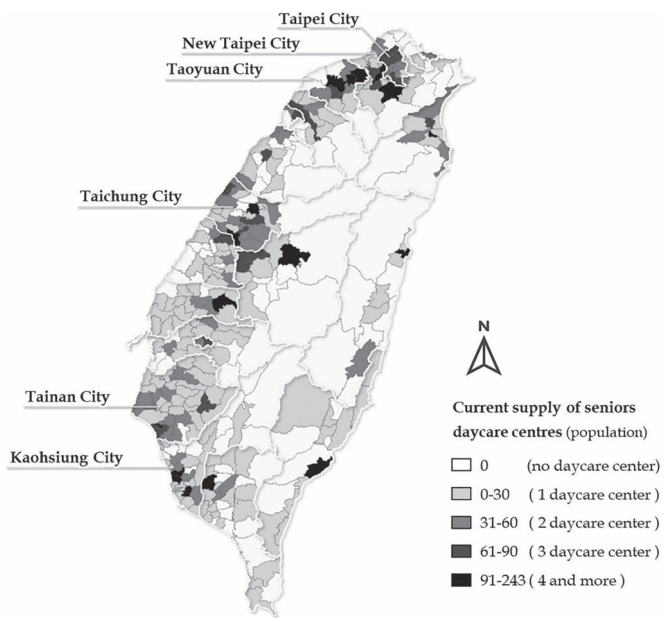

Figure 2.9b Current supply of SDCs.

Source: By the authors (2022).

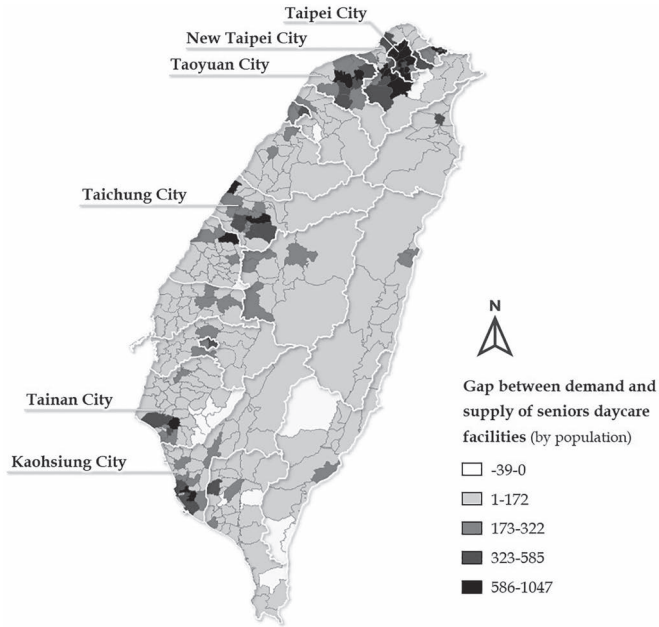

Figure 2.10a Current demand and supply gap of SDCs.

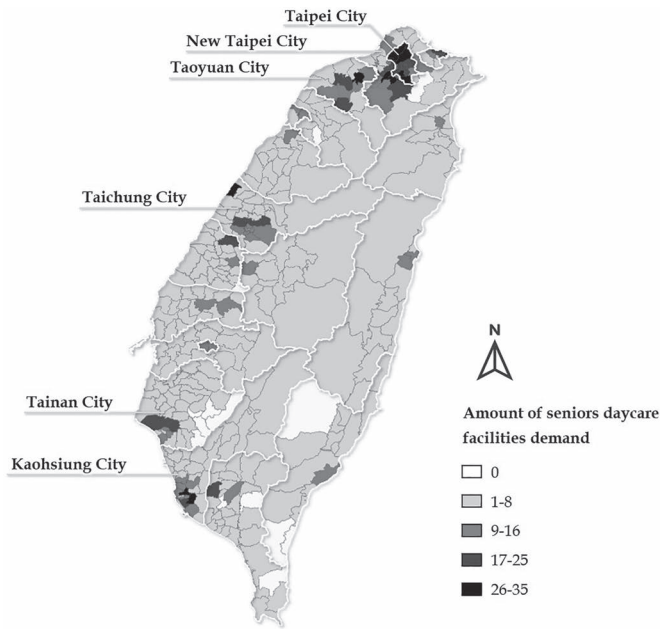

Figure 2.10b Future demand for SDCs.

