

# **Socially Sustainable Development of China's Aged Care Public–Private Partnership Projects**

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A thesis submitted in fulfilment of the requirements for  
the degree of

**Doctor of Philosophy**

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## **CERTIFICATE OF ORIGINAL AUTHORSHIP**

I, Kun Wang, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in the Faculty of Design, Architecture and Building at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

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## **Abstract**

The many changes in population, the economy and social structure have significantly impacted China's traditional home-based aged care and social welfare. Aged care Public–Private Partnership (PPP) projects have emerged to meet the increased demand for aged care due to an ageing population which cannot be fulfilled by only home-based care. The quality of life is a widespread concern as care services shift from being provided by the relatives of the elderly to being provided by institutions in aged care projects. The involvement of private investors in PPP projects deepens concerns about the decline in quality of life due to their profit-seeking nature. In this case, social sustainability becomes essential. It pursues the realisation of human well-being, i.e., improving the quality of life of various stakeholders involved in a project. However, social sustainability in aged care has not attracted enough attention, and its realisation status is poor.

This study aimed to establish a socially sustainable development process for aged care PPP projects in the Chinese context. There were three research questions: a) What are the indicators to measure the social sustainability of aged care PPP projects; b) What behaviours and decisions should be adopted in the project lifecycle to achieve social sustainability; and c) What are the realisation processes and managerial implications for government and private investors to achieve social sustainability.

A preliminary social sustainability indicator framework was established based on a literature review, stakeholder theory, and the characteristics of aged care projects in China. Two focus group meetings and two rounds of online Delphi surveys were conducted to finalise the framework and evaluate the indicators. Employees, the elderly

and their relatives, and local community and society were identified as definitive stakeholders. Twenty-one indicators were confirmed.

A multiple case study was conducted to identify the critical practices that should be adopted in the project lifecycle. A total of 42 first-level critical practices were identified. Government departments, private investors, and Special Purpose Vehicles were the most important decision-makers in the preparation, procurement and implementation phases respectively, adopting the most critical practices in each phase.

Twenty-one realisation paths and a consolidated realisation path were then proposed. The preparation phase was crucial. Ten of the 21 more important critical practices (i.e., critical practices that appear in all realisation paths) were adopted at this phase. In addition, the behaviours and decisions of government departments played a key and decisive role. Eighteen more important critical practices were adopted by them alone. A series of managerial implications were proposed.

This study provides a more complete picture of the social sustainability of aged care PPP projects in China. The proposed indicator framework and the realisation paths with corresponding behaviours and decisions at different project stages can enable both public and private sectors to calibrate their policies and contracting behaviours to deliver aged care PPP projects successfully. The empirical data shows the applicability of stakeholder theory in social sustainability research on aged care.

## **Keywords**

Social sustainability, socially sustainable development, aged care, institutional care, Public–Private Partnership (PPP), quality of life, well-being, stakeholder, social impact, China

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## **List of Abbreviations**

AUD	Australian Dollar
BOO	Build–Own–Operate
BOT	Build–Operate–Transfer
CIT	Critical Incident Technique
CNY	Chinese Yuan
CP	Critical Practice
ISO	International Standard Organisation
MCA	Ministry of Civil Affairs, China
MOF	Ministry of Finance, China
PPP	Public–Private Partnership
ROT	Renovate–Operate–Transfer
RP	Realisation Path
S-LCA	Social Life Cycle Assessment
SPV	Special Purpose Vehicle
TBOT	Transfer–Build–Operate–Transfer
TOT	Transfer–Operate–Transfer

# Chapter 1 Introduction

## 1.1 Background

Population aging is becoming one of the most severe challenges facing China. As one of the fastest aging countries in the world, China's aging speed is accelerating (see Figure 1-1). It had been an aging society from 2001 to 2020, i.e., the population aged 65 years or older (referred to as the elderly) make up between 7% and 14% of the total population. In 2021, China became an aged society, with the elderly making up over 14%. It is estimated that China will become a super-aged society in 2033 when the proportion of the elderly exceeds 20% (Luo et al., 2021).

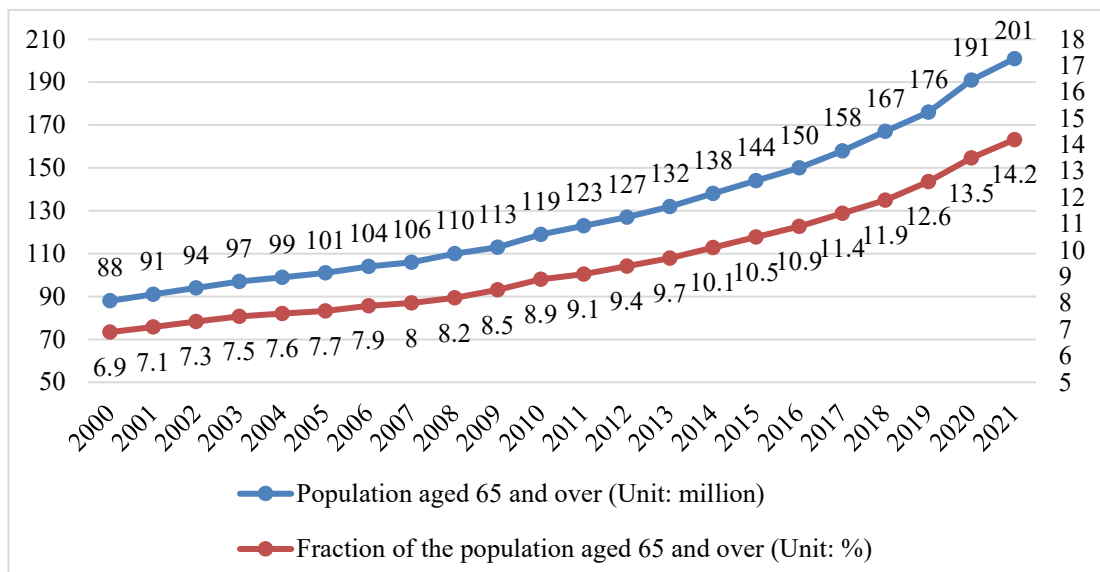


Figure 1-1 Change trend of the population aged 65 years and over in China

(Data source: 2000–2021 Statistical Bulletin of National Economic and Social Development issued by China's National Bureau of Statistics)

Population aging has brought a tremendous demand for aged care. However, the demographic change and a series of key social changes have brought challenges to China's traditional aged care arrangement, which has existed for thousands of years.

The traditional arrangement is home-based, with adult children taking care of the elderly. Nevertheless, this tradition is being broken. On the supply side, the family size has continued to shrink due to the one-child policy and the change in people's perception of childbearing and childrearing. The migration caused by urbanisation, the improvement of women's social status and their increased participation in the labour market have further reduced home-based aged care providers (Feng et al., 2018; Han et al., 2020; World Health Organization, 2016). On the demand side, a health transition has changed the care needs of the elderly. The increase in age-related chronic diseases (especially stroke and Alzheimer's) and frailty (World Health Organization, 2002) has meant the elderly need more professional care. The demand has gradually changed to multi-level, diversified and personalised care (Baylis & Perks-Baker, 2017).

To cope with this challenge, China's aged care arrangement has changed significantly. The importance of institutional care, including care provided under the Public-Private Partnership model (PPP), has been highlighted. The number of beds provided has increased (see Figure 1-2). On the one hand, institutional care is becoming an important supplement to home and community-based care (Su & Wang, 2019). Compared with the latter two arrangements, institutional care can provide larger scale and better services (Cai et al., 2017; Su & Wang, 2019), especially for the elderly who have a high degree of dependence on care needs (World Health Organization, 2015). Moreover, the scope of filial piety has been further expanded. It is considered a privilege for children to be able to provide ongoing financial support for their elderly parents and to allow them to enjoy high quality service in an institution (Zhan et al., 2008). On the other hand, accompanied by population aging, the pressure on the government to solely undertake the responsibility of supplying aged care is increasing, and it is becoming difficult to accomplish. Therefore, the Chinese government has permitted private investors to become involved in this public service field. The providers of institutional care began to transform into PPPs, as well as pure private investors. As of 17 June 2022, there were 100 aged care PPP projects in the project management database operated by

China's Ministry of Finance (MOF). These projects had passed value for money assessment and fiscal affordability assessment. Of those, 68 projects had been awarded, with a total investment of 407.88 billion Chinese Yuan (CNY), i.e., about AUD 8.67 billion. In addition, another 71 projects were on the reserve list, indicating the government's willingness to adopt PPPs.

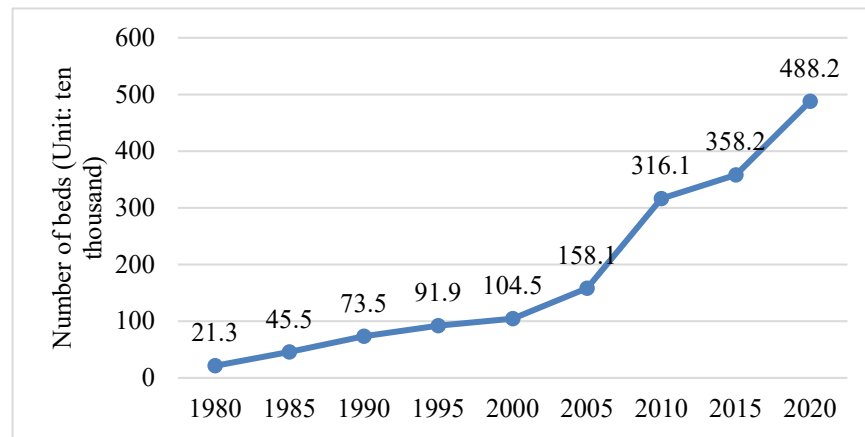


Figure 2-2 Growth in the number of residential aged care beds in China

(Data source: National Data,

<https://data.stats.gov.cn/easyquery.htm?cn=C01&zb=A0P03&sj=2021>)

The emergence of institutional care has broken the tradition of home-based care and attracted more attention to its impact on the quality of life for the elderly, employees, and other stakeholders (Liu et al., 2014). The improvement of life quality is a fundamental driving factor for the elderly to choose to enter aged care institutions (Age Cymru, 2011). Employees with high quality of life means that they are treated equally and adequately trained, and their health and safety are guaranteed. Such a workforce is conducive to improving the quality of life of the elderly (Lee & Severt, 2018; E. Miller et al., 2020), and making the institutions more competitive in the market. In addition, when the quality of life of other external stakeholders, for example local community residents, is improved by the presence of the institution, it will obtain more support from them to deliver projects (Harrison et al., 2015).