Source: By the authors (2022).

planning department is to provide proper land use plans and public infrastructure to ensure quality of life for residents. A rigid zoning system in Taiwan prevails in urban areas (Askew & Chao, 2012). Urban development can only take place when permitted by zoning ordinances. However, until 2017, there were neither legal grounds nor provisional standards for the planning departments to facilitate overall infrastructure planning for senior care services. As a result, the planning sector could not stabilise the supply. Private facility providers selected locations for SDCs based on single project considerations and market conditions without overall spatial planning guidance.

In 2017, the Urban Planning Law (UPL) was amended for a periodical review of urban planning and stated that statutory zoning plans should ensure the fair provision of social welfare facilities, including senior care facilities. The inclusion of social welfare facilities in public facilities in Article 46 of the "Urban Planning Law" is a critical milestone, highlighting the role of the planning authority and reconsolidating cross-departmental collaboration. As a result, the urban planning department can take legitimate action to ensure that the supply of social welfare facilities meets the demand and improves citizens' overall quality of life. Also, the amendment allows the planning department to regularly review the quantity and quality of social welfare facilities from the governmental perspective.

Chen (2020) discusses the possible site selection standard of SDCs in urban areas, which are classified as community-based long-term care service institutions under the Long-Term Care Services Act 2017(LTCSA). The LTCSA establishes quantity standards for new SDCs in accordance with the provision of long-term care services. However, despite the UPL amendment, in terms of actual location choices for new SDCs, a lack of demand survey data has become an obstacle in practice. Usually, the public sector has four unofficial general principles for new facility site selections. (1) Avoiding risks of disaster: Any new public infrastructure should avoid being located in high-potential disaster risk areas to reduce residents' possible exposure to disasters. (2) Priority is given to the use of public land to ease the financial burden on the government. (3) Priority is given to reusing already-developed land plots for public facilities to underpin the sustainable development goal. For example, due to the ageing population and declining birthrate, the demand for school space has decreased, potentially making schools suitable locations for senior daycare facilities in the future. (4) Priority is given to converting or revitalising obsolete public buildings to avoid wasting space. Nevertheless, without clear site location criteria outlined by law, the actual locations selected by the planning authority for SDCs will be more likely to follow the four principles above, rather than addressing the actual demands of the older adults who are most affected. Hence, inequality in older adult care service remains a significant challenge of ageing-in-place.

Case study: introducing an allocation method for SDCs in urban planning areas based on Integrated Spatial Equity Evaluation (ISEE)

Many people in later life tend to have limited mobility and weaker bodily functions when interacting with the built environment. It is crucial to have the necessary

facilities or services near their homes, preferably within a 400–800 meter periphery (Chao, 2019). Public facilities, a type of urban infrastructure, must be allocated considering fairness and accessibility in an ageing society (Tsou et al., 2005; Chao, 2019; Sun et al., 2020). The connotation of "spatial equity" ensures that all residents have access to the same quantity and quality of services regardless of where they reside (Tsou et al., 2005). Chen (2020) confirmed that "spatial equity" should be regarded as a key indicator when planning for SDCs in urban areas based on the above definition. When applied to policy, this concept also complies with Article 46 of the UPL (social welfare facilities should be arranged according to the distribution of residents). Furthermore, the SDC is designed to offer care services during the daytime so that older adults are taken care of in the community while young family members are at work. Accessibility should be a priority for urban planners. Hence, the "Spatial Equity Index," a tool for measuring accessibility, and the concepts of the Lorenz curve and Gini coefficient are applied in this study.