However, there is still a long way to achieve this aim. Literature indicates that China's institutional care faces many problems related to quality of life, such as elderly's unmet healthcare needs (Han et al., 2020; Wang et al., 2021) and serious mental health problems (Ji & Zhang, 2021). Sometimes the elderly residents are even abused, neglected or seriously injured (X. Li et al., 2018; Liu et al., 2014). The employees in aged care institutions also face many problems, such as low salary and unequal payment (Wang & Chen, 2014), repetitive and monotonous jobs and overwork (Shi et al., 2020), low education levels (Feng et al., 2018) and lack of training (Chan et al., 2013; Han et al., 2020).

Existing studies are scattered and cannot provide information on the problems of institutional care in China as a whole. To make up for this shortcoming, a content analysis of media reports has been adopted to comprehensively understand the problems, and preliminarily explore the relationship between these problems and quality of life. This lays the foundation for the research problem of this study. Appendix 1 presents the detailed process and results of the content analysis. According to different stakeholder groups, institutional care problems were divided into three categories: problems encountered by aged care institutions, problems encountered by the employees, and problems encountered by the elderly and their relatives (end consumers). Aged care institutions encounter the most problems, which are related to professionals, financing, resistance, and policies. The problems encountered by employees involve compensation, status, development, and pressure. The problems encountered by the elderly and their relatives are related to service, charge, admission, and location.

Figure 1-3 shows the problems found in institutional care. All the problems encountered by the employees and the elderly residents and their relatives, except the charge problem, are related to quality of life. For example, compensation is related to whether employees are treated fairly (Wang & Chen, 2014); social status is related to

employees' dignity and equity (Kadri et al., 2018); capability development involves education and training, affecting employees' competitiveness and confidence (Rivett et al., 2019); and pressure affects health (Martín et al., 2021). For the elderly and their relatives, the quality of life in aged care institutions is largely affected by their health and safety status (Han et al., 2020; Ji & Zhang, 2021; Wang et al., 2021); admission involves the provision of equal opportunity (Dempsey et al., 2011; Murphy, 2012); and location determines the accessibility of project facilities (Cai et al., 2017).

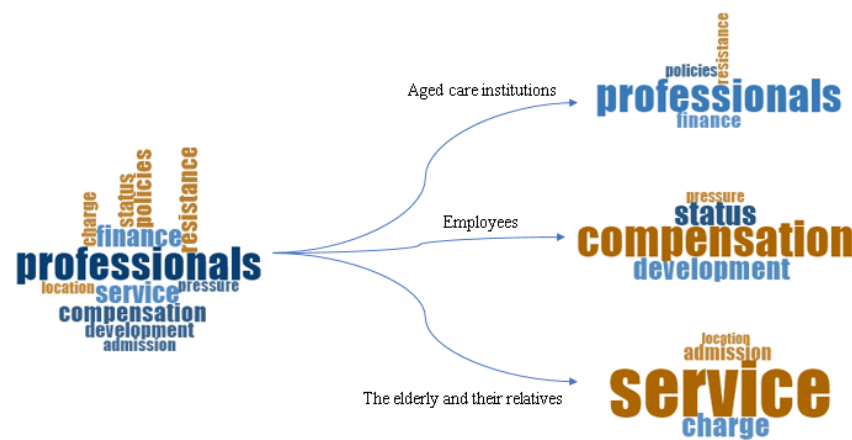


Figure 3-3 Word map of problems in institutional care from news reports

When the PPP model is introduced into institutional care, the issue of quality of life tends to become more prominent. The fundamental reason for adopting this model is that the government hopes to use the funds, technology, and management experience of the private sector to achieve the public goal of increasing and improving aged care services. However, the inherent culture and values of the private operators do not naturally suit the realisation of public interests. Specifically, the inherent profitability of a PPP may mean the private investors do not really care about satisfying the social needs of stakeholders. Moreover, they do not necessarily have expertise in aged care. In short, the adoption of the PPP model has increased people's concern that the social needs of stakeholders cannot be well met and the improvement of their quality of life is affected (Wang et al., 2022).

Paying attention to the social sustainability of aged care PPP projects is vital to ensure quality of life. An extensive literature review provides three indications on the social sustainability of aged care projects. First, social sustainability pursues the realisation of human well-being. Well-being is an abstract concept, which is a description of a person's life situation. Quality of life is often used to refer to well-being and the terms can even be interchanged (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009). Second, social sustainability has strong context dependence. Third, in the context of a project, social sustainability cares about the social impacts of a project on its various stakeholders and tries to meet their social needs. Therefore, **an aged care project is socially sustainable when various social impacts on the stakeholders are thoroughly considered during its lifecycle, and their well-being is realised under a specific social, cultural and institutional context.** In other words, social sustainability of aged care projects can be defined as improving stakeholders' quality of life by understanding and satisfying their social needs. It can be inferred that high quality of life means the realisation of the social sustainability of a project. Conversely, when a project is not socially sustainable, the quality of life of its stakeholders is low.

## 1.2 Research Problem

The research problem of this study is the low achievement of the social sustainability in aged care PPP projects in China. An aged care project is socially sustainable when various social impacts on its stakeholders are thoroughly considered during its lifecycle, and their well-being is realised under a specific social, cultural and institutional context. Due to limited resources and the difficulty of identifying all stakeholders, a project needs to identify the most important ones (Mitchell et al., 2017), understand their social needs in the Chinese context and achieve them. The achievement of social sustainability brings high quality of life for the stakeholders and obtains sufficient contributions from



them to deliver projects (Eskerod et al., 2013; Uribe et al., 2018). The current low quality of life of aged care residents and employees must be improved.

### 1.3 Research Gaps

The literature review on the sustainability study of PPPs in Section 2.2 showed that the research in this field has focused on infrastructure PPP projects and treated sustainability as a whole. Little attention had been paid to aged care PPP projects or the social sustainability of PPPs. Scholars agreed that a PPP is a tool to achieve industry sustainability, but there was a lack of discussion on how to realise it. Some studies discussed how to achieve the sustainability of PPPs by adopting sustainable approaches. However, the method has a single focus, and it is usually adopted by certain participants at a certain stage. For example, government departments consider the sustainability experience of private investors in the procurement phase.

The literature review on social sustainability studies in Section 2.3 found that social sustainability is a complex concept, including equity, health, education and other themes. It is strongly context dependent. When establishing an indicator framework of social sustainability, it is better to consider stakeholders and corresponding social impacts simultaneously. There is a lack of research on social sustainability in aged care. There is also a lack of discussion on systematic approaches to achieve social sustainability.

Based on the analysis mentioned above, three research gaps can be identified as follows:

- Research gap 1: Definitions and indicators of social sustainability in aged care PPP projects in the Chinese context are not known.
- Research gap 2: The critical practices conducive to social sustainability in aged care PPP projects are not clear.

- Research gap 3: The realisation processes and managerial implications for social sustainability of aged care PPP projects are not available.

## 1.4 Research Questions

Based on the above research gaps, the following research questions are proposed:

- Research question 1: What are the indicators to measure social sustainability of aged care PPP projects?
- Research question 2: What behaviours and decisions should be adopted in the project lifecycle to achieve social sustainability?
- Research question 3: What are the realisation processes and managerial implications for government and private investors to achieve social sustainability?

## 1.5 Research Aim and Objectives

The research aim is to establish a socially sustainable development process for aged care PPP projects in the Chinese context. To achieve the research aim, there are three specific research objectives.

(1) To establish a social sustainability indicator framework of aged care PPP projects in China

An indicator framework is established according to the existing literature and stakeholder theory, combined with the research aim, social backgrounds and project characteristics. It thoroughly explains what a socially sustainable aged care project should be and helps understand the realisation status of social sustainability in a project.

(2) To identify the critical practices that should be adopted in the lifecycle of aged care PPP projects

The realisation of the social sustainability of aged care PPP projects needs a process-based approach. An improved Critical Incident Technique (CIT) is adopted to determine what critical practices should be adopted in the lifecycle of projects to achieve specific social sustainability aims.

(3) To develop realisation paths and propose managerial implications to guide the socially sustainable development of aged care PPP projects

The expected results of objectives 1 and 2 are what social sustainability is, its realisation status, and what critical practices should be adopted. However, this information alone is not enough because the results are fragmented, non-operational, and cannot guide practice. Therefore objective 3 is to develop realisation paths for each social sustainability indicator and a consolidated realisation path diagram, and propose managerial implications for the government and private investors to guide the socially sustainable development of aged care PPP projects.

## 1.6 Research Scope

An aged care PPP project in this study refers to a long-term contract between a public party and a private party, with the private party responsible for providing different forms of accommodation and various types of support and care services for the elderly in a selected location. The significant risk and management responsibility through the life of the contract are assumed by the private party. Accommodation mainly includes self-contained apartments and shared housing for three types of the elderly: the young and fit elderly, the elderly who experience limitations in daily living but seek to be as independent as possible, and the elderly who are highly dependent on care. Support services are provided to all, including barrier-free design, facility maintenance, catering services and organized social activities. Care services are often one-to-one, including personal assistance, healthcare, rehabilitation, etc. (Howe et al., 2013). The diversity of

the types of accommodation and services is usually proportional to the scale of a project, with larger projects having more services.

The research site is set as China for two reasons. First, social sustainability has a strong contextual dependence (Liu et al., 2017). Different countries have different socio-cultural settings and institutions, which lead to diverse opinions about what social sustainability is. Hence this study only studies one country. Second, both the researcher and principal supervisor are from China and familiar with the Chinese context.

The research object is aged care PPP projects that provide institutional care, that is projects that provide various services to the elderly in selected locations. There are two reasons: compared with home-based and community-based care (see Chapter 3 for a detailed explanation), people are more concerned about the impact of institutional care on the quality of life for the stakeholders; and there are sufficient cases to study because, as mentioned above, 68 aged care PPP projects in the management database operated by China's MOF are at implementation phase, of which 67 are institutional care. As the Special Purpose Vehicle (SPV, a project company created to develop and manage the project, which is a key feature of most PPPs) of two projects is only responsible for construction and not for service delivery, those two projects are excluded. As a result, a total of 65 projects fall into the research scope (see Appendix 1). In addition, there are many projects which are not included in the MOF database. Therefore, the number of projects is sufficient for the research aim.

## 1.7 Research Significance

Achieving social sustainability in aged care PPP projects can have a significant long-term impact on how aged care is delivered in the future. First, it is conducive to improving the quality of life and well-being of the elderly, their relatives, employees, and other project stakeholders. For example, the elderly will be treated equally, their

health and comfort will be guaranteed; employees will receive fair treatment, have a healthy and safe workplace, and get opportunities for self-development; and local community and society will also gain many benefits, such as more job opportunities and the improvement of social inclusion and social cohesion. Second, it is conducive to developing aged care PPP projects and aged care institutions. The positive effect of a socially sustainable project on improving stakeholders' quality of life and well-being will be its most competitive strength, which is very important for the project to obtain long-term benefits. Third, it is also conducive to the implementation of the national strategy of the Chinese government to actively cope with aging and realise the harmonious development of the whole of society. Although the scope of the study is China, as the world's most populous country, China's experience can provide insights to other countries.

## 1.8 Thesis Structure

Figure 1-4 shows the structure of the thesis. Chapter 1 is the introduction. Chapter 2 presents two semi-systematic reviews on the sustainability study of PPPs and social sustainability study to examine the extent and range of relevant research, and identify research gaps; the theoretical foundation of this study is determined. Chapter 3 presents an analysis of the development of institutional care in China. It further enriches the background of this study and highlights its significance. A preliminary indicator framework is developed. Chapter 4 presents the research methodology and methods. The research framework is established and the data collection and data analysis methods are detailed after the determination of the research paradigm. Chapter 5 presents the results of data collection, including the results of focus group meetings and online Delphi surveys on the social sustainability indicator framework of aged care PPP projects, the results of improved Critical Incident Technique (CIT) implemented for the identification of critical practices, as well as the establishment of realisation paths for each indicator. Chapter 6 presents a thorough discussion on the social sustainability

indicator framework and the consolidated realisation path. Chapter 7 is the conclusion of the whole study.

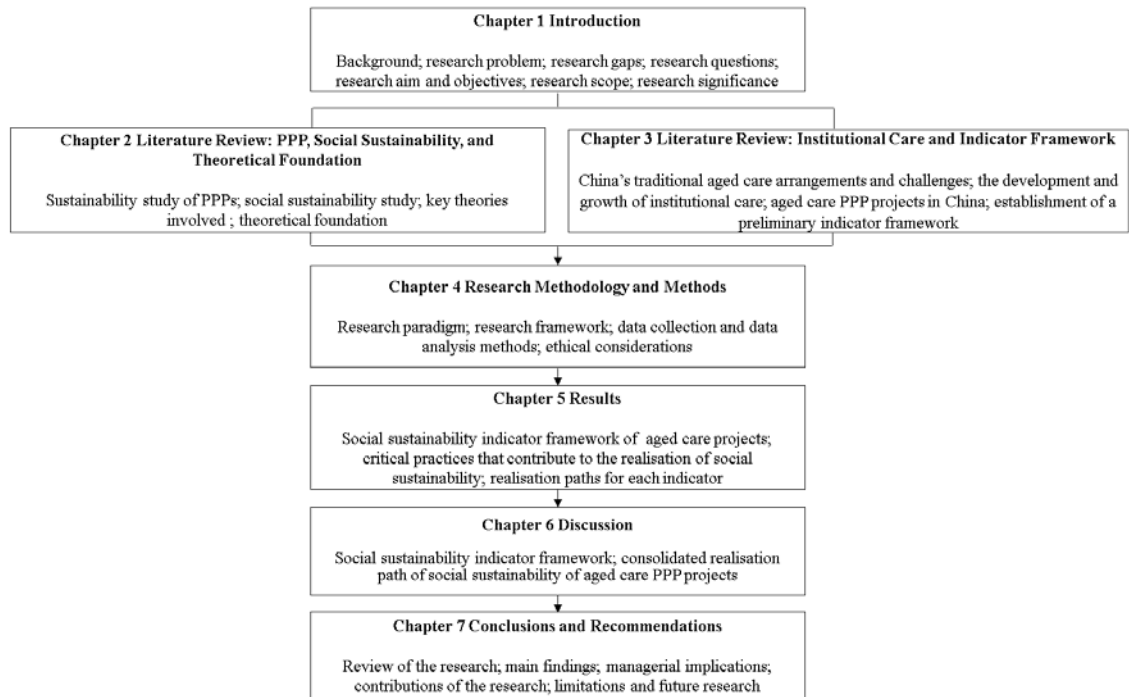


Figure 4-4 The structure of the thesis

## **Chapter 2 Literature Review: PPP, Social Sustainability, and Theoretical Foundation**

### **2.1 Introduction**

This chapter conducts a scan in the area of social sustainability study, and finds a large field of research. First, social sustainability is a complicated construct that encompasses a range of themes, such as equity, health and safety. Each theme is also a complex construct with no clear definition (Missimer, 2013). Second, social sustainability brings together knowledge from many disciplines such as anthropology, sociology, public administration, politics, architecture and business (Weingaertner & Moberg, 2014). Scholars often study it from different disciplines and perspectives and it is difficult to reach consensus (Ghahramanpouri et al., 2013; Missimer et al., 2017a).

Given the complexity of social sustainability, a semi-systematic review approach is adopted. This is a review methodology designed for a broad topic that has been conceptualised differently, studied in different disciplines and that hinders a full systematic review process (Snyder, 2019). It seeks to identify and understand all potentially relevant research traditions that have implications for the research topic and synthesise them. This type of review helps to find themes, theoretical perspectives, common issues within a specific research discipline or methodology, or identify components of theoretical concepts (Wong et al., 2013). Social sustainability study conforms well to the above premises and the purpose of the semi-systematic review here is to identify themes, common issues, theoretical perspectives, and knowledge gaps in this field.

Specifically, two semi-systematic reviews are carried out to address two review questions: what is known from the existing literature on the sustainability study of PPPs, and what is known from the existing literature on social sustainability study.

These two review questions are specific sub-questions derived from the research questions that aim to understand gaps in knowledge and that the literature review will address. They are interrelated and have their own emphases. The first review question is to review the literature on sustainability research of PPPs. It may include literature on social sustainability because social sustainability is one of the three dimensions of sustainability. However, the focus is to understand the overview of sustainability research in the PPP field in general. It has two research purposes: to examine the extent and range of sustainability study of PPPs; and to identify research gaps in the existing literature. The second review question is dedicated to providing an overview of social sustainability research. It has three research purposes: to examine the extent and range of social sustainability study; to summarise research findings in this field; and to identify research gaps. The review follows the process proposed by Snyder (2019) (Figure 2-1), which has been widely recognised by the academic community. Snyder (2019)'s research is a highly cited paper in Web of Science Core Collection and has been cited over 1,100 times.

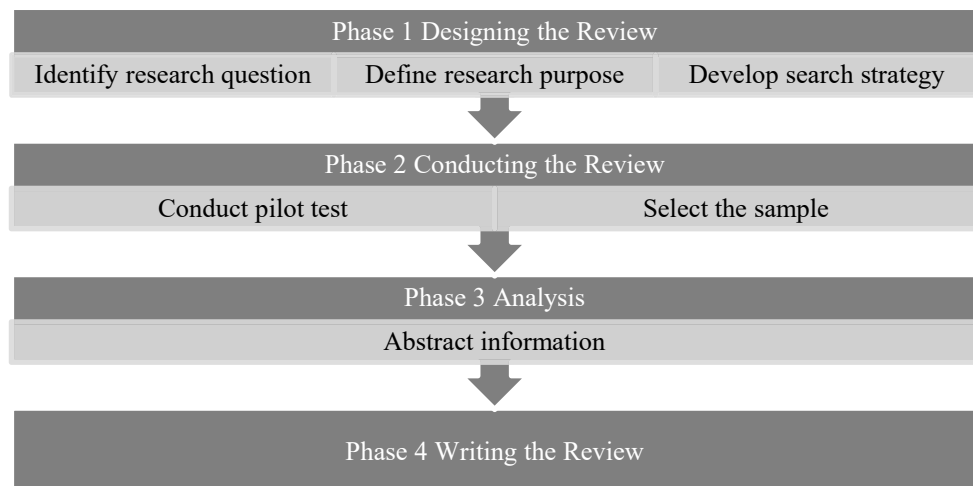


Figure 5-1 The process of semi-systematic review  
(adapted from Snyder (2019))



## 2.2 Sustainability Study of PPPs

A search strategy for identifying relevant literature is developed based on the above research question and research purposes. The search terms are (sustainab\* OR green) AND (PPP OR Public–Private Partnership). “Sustainable development” and “sustainability” are two different terms. Sustainable development refers to “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). It has been considered as a new management paradigm and a process of change, which is used to realise sustainability. Sustainability is an outcome, or a state/state of being (Missimer et al., 2010). The quality of the process determines the quality of the outcome (Sankaran et al., 2017). However, many scholars have not made a deliberate distinction between the two in their research but used them interchangeably. Therefore, the two terms are not differentiated in this review. “Green” is chosen because it is sometimes interchangeable with sustainability (Zuo et al., 2014).

The database searched is the Web of Science Core Collection Database. It is one of the most authoritative databases and is widely used by academia to track high-quality research (Birkle et al., 2020).

For inclusion and exclusion criteria, the literature type is Article. To retrieve as many related articles as possible, there is no limit on the publication period. However, time and budget are not unlimited, hence the language of the article was set as English.

The final search criteria are TI = (sustainab\* OR green) AND (PPP OR Public–Private Partnership) AND LANGUAGE: (English) AND DOCUMENT TYPES: (Article).

An actual search was conducted in the Web of Science Core Collection Database on 3 May 2019 and 42 papers were retrieved. The search was conducted in stages to select

the sample. Eight articles were excluded by reading titles and abstracts. They either mentioned sustainability or sustainable development in the title but had no substantive research or were not relevant to the subject. The full text of the remaining 34 articles was read. The articles met the inclusion criteria and were identified as the final sample.

Then, a content analysis was used to analyse and synthesise the findings from the review. It is a frequently used technique in semi-systematic reviews (Snyder, 2019). According to the research question and research purposes, the analysis includes literature sample analysis and research findings.

### 2.2.1 Literature Sample Analysis

The geographical and industry distributions of relevant studies are shown in Figure 2-2 and Figure 2-3 respectively. The geographical distribution is diverse, with the most research in any single context on China (6 studies). In addition, scholars have mainly studied the sustainability of infrastructure PPP projects.