In response to the concept of spatial equity, Chen (2020) used the Integrated Spatial Equity Evaluation (ISEE) proposed by Taleai et al. (2014) and modified it to be a guiding allocation method suitable for urban planning in Taiwan. The ISEE discusses the allocation of facilities from the perspective of a fair opportunity to access a specific space and obtain services. It takes parcels as the spatial unit for the discussion, analysis, calculation, and presentation of accessibility and other features. This method takes residential parcels as the demand unit and facility parcels as the supply unit. The ISEE calculates the standardised accessibility of each residential parcel to a single type of facility service to determine the relationship between the supply of accessible facility services and the population's demand per residential parcel. Also, considering the high population density, the small street block scale in zoning plans and the mixed land use pattern in Taiwan. Chen (2020) further adjusted the definitions of measurement of the demand unit, demand quantity, supply unit, and other attributes and positioning methods (see Table 2.3). Meanwhile, to make this method more applicable in actual planning

Table 2.3 The adjustments to ISEE in Taiwan.

Factors		*The original ISEE*	*ISEE in Taiwan*	
			Adjustments	*Instructions*
Demand	Location	Residential parcels	Basic statistical area	The factors are adjusted to the high population density city pattern in Taiwan.
	Number of residents	Population on residential parcels	Population in the basic statistical area	
Supply	Location	Public facilities parcels	The block (or land use district) of the facilities	Cooperate with the scale adjustment of Taiwan's urban plan
	Scale	The scale of the services	Per capita floor area of the facility	Adjust to the facility planning

Source: Data from Chen (2020).

practice, the current location choice principles, including avoiding high natural disaster risk areas as well as taking into account the public land first policy in Taiwan, were incorporated to construct a spatial equity allocation method that is exclusive to Taiwan. It is important to acknowledge that older adults' need for SDC will not be evenly distributed in any spatial context.

This study takes Qianzhen as a detailed plan area in the Kaohsiung metropolitan area, the second-largest city in Taiwan, as the empirical case study area. With only one SDC set up, over 90% of the local older adults reside beyond the service coverage (Figure 2.11a). Owing to the lack of continuous and accurate data on older adults in need of daycare services, the planner would have to estimate that approximately 7.3% of the total ageing population will require SDCs, as projected by the MHW. Eight possible sites, including vacant public land and underused public buildings, for new SDCs are evaluated using the ISEE to seek the optimum location for the next SDC to maximise service coverage based on the demand and accessibility requirements. Figure 2.11b illustrates the final result ranking, where the suggested location choice is on the eastern of the urban plan areas. This evidence-based method helps the planning authorities establish a standard when seeking proper SDC locations under the spatial equity principle.

To conclude, there is a consensus at the institutional level that urban planning legal tools are vital to delivering a fair community-based and age-friendly

Figure 2.11a Estimated older adults in need of SDC.

Figure 2.11b New SDC location choice suggestion.

Source: By the authors (2022).

service network in Taiwan. Given the rapid ageing trend in Taiwan, urban planners will need to focus on collaborating with public health departments and obtaining updated information on the changing spatial needs of older adults at various urban planning levels in the coming decades. In addition, prompt responses from statutory plans are essential for providing care services on a timely basis.

Discussion and conclusion: towards age-friendly urbanism

The WHO identifies critical challenges in population ageing, acknowledging diversity in older age as the primary issue. The GNAFCC also emphasises that there is no "typical older person." Hence, the AFCC guidelines and principles must be interpreted in accordance with the local contexts, including older adults' needs, different cultural characteristics, and the local planning framework. In addition, diversity in the built environment, such as the urban-rural gap, results in greater diversity among ageing cohorts due to their different living contexts. Hence, there is no single solution for AFCC implementation. It is essential to obtain evidence-based