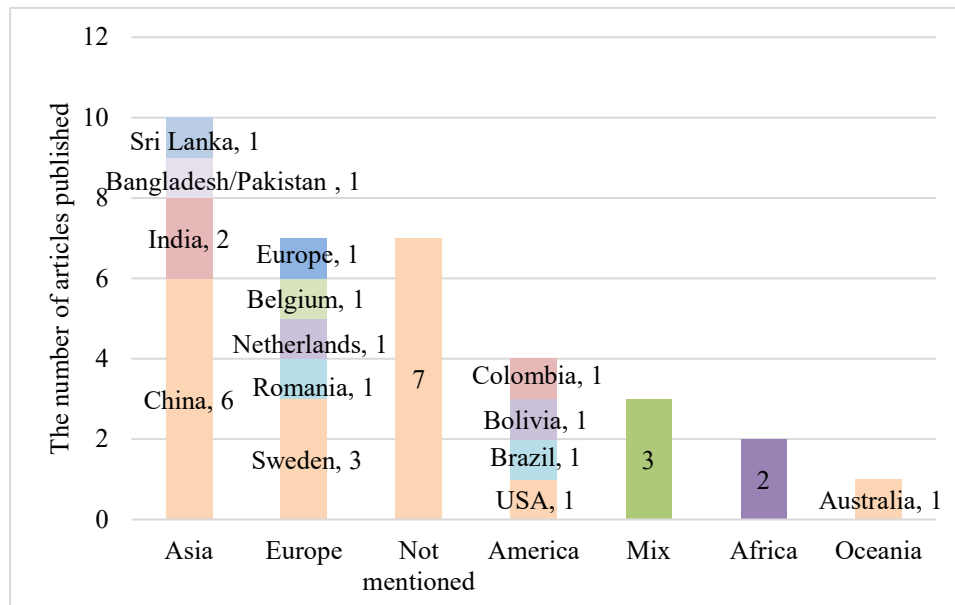


Figure 6-2 The geographical distribution of 34 relevant studies

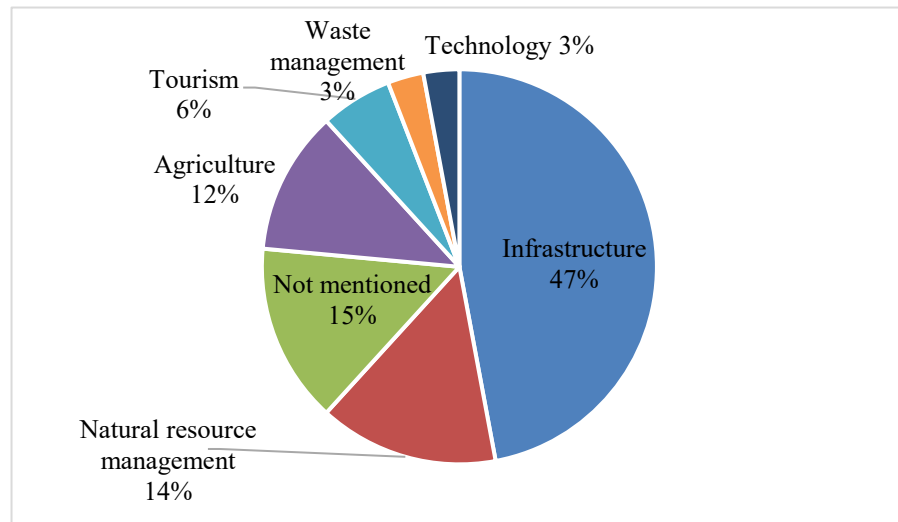


Figure 7-3 The industry distribution of 34 relevant studies

Figure 2-4 shows the sustainability aspect studied in the final sample. Twenty of the 34 studies (58.8%) analysed sustainability as a whole, while nine studies distinguished three dimensions of sustainability, and one focused on social sustainability.

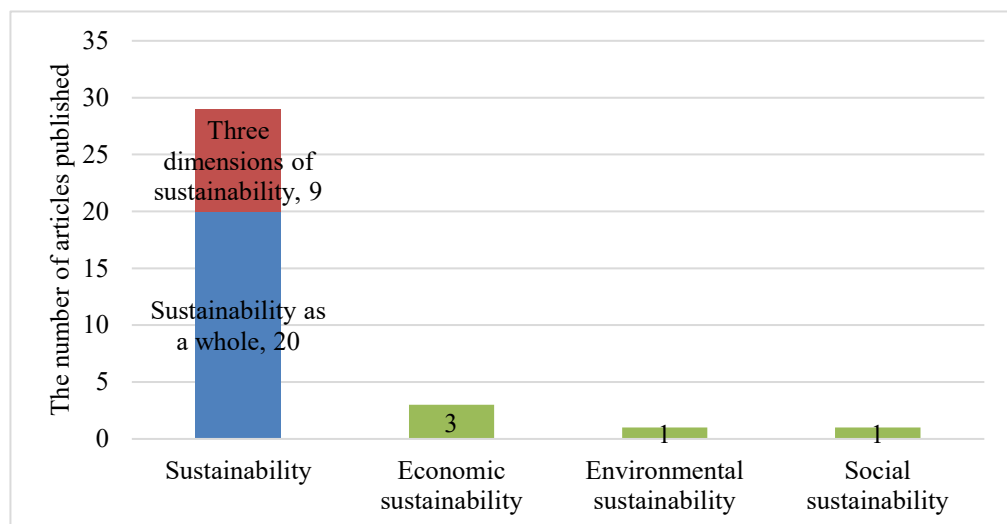


Figure 8-4 The sustainability aspect studied in the 34 studies

The sample is divided into three categories according to research findings, and the specific analysis is as follows.

### 2.2.2 The Relationship between PPPs and Sustainability

International multilateral institutions and academia generally believe that PPPs can be used as a tool to achieve sustainability. The discussion focuses mainly on three industries.

#### (1) PPPs in infrastructure

Anastasopoulos et al. (2014) pointed out that an accurate estimation of maintenance and rehabilitation costs at the planning stage of PPP projects may lead to sustainable highway preservation strategies. Dowling and Kent (2015) analysed how PPPs could contribute to the sustainable development of transport governance. Koppenjan (2015) examined the tensions between PPPs and green infrastructure. González Ruiz et al. (2017) discussed the opportunities for investing in green airport projects via PPPs.

#### (2) PPPs in natural resource management

A PPP is gradually becoming a model for the governance and management of natural resources. Heldeweg et al. (2015) analysed PPPs in biogas development. Therese and Sandström (2017) analysed the role of the Swedish government in establishing PPPs to promote the sustainable development of natural resources in rural areas. Thellbro et al. (2018) explored the driving factors of environmental protection PPP projects in Sweden's mountainous areas. Hancock et al. (2018) discussed two criteria for PPP projects to achieve sustainable resource extraction.

#### (3) PPPs in agriculture

Sustainable agricultural development can be achieved through effective cooperation between the public and private sectors. Ferroni and Castle (2011) pointed out four key issues that should be paid attention in the sustainable development of agriculture by adopting a PPP. Mench et al. (2016) showed that PPPs are effective strategies to address sustainability issues related to animal agriculture. Shapiro and Rosenquist (2004)

explored how PPPs work in the cocoa plantation industry to promote sustainable development in agroforestry.

In addition, some scholars have discussed the relationship between PPPs and sustainable development in tourism, waste management, and information and communication technology (Cheng et al., 2018; Hosman, 2011; Kruljac, 2012).

### 2.2.3 Sustainability of PPPs via Different Behaviours and Decisions

The research on how to achieve sustainability of PPPs by adopting sustainable methods is scattered. Three areas are most frequently mentioned.

#### (1) Developing sustainable procurement

Sustainability should be considered early in the lifecycle of PPP projects, because at a later stage, there is less room for improvement (Agarchand & Laishram, 2017; Patil & Laishram, 2016). The selection of partners during the procurement process gained particular attention. Some studies argued that the sustainability attributes should be considered when selecting private investors (Gao, 2018; Kumaraswamy & Anvuur, 2008; Wojewnik-Filipkowska & Wegrzyn, 2019).

#### (2) Adopting sustainable governance

Koppenjan and Enserink (2009) made an inventory of good and bad governance practices regarding the way in which a PPP is organised and regulated from a sustainability perspective. Hueskes et al. (2017) found that sustainability considerations in PPPs currently play only a limited role and the social dimension is largely ignored. They presented several governance instruments to stimulate more consideration of sustainability. Sheppard and Beck (2016) pointed out that boosting institutional capacity building is conducive to sustainability.

### (3) Managing risks

The existence of risk factors affects the sustainability of PPP projects. Bai et al. (2017) developed a sustainability risk evaluation model for PPP projects to realise sustainability. Anwar et al. (2017) identified the general risk factors in the execution of sustainable PPP projects. Yuan et al. (2018) identified social risk factors for transport PPP projects in China to improve the social sustainability of such projects.

Other methods have also been proposed, such as judging the sustainability of investment opportunities (De Albornoz et al., 2018; Leviakangas et al., 2018), encouraging sustainable behaviours of the private sector (Zheng et al., 2018), and developing proper capital structure (Du et al., 2018).

#### 2.2.4 Assessment of PPPs' Sustainability

Scholars have mainly evaluated the sustainability of PPPs at two levels: the macro-level, such as the analysis by Chen et al. (2018) of PPP-related policy documents issued by the Chinese central government; and the micro-level, such as the financial sustainability assessment by Morea and Marino (2018) of an irrigated agricultural project. Bjärstig (2017) found that a PPP did bring positive outcomes, especially in the social dimension. Shen et al. (2016) established a sustainability performance-based evaluation model to evaluate the sustainable development performance level of PPP projects. A Chinese project was studied to demonstrate the applicability of the model.

### 2.3 Social Sustainability Study

Similar to the review of sustainability study of PPPs, a search strategy for identifying relevant literature is developed depending on the research question and research purposes: a) search terms are “social sustainability” or “socially sustainable development”; b) the database retrieved is the Web of Science Core Collection Database; and c) inclusion and exclusion criteria – the literature type is Article, there is

no limit on the publication period and the language is English. The final search criteria are TITLE: (“social sustainability” OR “socially sustainable development”) AND LANGUAGE: (English) AND DOCUMENT TYPES: (Article).

An actual search was conducted in the Web of Science Core Collection Database on 9 October 2019 and 301 papers were retrieved. The search was conducted in stages to select the sample. After reading titles and abstracts 41 articles were excluded. Although they have “social sustainability” in the title, no relevant research is conducted. The remaining 260 articles met the inclusion criteria. A literature sample analysis was performed. The content was very diverse. The definition, measurement and assessment of social sustainability were the two main research issues. The final sample had 90 articles. Content analysis was then used to analyse and synthesise the findings.

### 2.3.1 Literature Sample Analysis

Of the 260 articles 143 discussed social sustainability in different industries (Figure 2-5). Infrastructure/housing, agriculture, resource exploitation and utilisation, and manufacturing have attracted the most attention. Although the research in other industries accounted for 17%, due to the dispersion, no industry accounted for more than 3.5% of the studies. Another 104 articles did not cover specific industries, but studied social sustainability of different subjects (Figure 2-6). The social sustainability of cities received the most attention, followed by the social sustainability of firms, communities and supply chains. In addition, 13 articles had neither industry nor subject, but studied social sustainability itself, including its concept, scope and key themes.

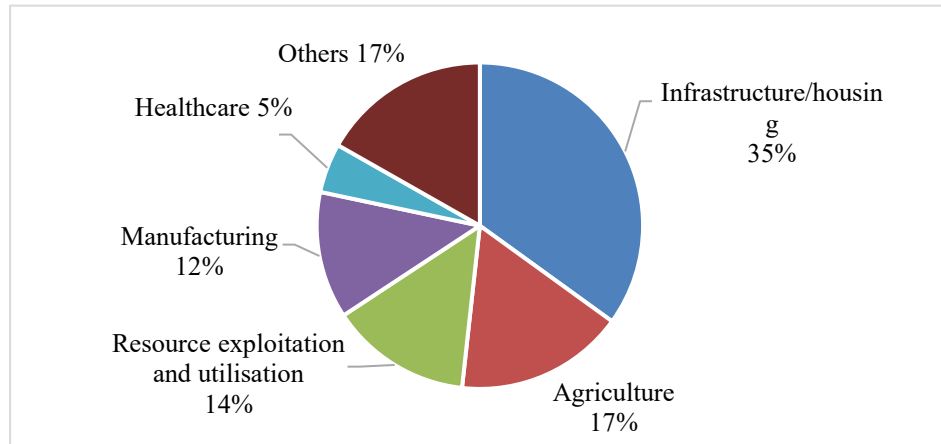


Figure 9-5 Industry distribution of 143 social sustainability studies

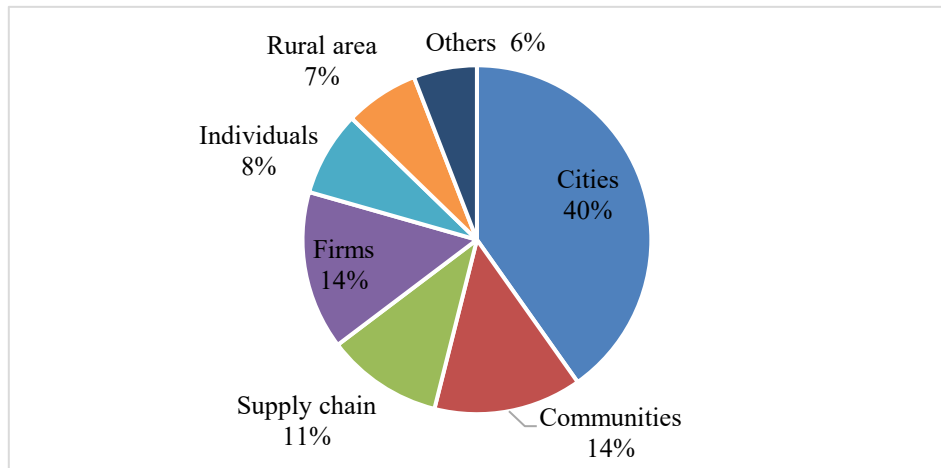


Figure 10-6 Subject distribution of 104 social sustainability studies

The content distribution indicates that social sustainability study is diverse (Figure 2-7). The two relatively major research issues are its definition, with 25 articles, and measurement and assessment, with 65 articles. The remaining 170 articles are diverse, but 83 articles focused on how to achieve social sustainability. There are many specific methods, for example the realisation of key success factors and drivers, spatial planning, and the adoption of appropriate processes and practices. Thirty articles studied the status quo of social sustainability in different countries or industries, such as mining, agriculture and housing. Ten articles studied the consequences of social sustainability practices, such as the impacts on the performance of firms or supply chains. The remaining 47 articles studied from a broader perspective, such as agricultural policy's



impact on social sustainability, or the relationship between density and social sustainability.

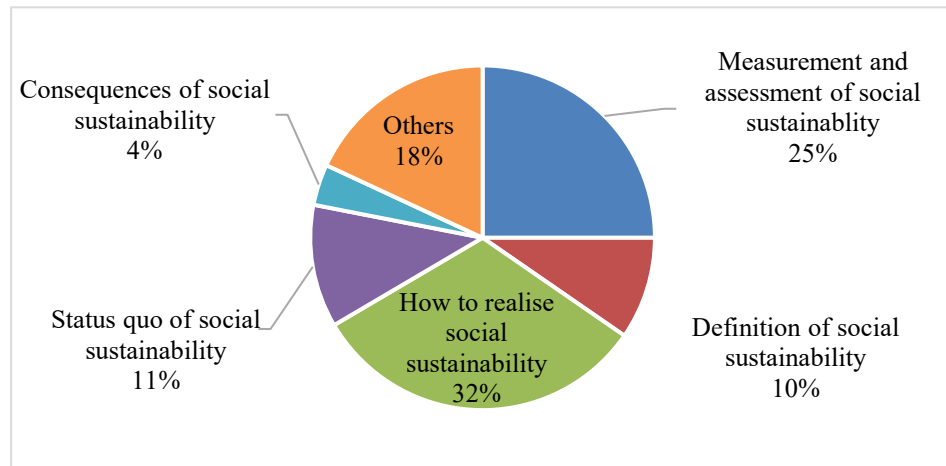


Figure 11-7 Content distribution of 260 social sustainability studies

Except for the articles on the definition, measurement and assessment of social sustainability, the findings of other studies do not provide much reference for this thesis study. They are either not closely related to the study, have specific industry or context adaptability, or are too fragmented to be synthesised. Therefore, the following analysis and synthesis of social sustainability study findings is carried out from two aspects: definition, and measurement and assessment.

### 2.3.2 Definition of Social Sustainability

Generally speaking, social sustainability means the realisation of human well-being, which is context dependent (Rogers et al., 2012). Political, institutional and cultural backgrounds, and the lives and environment of individuals and communities all have an impact on well-being (Deneulin & McGregor, 2010). Therefore, context should be determined first if the concept of social sustainability is to be studied. Scholars have mainly conducted their studies from two perspectives based on this premise.

### (1) Definition for the whole society

The whole society has been set as the context for social sustainability study, with nine articles in this category. Such studies could also be regarded as being from a neutral perspective, as they did not involve any industry or stakeholders. These nine studies have in common that social sustainability has not been clearly defined but has been broken down. The decomposition is diverse. For example, Vallance et al. (2011) divided social sustainability into three categories: development sustainability, bridge sustainability, and maintenance sustainability. Rogers et al. (2012) divided social sustainability into subjective and objective categories. Eizenberg and Jabareen (2017) broke down social sustainability into four components: equity, safety, eco-promotion and urban forms. Liu et al. (2017) built a conceptual framework of social sustainability consisting of well-being and social justice in the Chinese context. In addition, Missimer et al. (2010) and Missimer et al. (2017a) believed that the definition of social sustainability should be based on principles rather than details. A society is socially sustainable when people are not subject to structural obstacles from five aspects, such as health, influence, competence, impartiality and meaning-making (Missimer et al., 2017b).

### (2) Definition for different industries and subjects

Social sustainability has been defined in different industries and subjects, including supply chains, built environment, agriculture and resource exploitation, with 16 articles in this category. Like the study of the whole society, most studies focused on the decomposition of social sustainability rather than providing a clear definition. Social sustainability in supply chain management could be understood as solving social problems related to suppliers and stakeholders (Morais & Barbieri, 2018). Based on this, the well-being of employees, their families, communities and consumers could be ensured (Sodhi, 2015). It included equity, safety, health and welfare, philanthropy, ethics, and human rights (Mani et al., 2016; Sodhi & Tang, 2018). Cuthill (2010) pointed out that a city's social sustainability included four key components: social

capital, social infrastructure, social justice and equity, and engaged governance. Shirazi and Keivani (2017) found that social sustainability was conceptualised around seven key principles: equity; democracy, participation, and civil society; social inclusion and mix; social networking and interaction; livelihood and sense of place; safety and security; human well-being and quality of life. Different issues matched different scales (Dempsey et al., 2011). Social sustainability study in agriculture believed that an agricultural social system was sustainable when its institutional settings can meet or improve the physiological, security, social, esteem and self-actualisation needs of all concerned individuals, and when actors and institutions can constantly rebuild a system that allows future generations to do the same things (Janker et al., 2019). Studies on resource exploitation divided social sustainability into two dimensions: procedural and contextual (Suopajärvi et al., 2016).

### 2.3.3 Measurement and Assessment of Social Sustainability

As with the definition of social sustainability, scholars measured and assessed social sustainability in different industries, contexts or perspectives. Various indicators and frameworks were established that were more complex and fragmented than the definition. Iterative analysis of research findings found that although the specific presentation of indicators and frameworks was varied, the identification and establishment were mainly based on two classification schemes: classification according to stakeholders, and classification according to social impacts. Social impacts are the social and cultural consequences of any public or private actions on human populations. They will change human life, work, entertainment, relationships with others, values, norms and beliefs (Interorganisational Committee on Principles and Guidelines for Social Impact Assessment, 1995). In other words, social impacts bring positive or negative pressures on the well-being of stakeholders (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009).

(1) To establish a framework according to stakeholders

This classification scheme identifies stakeholders first, and then identifies the social impacts of products and services on them. On this basis, it establishes a framework and indicators to measure and assess social sustainability. It stems from the Guidelines for Social Life Cycle Assessment of Products by United Nations Environment Programme/Society of Environmental Toxicology and Chemistry (UNEP/SETAC) Life Cycle Initiative in 2009. Social life cycle assessment (S-LCA) is a technique for assessing the social impact of products and services on stakeholders over their lifecycle. There are two complementary classification schemes in the assessment framework: classification according to stakeholders, and classification according to impact categories. The stakeholders include workers/employees, local community, society (national and global), consumers and value chain actors (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009). The other two international assessment systems, i.e., ISO26000 and Sustainability Reporting Guidelines, were often referred to when scholars identify the social impact on stakeholders. ISO26000 was issued by the International Organization for Standardization (ISO) in 2010. It is a global guidance document for Social Responsibility with seven core subjects: organisational governance, human rights, labour practices, the environment, fair operating practices, consumer issues, community involvement and development (International Organization for Standardization, 2010). In 2013, Global Reporting Initiative (GRI) issued the fourth edition of Sustainability Reporting Guidelines (known as G4). G4 is used to guide various organizations across the world to prepare sustainability reports on their impacts on the environment, society and economy. The aim is to help the organizations set goals, measure performance and manage changes to make their operations more sustainable. The social impact of an organization is divided into four subcategories: labour practices and decent work, human rights, society, and product responsibility (Global Reporting Initiative, 2013). Human rights, labour practices, fair operating practices, consumer issues, community involvement and development (International Organization for Standardization, 2010)

and society, product responsibility (Global Reporting Initiative, 2013) correspond respectively to the stakeholder groups of workers, consumers, local community and society.