information about the local older adults before developing action plans. Although previous studies suggest that the daily lifestyle of older adults may contribute to their health status, appropriate age-in-place approaches can still vary in different environmental and cultural contexts. Hence, the development of a local AFCC paradigm reflecting the distinct lifestyle is much needed. Based on Chao and Huang's statement of the need for an oriental AFCC paradigm, this chapter first reviewed the existing literature regarding the AFCC global and local experiences and identified the distinct characteristics of East Asia AFCC promotions regarding ageing trends, built environment settings, bureaucracy, and local culture. A top-down model with increased governmental input was established to better promote the AFCC in Taiwan based on the cultural bureaucracy in most East Asian countries. After a 10-year AFCC movement, all 22 cities and counties in Taiwan joined the AFCC advocacy. An annual performance award hosted by the MHW ensures continuous promotion from local governments (Huang et al., 2019). In addition, the experience in Taiwan demonstrates that the effectiveness of the top-down model directly depends on political leadership and cross-departmental collaboration.

To substantially affect AFCC promotion in the East Asian setting, the commitment from planning authorities and alliances between spatial planning and health professionals must be enhanced at various organisational levels. The two case studies in Taiwan presented in this chapter point out that the AFCC concepts can be interpreted in various ways due to inequalities in service resource distribution and contrasting planning systems in urban and rural areas. We have rigid zoning plans in urban planning areas, whereas, in rural areas, the planning systems are more discretionary (Askew & Chao, 2012). Older Taiwanese adults tend to have a strong emotional attachment to their land and are compliant with authority. Hence, urban or rural legal planning instruments have to take a crucial role in the promotion of the AFCC.

In rural areas, 79% of the total land in Taiwan has fewer public resources than in urban areas. The Xishi Village case study helps illustrate the local investigation's importance. Sun et al. (2020) state that older adults' lives are intertwined with their environments. The characteristics of the built environment affect older adults' place embeddedness, leading to different sociospatial and psychological experiences. Urban planners and policymakers can better understand older villagers' actual lifestyles, daily mobility status, and local cultural contexts. When it comes to input resources for implementing the AFCC, planners will better understand what is most needed and how to allocate resources, given the limited space and funding. We also realise from the case study that a lack of official data and detailed records of older adults in rural areas has become a significant obstacle to delivering sufficient AFCC strategies.

In terms of urban planning, according to the top-down model, planning regulations are expected to facilitate age-friendliness in urban settings in Taiwan. Many scholars have pointed out that green and open spaces are essential factors contributing to older adults' physical activities and satisfaction with urban living (Zhang et al., 2019; Chao, 2019). Hence, local survey results will provide suggestions about open space design principles that will enhance the sense of safety and protection of

healthy older adults in the community. In terms of implementing equal support for fragile older adults, the top-down solution will rely on land use ordinances to provide community-based social welfare facilities such as SDCs for older adults. The case of the Qianzhen detailed plan area in Kaohusing City indicates the challenges to modern planning related to providing new facilities in already developed urban settings from spatial equality perspectives. Unlike other public facilities, social welfare facilities should be more user-oriented and easily accessible, especially SDCs. Thus, many of the proposed projects for new SDCs or health interventions have used elementary schools as a platform based on the school districts (Jourdan et al., 2021). Clearly, a new evaluation method for location choices for new SDCs is needed so as to maximise the service coverage and make the implementation of the spatial equality concept financially feasible.

The core goal of the AFCC is to create an inclusive environment that can support older adults with various health statuses to age in place for as long as possible. Such an idea also shares the same visions and commitments as the New Urban Agenda proposed by the United Nations Human Settlements Programme (UN-Habitat) in 2017 to enhance livability and well-being and underpin sustainable development actions. In seeking a successful local model for the AFCC, although cities and communities in East Asia have had a late start in participating in the GNAFCC, some cities in Taiwan and Hong Kong have explored the proper ways to interpret the AFCC concept in the local political and cultural contexts. According to her research in Hong Kong, Ng indicated that people's right to a healthy urban life would be essential for urbanism in the future (2016). It is clear that high-density urban contexts and mixed-use land with rigid planning regulations could make bottom-up AFCC implementation more complex in many East Asian cities. Hence, one potential solution could be to make the age-friendly concept a mandatory requirement in the statutory planning system. Also, various environmental factors are associated with the development of place attachment, which can help sustain the sentimental and functional links between older adults and where they live. Therefore, the promotion of the AFCC in East Asia has to consider the strong people-land connection and develop action plans based on residents' daily lives. Finally, Sun et al. (2020) highlight that future urbanism intertwines with population ageing trends. Understanding the relationship between environment-related experiences and well-being is conducive to achieving age-friendly urbanism.