Some studies identified social sustainability indicators based on this classification scheme. In addition, there were many studies that did not strictly follow this scheme, but they did analyse social issues related to stakeholders. A social sustainability indicator framework according to stakeholders is obtained (Table 2-1) based on the three international assessment systems mentioned above and the synthesis of various studies.

Table 1-1 The indicator framework according to stakeholders

Stakeholder categories	Social impact categories	Indicators
Worker	Basic human rights at work (International Organization for Standardization, 2010)	Freedom of association and collective bargaining (Mattila et al., 2018; Nathan, 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)
		No child labour (Hendiani & Bagherpour, 2019; Mattila et al., 2018; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)
		No forced labour (Hendiani & Bagherpour, 2019; Hossain et al., 2018; Mattila et al., 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)
	Fairness and equity (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	Equal employment opportunity (Hendiani & Bagherpour, 2019; Kumar & Anbanandam, 2019; Labuschagne et al., 2005; Mattila et al., 2018; Nathan, 2018; Rajak & Vinodh, 2015; Sierra, Yepes, & Pellicer, 2018; Torres et al., 2016)
		Fair compensation (Almahmoud & Dolo, 2015; Bubou et al., 2009; Global Reporting Initiative, 2013; Hendiani & Bagherpour, 2019; Hossain et al., 2018; Husgafvel et al., 2015; Hutchins & Sutherland, 2008; Kumar & Anbanandam, 2019; Labuschagne et al., 2005; Nathan, 2018; Rajak & Vinodh, 2015; Sierra et al., 2016; Staniškienė & Stankevičiūtė, 2018)
	Health and safety (Ajmal et al., 2018; Badri Ahmadi et al., 2017; Bubou et al., 2009; Fedorova & Pongrácz, 2019; Global Reporting Initiative, 2013; Hutchins & Sutherland, 2008;	Safe and reliable workplace (Hendiani & Bagherpour, 2019; Rajak & Vinodh, 2015)
		Limited working hours (Hendiani & Bagherpour, 2019; Hossain et al., 2018; Kumar & Anbanandam, 2019; Nathan, 2018)

	International Organization for Standardization, 2010; Labuschagne et al., 2005; Mattila et al., 2018; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009; Veldhuizen et al., 2015)	Regular health check-ups (Hendiani & Bagherpour, 2019; Kumar & Anbanandam, 2019)
		Provision of health insurance
		Provision of safe operation regulations (Hendiani & Bagherpour, 2019; Kumar & Anbanandam, 2019)
	Training and education (Ajmal et al., 2018; Badri Ahmadi et al., 2017; Fedorova & Pongrácz, 2019; Global Reporting Initiative, 2013; Hossain et al., 2018; Husgafvel et al., 2015; International Organization for Standardization, 2010; Shiau & Chuen-Yu, 2016; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018; Staniškienė & Stankevičiūtė, 2018; Veldhuizen et al., 2015)	
Consumer	Health and safety (Global Reporting Initiative, 2013; Hossain et al., 2018; International Organization for Standardization, 2010; Popovic et al., 2018; Popovic & Kraslawski, 2018; Sodangi, 2019; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	Housing with good indoor environment (Ahmad & Thaheem, 2017; Karji et al., 2019)
		Protection of consumer privacy (Sodangi, 2019)
	Accessibility	Proximity to public transport/car parks (Abed, 2017; Ahmad & Thaheem, 2017; Almahmoud & Doloi, 2015; Bogdana, 2012; Karji et al., 2019; K. Lucas et al., 2007; Opp, 2017; Sierra, Pellicer, et al., 2017; Sierra, Yepes, et al., 2017; Stender & Walter, 2019; Yu et al., 2017)
		Provision of amenities (Ahmad & Thaheem, 2017; Almahmoud & Doloi, 2015; Bogdana, 2012; Karji et al., 2019)
	Education (International Organization for Standardization, 2010)	
Local community	Access to material/non-material resources (Hossain et al., 2018; Nathan, 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	Provision of affordable housing (Kumar & Anbanandam, 2019; Labuschagne et al., 2005; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018)
		Provision of service infrastructure (Kumar & Anbanandam, 2019; Labuschagne et al., 2005; Rajak & Vinodh, 2015; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018)
		Provision of mobility infrastructure (Labuschagne et al., 2005; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018)
	Cultural heritage and community culture (Labuschagne et al., 2005; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018)	Protection of cultural heritage (Sodangi, 2019; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)
		Encouraging to establish community culture

		(Olakitan Atanda, 2019; Sodangi, 2019)
	Health and safety (Hossain et al., 2018; International Organization for Standardization, 2010; Nathan, 2018; Sodangi, 2019; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	Improving local people's health (Hendiani & Bagherpour, 2019; Kumar & Anbanandam, 2019; Labuschagne et al., 2005; Rajak & Vinodh, 2015; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018)
		Creating a safe place (Kumar & Anbanandam, 2019; Rajak & Vinodh, 2015)
	Education (Almahmoud & Doloi, 2015; International Organization for Standardization, 2010; Karji et al., 2019; Labuschagne et al., 2005; Rajak & Vinodh, 2015; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018)	Working with the education sector to promote knowledge sharing (Kumar & Anbanandam, 2019; Olakitan Atanda, 2019)
		Providing health education in communities (Hendiani & Bagherpour, 2019)
	Regional economic development (Fedorova & Pongrácz, 2019; Mattila et al., 2018; Sierra et al., 2016)	Wealth and income creation (International Organization for Standardization, 2010)
		Induced investment (Labuschagne et al., 2005; Sodangi, 2019)
		Local actors' involvement (Almahmoud & Doloi, 2015; Cooper et al., 2018; Hossain et al., 2018; International Organization for Standardization, 2010; Karji et al., 2019; Labuschagne et al., 2005; Mattila et al., 2018; Montalbán-Domingo et al., 2018; Nathan, 2018; Sodangi, 2019; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)
	Social cohesion and social inclusion (Gallou & Fouseki, 2019; Labuschagne et al., 2005; Olakitan Atanda, 2019; Rashidfarokhi et al., 2018; Sierra et al., 2016; Sierra, Yepes, & Pellicer, 2018)	
Society	Job creation (Ajmal et al., 2018; Almahmoud & Doloi, 2015; Cooper et al., 2018; Fedorova & Pongrácz, 2019; Karji et al., 2019; Montalbán-Domingo et al., 2018; Olakitan Atanda, 2019; Shiau & Chuen-Yu, 2016; Sierra, Yepes, & Pellicer, 2018; Torres et al., 2016)	
	Anti-corruption (Global Reporting Initiative, 2013; Hendiani & Bagherpour, 2019; International Organization for Standardization, 2010; Kumar & Anbanandam, 2019; Mattila et al., 2018; Nathan, 2018; Popovic et al., 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	
	Fair competition (International Organization for Standardization, 2010)	Providing a stimulus to innovate (Abdel-Raheem & Ramsbottom, 2016; Hendiani & Bagherpour, 2019; Kumar & Anbanandam, 2019)
		Avoid anti-competitive behaviours (Global Reporting Initiative, 2013)

Note: The value chain actors identified in the S-LCA framework were not included because they were not involved in this study.

The framework shown in Table 2-1 is not comprehensive because it is based on a summary of some studies. However, it can provide a reference for the establishment of an indicator framework in this thesis study.

(2) To establish a framework according to social impacts

This classification scheme identifies the social impacts of products and services first, and then establishes a framework and indicators to measure and assess social sustainability. Many studies can be classified into this scheme. A social sustainability indicator framework according to social impacts is obtained (Table 2-2) based on the three international assessment systems mentioned above and the synthesis of various studies.

Table 2-1 and Table 2-2 show that classification by stakeholders and classification by social impacts are not separate from each other, but mutually complementary. Only by integrating the two into one framework can the impacts of projects on social sustainability be fully reflected.



Table 2-2 The indicator framework according to social impacts

Impact categories	Sub-categories	Indicators
Health and safety (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	Workers' health and safety (Almahmoud & Doloi, 2015; Cooper et al., 2018; Jung, 2017; Karji et al., 2019; Montalbán-Domingo et al., 2018; Popovic et al., 2018; Popovic & Kraslawski, 2018; Staniškienė & Stankevičiūtė, 2018)	Limited working hours (Husgafvel et al., 2015; Rivera-Huerta et al., 2019; Yu et al., 2017)
	Customers' health and safety (Ahmad & Thaheem, 2017; Ait Sidhoum, 2018; Almahmoud & Doloi, 2015; Karji et al., 2019; Olakitan Atanda, 2019; Zahra Mohammadzadeh & Mitra, 2018)	
	Public health and safety (Abed, 2017; H. Li et al., 2018; K. Lucas et al., 2007; Montalbán-Domingo et al., 2018; Rivera-Huerta et al., 2019; Yu et al., 2017)	
Working conditions (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	Fairness and equity	Equal employment opportunity (Cooper et al., 2018; Hutchins & Sutherland, 2008; Malak-Rawlikowska et al., 2019; Montalbán-Domingo et al., 2018; Popovic et al., 2018; Yu et al., 2017)
		Fair compensation (Montalbán-Domingo et al., 2018; Popovic et al., 2018; Rivera-Huerta et al., 2019; Yu et al., 2017)
	Training and education (Jung, 2017; Karji et al., 2019; Montalbán-Domingo et al., 2018; Opp, 2017; Popovic et al., 2018)	
	Basic human rights at work (International Organization for Standardization, 2010)	No forced labour (Rivera-Huerta et al., 2019; Yu et al., 2017)
		No child labour (Popovic et al., 2018; Rivera-Huerta et al., 2019; Yu et al., 2017)
		Freedom of association and collective bargaining (Malak-Rawlikowska et al., 2019; Popovic et al., 2018; Rivera-Huerta et al., 2019)
Socio-economic repercussions (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009)	Job creation (Ait Sidhoum, 2018; H. Li et al., 2018; Rivera-Huerta et al., 2019; Sierra, Pellicer, et al., 2017; Sierra, Yepes, et al., 2017)	
	Access to material/non-material resources (Ait Sidhoum, 2018; Almahmoud & Doloi, 2015; H. Li et al., 2018; Rivera-Huerta et al., 2019)	
	Local economic development	Wealth creation
		Induced investment opportunities (Almahmoud & Doloi, 2015; Cooper et al., 2018)
Local identity (H. Li et al., 2018)	Conservation of local cultural and historical heritage (Ahmad & Thaheem, 2017; Ajmal et al., 2018; Almahmoud & Doloi, 2015; Montalbán-Domingo et al., 2018; Yu et al., 2017)	

	Preservation of local characteristics (Almahmoud & Doloi, 2015; Karji et al., 2019; Yu et al., 2017)	
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## 2.4 Frequently Used Theories

This section summarises the often-mentioned theories that have been frequently used in the existing social sustainability studies. The analysis is based on the 90 research papers on the definition, measurement, and assessment of social sustainability.