References

Askew, J., & Chao, T.Y. (2012). A comparison of regulatory regimes in England and Taiwan: does the control and management of development contribute to the creation of positive places?. *6th Annual Conference on Planning, Law and Property Rights*, Belfast, UK, 8–10 February 2012.

Bloom, D. E., Canning, D., & Fink, G. (2010). Implications of population ageing for economic growth. *Oxford Review of Economic Policy*, *26*(4), 583–612. https://doi.org/10.1093/oxrep/grq038

Butcher, E., & Breheny, M. (2016). Dependence on place: A source of autonomy in later life for older Māori. *Journal of Ageing Studies*, *37*, 48–58. https://doi.org/10.1016/j.jageing.2016.02.004

Canada Federal/Provincial/Territorial Ministers Responsible for Seniors(F/P/T). (2011). *Age-friendly rural and remote communities: A guide*. https://www.phac-aspc.gc.ca/seniors-aines/alt-formats/pdf/publications/public/healthy-sante/age_friendly_rural/AFRRC_en.pdf

Chao, T. S. (2015). The development of a healthy ageing programme in Taiwan. In *The Routledge handbook of planning for health and well-being* (pp. 498–514). Routledge.

Chao, T. S. (2019). *Planning for greying cities: Age-friendly city planning and design research and practice*. Routledge.

Chao, T. S., & Chen, H. (2019). From isolation to inclusion: The importance of empowerment in planning age-friendly communities. In *Planning for greying cities, age-friendly city planning and design research and practice* (pp. 128–142). Routledge, Taylor & Francis Group.

Chao, T. S., & Huang, H. (2014). The comparative study of age-friendly cities operational strategies. *Journal of Architecture*, *90*, 129–152. https://doi.org/10.3966/101632122014120090008

Chao, T. S., & Huang, H. (2016). The East Asian age-friendly cities promotion – Taiwan's experience and the need for an oriental paradigm. *Global Health Promotion*, *23*(Suppl_1), 85–89. https://doi.org/10.1177/1757975916641612

Chao, T. S., Jiang, X. O., Sun, Y., & Yu, J. Z. (2021). A space-time analysis of rural older people's outdoor mobility and its impact on self-rated health: Evidence from a Taiwanese Rural Village. *International Journal of Environmental Research and Public Health*, *18*(11), 5902. https://doi.org/10.3390/ijerph18115902

Chen, H., & Wu, Y. (2019). Population ageing and household change trend and policy reflections in an super-aged society in Taiwan. *Public Governance Quarterly*, *7*(1), 6–23.

Chen, W.-H., Lin, W.-I., Chang, S.-H., & Mak, L.-C. (2015). Exploring relationships between physiological and psychological condition of seniors and their mobility and social activity. *Transportation Research Record: Journal of the Transportation Research Board*, *2537*, 103–110. https://doi.org/10.3141/2537-12

Chen, Y. J. (2020). *A study on demand, supply and site selection of social welfare facilities in urban planning area from supply equity viewpoint: A case study of senior day care facilities* [Master. National Cheng Kung University Department of Urban Planning].

Chiang, L. Y., & Ying, F. K. (2005). Discussion on privatization of social welfare and public facilities. *Community Development Quarterly Journal*, *108*, 54–71.

Fann, G. J., & Hsu, Y. H. (2010). Socio-economic impacts of population ageing in Taiwan. *Taiwan Geriatrics & Gerontology*, *5*(3), 149–168. https://doi.org/10.29461/TGG.201008.0001

Grossmann, I., Karasawa, M., Izumi, S., Na, J., Varnum, M. E. W., Kitayama, S., & Nisbett, R. E. (2012). Ageing and wisdom: Culture matters. *Psychological Science*, *23*(10), 1059–1066. https://doi.org/10.1177/0956797612446025

Havighurst, R. J. (1963). Successful ageing. *Processes of Ageing: Social and Psychological Perspectives*, *1*, 299–320. https://doi.org/10.1093/geront/1.1.8

Huang, N.-C., Kuo, H.-W., Hung, T.-J., & Hu, S. (2019). Do healthy city performance awards lead to health in all policies? A case of Taiwan. *International Journal of Environmental Research and Public Health*, *16*(6), 1061. https://doi.org/10.3390/ijerph16061061

Jourdan, D., Gray, N. J., Barry, M. M., Caffe, S., Cornu, C., Diagne, F., El Hage, F., Farmer, M. Y., Slade, S., Marmot, M., & Sawyer, S. M. (2021). Supporting every school to become a foundation for healthy lives. *The Lancet Child & Adolescent Health*, *5*(4), 295–303. https://doi.org/10.1016/S2352-4642(20)30316-3

Kerschner, H., & Pegues, J. A. M. (1998). Productive ageing: A quality of life agenda. *Journal of the American Dietetic Association*, *98*(12), 1445–1448. https://doi.org/10.1016/S0002-8223(98)00327-7

Lin, C. C., Tu, M. T., Chen, C. C., Chen, S. C., Yen, C. H., & Lee, M. C. (2013). Predictive factors of self-rated health status among elderly population in Taiwan. *Taiwan Geriatrics & Gerontology*, *8*(2), 75–89. https://doi.org/10.29461/TGG.201305_8(2).0001

Lin, Y. Y., & Huang, C. S. (2016). Ageing in Taiwan: Building a society for active ageing and ageing in place. *The Gerontologist*, *56*(2), 176–183. https://doi.org/10.1093/geront/gnv107

Liu, S., Lu, C., Hsu, C., Jhong, J., Chen, S., & Tai, H. (2016). *A tranquil lif after retirement: Cases in rural communities of Tainan, Taiwan*.

The Ministry of Health and Welfare. (2013). *The national health interview survey report*. The National Health Administration.

The Ministry of Health and Welfare. (2016). *Long-Term Care 2.0 Plan Report*. https://www.mohw.gov.tw/dl-78305-1531dde4-bb4d-41a0-b681-583db670a969.html

The Ministry of Interior. (2017). *National social housing plan*. https://pip.moi.gov.tw/Upload/File/SocialHousing/%E7%A4%BE%E6%9C%83%E4%BD%8F%E5%AE%85%E8%88%88%E8%BE%A6%E8%A8%88%E7%95%AB%EF%BC%88%E7%AC%AC%E4%B8%80%E6%AC%A1%E4%BF%AE%E6%AD%A3%E6%A-0%B8%E5%AE%9A%EF%BC%89.pdf

The Ministry of Interior. (2021). *Citizens living conditions intentions survey*. https://ws.moi.gov.tw/Download.ashx?u=LzAwMS9VcGxvYWQvNDAwL3JlbGZpbGUvMC8xMzY0MC80OTNlYWU4NS03NzMzLTQ5N2ItYjEzNy0zZjM3NGRiNTQzZWMucGRm&n=MTA55bm05ZyL5rCR55Sf5rS754uA5rOB5oSP5ZCR6Kq%2f5p%2bl5YiG5p6QLnBkZg%3d%3d&icon=..pdf

Ng, M. K. (2016). The right to healthy place-making and well-being. *Planning Theory & Practice*, *17*(1), 3–6. https://doi.org/10.1080/14649357.2016.1139227

OECD. (2015). *Ageing in Cities*. OECD. https://www.oecd-ilibrary.org/urban-rural-and-regional-development/ageing-in-cities_9789264231160-en

Pleschberger, S., Reitinger, E., Trukeschitz, B., & Wosko, P. (2019). Older people living alone (OPLA) – non-kin-carers' support towards the end of life: Qualitative longitudinal study protocol. *BMC Geriatrics*, *19*(1), 219. https://doi.org/10.1186/s12877-019-1243-7