### 2.4.1 Stakeholder Theory

Many researchers believed that stakeholder theory and social sustainability are consistent (Bellantuono et al., 2016; Collier et al., 2014; Herazo & Lizarralde, 2016). Stakeholder theory identifies and models the groups which are stakeholders of an organisation, and describes and recommends methods by which management can give due regard to the interests of those groups. When making decisions, it is necessary to consider the expectations and opinions of stakeholders (Bulgacov, 2015), which are key to promoting the socially sustainable development of an organisation (Hussain et al., 2018).

Six studies adopted stakeholder theory. Hussain et al. (2018), Hussain et al. (2019), and Khosravi and Izbirak (2019) identified stakeholder groups in the healthcare supply chain, and analysed social sustainability in this area. Morais and Barbieri (2018) analysed the social sustainability of a supply chain from a broader perspective. Two studies were conducted in the Chinese context. Yu et al. (2017) identified the main stakeholders in China's urban housing demolition programs and the potential social impact on them. H. Li et al. (2018) analysed the social sustainability of public construction megaprojects in China from the perspective of many stakeholders.

#### 2.4.2 System Theory

As a holistic approach to analysing complex interrelations, system theory can be applied to sustainability (Broman & Robèrt, 2017). It is a theoretical framework to grasp complex social phenomena, which can reduce the complexity of reality and help to understand the structure and behaviour within the system. A systematic approach can identify all important social elements of individuals and institutions and evaluate their sustainability (Janker et al., 2019).

Four studies adopted this theory. Missimer (2015) supposed that social sustainability aims to eliminate systemic degradation mechanisms in a healthy social system. The composition of social sustainability was subsequently studied based on this theory (Missimer et al., 2017a, 2017b). Janker et al. (2019) defined the social sustainability of an agricultural social system.

#### 2.4.3 Network Theory

Network theory, and especially its analytical tool Social Network Analysis, is becoming a popular method of analysing and improving the social sustainability of construction projects (Doloi, 2012). Social network analysis can simulate and examine formal and informal interactions to identify stakeholder positions and interests (Wang et al., 2018). The social sustainability of a project can be enhanced by visualising and quantifying the network and proposing necessary interventions.

Two studies were based on this theory. Almahmoud and Doloi (2015) adopted social network analysis to assess the social sustainability of construction projects, while Wang et al. (2018) used it to establish a conceptual framework for enhancing social sustainability.

In addition, some other theories have been adopted sporadically, including behaviour theory and contingency theory (Morais & Barbieri, 2018), social production function theory (Liu et al., 2017), and social justice theory (Urban et al., 2015).

## 2.5 Theoretical Foundation

### 2.5.1 The Selection of Stakeholder Theory

Stakeholder theory is the theoretical foundation of this study.

First, stakeholder theory fits well with sustainability (Bellantuono et al., 2016; Collier et al., 2014; Herazo & Lizarralde, 2016; Hörisch et al., 2014). “Sustainability” is a key element of this theory (Freeman et al., 2021). It assumes that the purpose of business is to create common value for all stakeholders, including society, in a responsible and sustainable manner (Freeman, 2010; Székely & Knirsch, 2005). The value here is not only about financial value, but also includes ethical contribution to the environment and society (Freeman et al., 2020; Hörisch et al., 2020). Therefore, it is logical to systematically explore the applicability of stakeholder theory in the field of sustainability (Garvare & Johansson, 2010).

Second, stakeholder theory can contribute to social sustainability. It concerns the interests and well-being of stakeholders (Harrison et al., 2010), and believes that it is crucial to create value for them and link the benefits of different stakeholders (Freeman, 2010). When stakeholders are treated well, they tend to reciprocate to the organisation with positive attitudes and behaviours (Harrison et al., 2015). Taking aged care PPP projects as an example, while creating value for the elderly residents by providing the high quality services they need, the projects can also create value for other stakeholders such as more job opportunities for the local community, and more tax revenue and higher public service efficiency for the government (Harrison et al., 2010). While creating value for the employees by providing education and training, the elderly enjoy

higher quality of care and better living experience (Lee & Severt, 2018; E. Miller et al., 2020). All these, in turn, help the projects gain qualified staff, more potential customers, and community support.

Finally, stakeholder theory is often used in social and sustainability studies (Littau et al., 2010; Montiel & Delgado-Ceballos, 2014; Uribe et al., 2018). The review of the theories involved in social sustainability research in Section 2.4 shows that this theory has been used the most.

### 2.5.2 Application of Stakeholder Theory

Stakeholder theory informs the whole study. Its role is mainly reflected in two aspects: it helps to clarify the research problem and it provides the lens to answer the research questions.

#### (1) Clarifying the research problem

Like other projects, aged care PPP projects need sufficient contribution from stakeholders to deliver projects and realise value creation. However, stakeholders will only contribute if their social needs and concerns are met or are expected to be met (Eskerod et al., 2013; Uribe et al., 2018). This satisfaction means the achievement of their well-being, i.e., the realisation of social sustainability. Conversely, when a project is not socially sustainable, the social needs of its stakeholders are necessarily not fully met, and the project inevitably fails to get sufficient contribution to realise value creation. Therefore, it is very important to understand the achievement of the social sustainability of aged care PPP projects.

#### (2) Providing the lens to study the three research questions

According to stakeholder theory, a project is composed of networks of relationships between different stakeholders and its main task is to create value for stakeholders (Hörisch et al., 2020). Therefore, in the process of addressing research question 1, the

stakeholder identification method proposed by Mitchell et al. (1997) is adopted to identify the stakeholders. This method has been cited more than 8,000 times and has a strong influence (Mitchell et al., 2017). Then, the stakeholder engagement method is used to finalise and evaluate the social impacts of the project on stakeholders and various indicators (i.e., the value created by the project for stakeholders).

Stakeholder theory usually describes what companies actually do, puts forward options to solve business problems, and adds to value creation (Hörisch et al., 2014). Based on this, in solving research question 2, the behaviours and decisions of the main participants – government and private investors and SPVs – are identified respectively. Stakeholder engagement is adopted to solve research question 3.

## 2.6 Summary

The first semi-systematic review analyses and synthesises the sustainability study of PPPs. It provides information on the extent and range, as well as research gaps in this field, mainly including three aspects.

First, the sustainability research of PPPs has attracted worldwide attention. China is the most studied country context, likely because it is the largest market. Nearly half of the studies focus on infrastructure PPPs, and more than half of the studies take sustainability as a whole. However, no attention has been paid to the sustainability of aged care PPP projects. Studies of hospitals and housing would be the closest. In addition, the social sustainability of PPP projects is rarely covered.

Second, existing studies agree that a PPP is a tool to achieve sustainability. However, the discussion focuses on the influencing factors, driving factors, and the challenges of PPP projects in different industries. The goal is the success of the projects.

Sustainability is treated as a general concept, and it is not known how to use PPPs to achieve sustainability.

Third, the literature discusses how to achieve the sustainability of PPPs by adopting sustainable approaches. However, the method is single focused, and it is usually implemented by a specific participant (often the government sector) at a certain stage. A systematic response is lacking that could take into account the long-term nature and complexity of PPPs.

The second semi-systematic review analyses and synthesises social sustainability studies. It provides information on the extent and range, research findings, as well as research gaps in this field, mainly including four aspects.

First, social sustainability is a complex concept, which is highly context dependent. Its definition, measurement and assessment vary by the research subject, the industry or background. However, no matter how the context changes, what remains constant is the complexity of social sustainability. It is difficult to define in one or two sentences. Instead, it is often being broken down into a series of elements, themes or dimensions, such as fairness and equity, health and safety, education and training, accessibility, and regional economic development.

Second, it is better to consider stakeholders and corresponding social impacts simultaneously when establishing the indicator framework of social sustainability. Table 2-1 and Table 2-2 indicated that classification according to stakeholders and classification according to social impacts are not separate from each other, but are complementary. Only by integrating the two into one framework can the impacts of products, services or projects on social sustainability be fully reflected.

Third, the industry distribution of social sustainability research is relatively concentrated. A few studies involve healthcare (Figure 2-5), which is related to the services provided by aged care projects. However, they mainly studied social sustainability in the healthcare supply chain, rather than the sustainability of healthcare services. There is no research specifically directed at aged care, and social sustainability research in this sector is scarce.

Fourth, although many studies analysed how to achieve social sustainability, like the sustainability study of PPPs, the method is single focused, and is based on different industries, backgrounds or perspectives. A systematic response is lacking, given the complexity of social sustainability.

In addition, the review indicates that there is not much research on social sustainability from a theoretical perspective. Less than 16% of the 90 articles involved theory, with stakeholder theory and system theory the most widely used theories. Stakeholder theory has been chosen as the theoretical foundation of this study considering its compatibility with sustainability and potential contribution to social sustainability.

Three research gaps are identified based on the research questions, research gaps and findings analysed above (Figure 2-8).