Potrafke, N., & Roesel, F. (2020). The urban–rural gap in healthcare infrastructure: Does government ideology matter? *Regional Studies*, *54*(3), 340–351. https://doi.org/10.1080/00343404.2019.1623390

Sun, Y., Chao, T. S., Woo, J., & Au, D. W. H. (2017). An institutional perspective of "Glocalization" in two Asian tigers: The "Structure−Agent−Strategy" of building an age-friendly city. *Habitat International*, *59*, 101–109. https://doi.org/10.1016/j.habitatint.2016.11.013

Sun, Y., Fang, Y., Yung, E. H., Chao, T. S., & Chan, E. H. (2020). Investigating the links between environment and older people's place attachment in densely populated urban areas. *Landscape and Urban Planning*, *203*, 103897. https://doi.org/10.1016/j.landurbplan.2020.103897

Taiwan Social Welfare League. (2016). *Taiwan long-term care service evaluation*. http://www.tswl.org.tw/TW/tswl0106release/

Taleai, M., Sliuzas, R., & Flacke, J. (2014). An integrated framework to evaluate the equity of urban public facilities using spatial multi-criteria analysis. *Cities*, *40*, 56–69. https://doi.org/10.1016/j.cities.2014.04.006

Tan, Z., Lau, K. K. L., Roberts, A. C., Chao, T. S., & Ng, E. (2019). Designing urban green spaces for older adults in Asian cities. *International Journal of Environmental Research and Public Health*, *16*(22), 4423. https://doi.org/10.3390/ijerph16224423

Tang, J., & MacLeod, C. (2006). Labor force ageing and productivity performance in Canada. *Canadian Journal of Economics/Revue canadienne d'économique*, *39*(2), 582–603. https://doi.org/10.1111/j.0008-4085.2006.00361.x

Tseng, H. M., Lu, J. F. R., & Tsai, Y. J. (2003). Assessment of health-related quality of life in Taiwan (II): Norming and validation of SF-36 Taiwan version. *Taiwan Journal of Public Health*, *22*, 512–518.

Tsou, K. W., Hung, Y. T., & Chang, Y. L. (2005). An accessibility-based integrated measure of relative spatial equity in urban public facilities. *Cities*, *22*(6), 424–435.

Waite, L. J. (2009). The changing family and ageing populations. *Population and Development Review*, *35*(2), 341–346.

Walker, A. (2016). Population ageing from a global and theoretical perspective: European lessons on active ageing. In *Age-friendly cities and communities in international comparison* (pp. 47–64). Springer. http://dx.doi.org/10.1007/978-3-319-24031-2_4

World Bank (Ed.). (2016). *Live long and prosper: Ageing in East Asia and the Pacific*. The World Bank Group.

WHO. (2001). *The world health report 2001: Mental health: New understanding, new hope* (repr). World Health Organization.

WHO. (2007). *Global age-friendly cities: A guide*. World Health Organization.

WHO. (2015). *Measuring the age-friendliness of cities: A guide to using core indicators*. World Health Organization. http://apps.who.int/iris/bitstream/10665/203830/1/9789241509695_eng.pdf

Yao, Y. H. (2004). Rethinking of the privatization of social welfare. *Journal of the Chinese for General Education*, *5*, 39–52. https://doi.org/10.6488/JCGE.200406.0039

Yeh, M. J. (2020). Long-term care system in Taiwan: The 2017 major reform and its challenges. *Ageing & Society*, *40*(6), 1334–1351. https://doi.org/10.1017/S0144686X18001745

York Cornwell, E., & Cagney, K. A. (2014). Assessment of neighborhood context in a nationally representative study. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *69*(Suppl_2), S51–S63. https://doi.org/10.1093/g

Zhang, R., Wulff, H., Duan, Y. P., & Wagner, P. (2019). Associations between the physical environment and park-based physical activity: A systematic review. *Journal of Sport and Health Science*, *8*(5), 412–421. https://doi.org/10.1016/j.jshs.2018.11.002