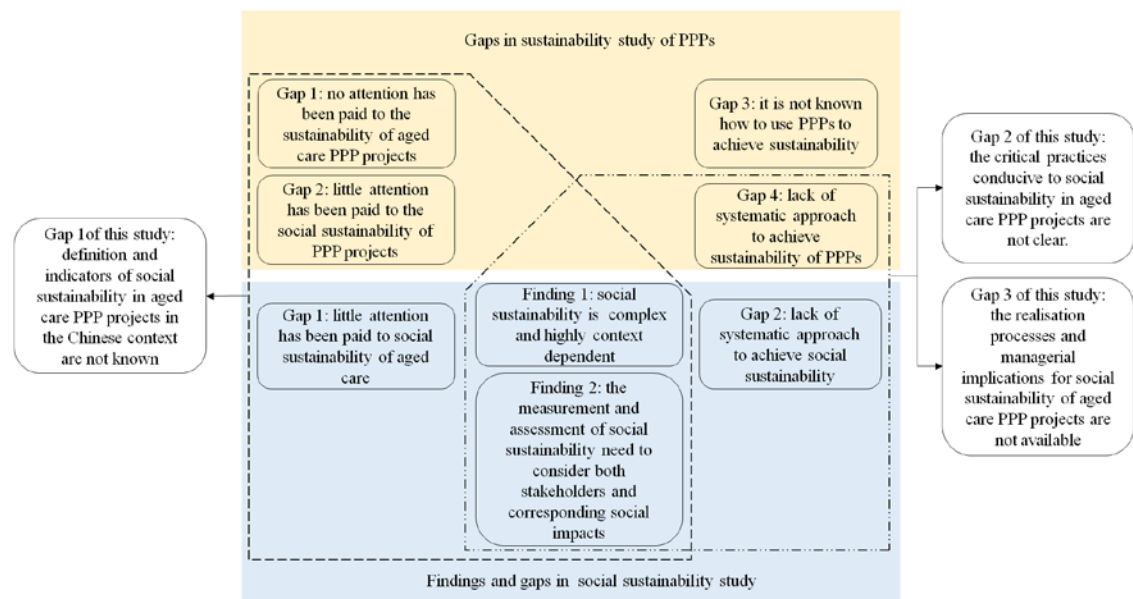


Figure 12-8 The identification of research gaps

The above two semi-systematic reviews were performed in 2019, which was the initial stage of this study. It should be acknowledged that in the past three years, there have been many new studies on social sustainability. A new query was conducted in the Web of Science Core Collection Database on 15 June 2022 to understand any new developments in social sustainability study in the field of aged care. The new search criteria were TITLE: (“social sustainability” OR “socially sustainable development”) AND (“aged care” OR “nursing home” OR “care home” OR “institutional care” OR “senior” OR “elderly”) AND LANGUAGE: (English) AND DOCUMENT TYPES: (Article). The publication period was set from 10 October 2019 to 15 June 2022. Only one result was obtained (Liu et al., 2020), indicating very little progress in this field.

## Chapter 3 Literature Review: Institutional Care and Indicator Framework

### 3.1 Introduction

According to the *Development guidelines for the aged care services standard system*, China implements a three-tiered system of aged care services: home-based care, community-based care and institutional care (Ministry of Civil Affairs & Standardisation Administration, 2017). Home-based care refers to the provision of services in the home of the elderly. Community-based care refers to providing services for the elderly in a community-based setting, for example a day centre. Institutional care provides aged care services in an institutional setting, in various forms of accommodation built specifically for the elderly (Cai et al., 2017; Su & Wang, 2019). Aged care PPP projects in this thesis study belong to institutional care. An analysis of the development of institutional care in China sets the context for this study. Specifically, China's traditional aged care arrangements and challenges are reviewed in Section 3.2, which provides an opportunity for the emergence of institutional care. Then, the development of institutional care, including service content and the providers, is discussed in Section 3.3. With the diversification of institutional care providers, the PPP model is introduced. A cross-sectional analysis on the implementation of aged care PPP projects in China is performed in Section 3.4. Finally, Section 3.5 establishes a preliminary social sustainability indicator framework of aged care project in China.

### 3.2 China's Traditional Aged Care Arrangements and Challenges

#### 3.2.1 Traditional Aged Care Arrangements

Confucian values and collectivism have a profound impact on China's aged care arrangements. Confucianism advocates virtue (Chen, 2005), while filial piety is the first and foremost virtue. It is the main cultural force that maintains China's home-based

aged care system (Bengtson et al., 2000), which believes that children's interactions with their parents should include physical care in old age (Zhan & Montgomery, 2003). Collectivism culture means the Chinese attach importance to social capital and social network, pursue a sense of community and judge whether they behave properly according to them.

As a result, the traditional aged care arrangements in China are home-based, with adult children taking care of the elderly. The arrangement is recognised by the elderly and their adult children (Han et al., 2020; Ng et al., 2002; Zhan & Montgomery, 2003). To encourage this practice, after the establishment of the People's Republic of China in 1949, the government passed legislation requiring adult children to fulfill their obligations to support the elderly.

Apart from advocating home-based care, the Chinese government also provides institutional care for the elderly, which is social welfare. However, compared with traditional care, institutional care is very small and its role is to "fill the gap". After the founding of China in 1949, local Civil Affairs departments established the earliest social welfare institutions, such as social welfare homes and respected senior homes. However, they only provide basic aged care services (i.e., bed, care, and meal) for the "Three-Nos" and "Five-Guarantees" (Wang, 2019; Zhan et al., 2008). "Three-Nos" refers to the elderly in urban areas with no children or relatives, little or no income and no physical ability to work. "Five-Guarantees" refers to the elderly in similar circumstances in rural areas, whose five basic needs – food, clothes, shelter, healthcare and funerals – are provided by the government (Bartlett & Phillips, 1997). Later, others were also admitted in those social welfare homes including the elderly who are very old, disabled/semi-disabled, have lost their only child, or widowed in economically disadvantaged families (families enjoying minimum living security, low-income families, etc.), as well as those who have made special contributions, such as Model Workers, or were disabled in the line of duty or voluntary bravery (Wang, 2019).

However, demographic changes and other key social changes have brought challenges to China's traditional aged care arrangements from both the supply side and the demand side.

### 3.2.2 Challenges from the Supply Side

Supply side challenges mainly come from three aspects.

First, China's family size continues to shrink due to the one-child policy and the change in people's perception of childbearing and childrearing. The natural population growth rate has decreased by 5.43 ‰ in the 20 years from 1999 to 2019. The average household population size has shrunk from 5.3 before the 1950s to 2.62 in 2020 (China's National Health Commission, 2014; Leading Group Office of the State Council for the Seventh National Census, 2021). The decrease in the number of adult children has a heavy negative impact on home-based care arrangements.

Second, urbanisation means the elderly have to support themselves, as urbanisation leads to population migration. When young people migrate for better development opportunities, they can no longer provide care for their elderly parents. The proportion of the urban population in China has increased by nearly 40% in the past 30 years (Figure 3-1). This increase is mainly due to migration from rural to urban areas. Migration leads to the emergence of a large number of living-alone elderly or left behind elderly (Han et al., 2020).

Third, the improvement of women's social status and their increased participation in the labour market further reduces family caregivers (World Health Organization, 2016). Traditionally, the role of family caregivers is played by women. They often quit their jobs or reduce their paid working hours to provide care (Prince, 2004). Nevertheless, the education level and employment rate of Chinese women have been increasing. In 2018,

the proportion of women in China's total employed population reached 43.7% (National Bureau of Statistics, 2019). The expansion of the female employment force has further reduced the number of family caregivers.

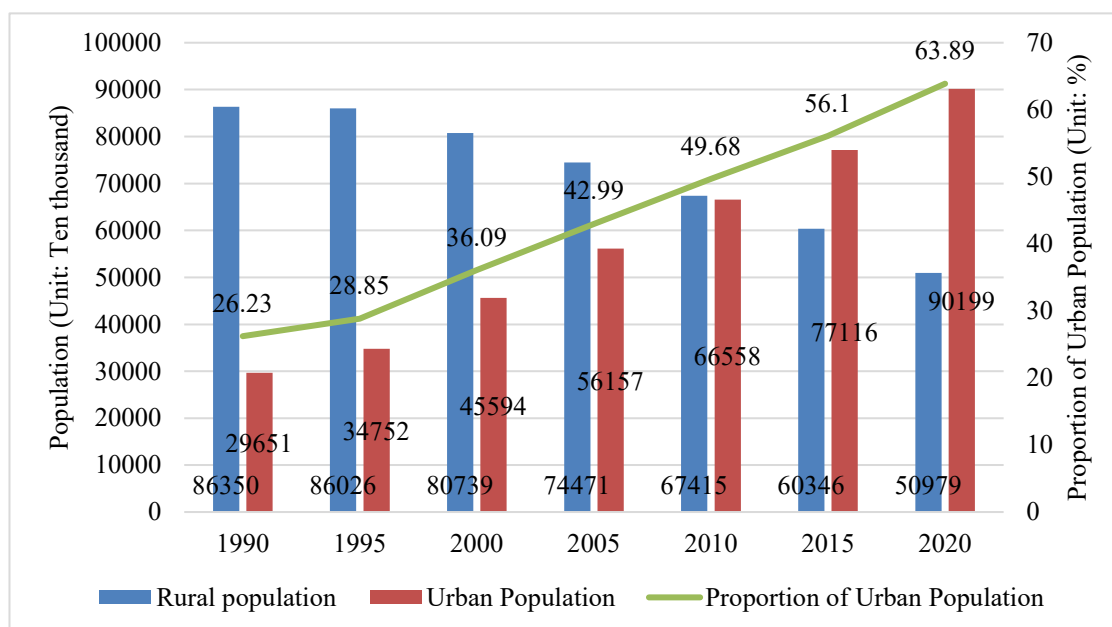


Figure 13-1 Changes in China's rural and urban populations

(Data source: 1990–2020 Statistical Bulletin of National Economic and Social Development issued by Chinese National Bureau of Statistics)

### 3.2.3 Challenges from the Demand Side

Demand side challenges mainly come from two aspects.

First, there is a growing demand for professional care services. A health transition changes the care needs of the elderly. An increase of age-related chronic diseases (especially stroke and Alzheimer's) and frailty (World Health Organization, 2002) means that care for the elderly is becoming more onerous and requires more professional knowledge. The informal care provided by family members is not enough in the new situation.

Second, the demand for support services is also increasing. In addition to care services, the demand for cultural and educational, entertainment services and social communication needs is increasing (Baylis & Perks-Baker, 2017). The elderly are beginning to pursue a more rich, colourful and dignified life in their old age.

### 3.3 The Development and Growth of Institutional Care

#### 3.3.1 The Emergence of Institutional Care

Under the multiple influences of population, economic and social structure changes, China's traditional home-based care and social welfare need to be reformed. On the one hand, the challenges mentioned in Section 3.2 mean the passive demand of the elderly for institutional care is becoming more intense (World Health Organization, 2015). On the other hand, economic independence and improved living standards mean the subjective demand is also growing. All of these changes require the government to make changes to allow institutional care to be truly socialised and popularised, and promote the transformation of its role from “filling the gap” to “affordable to the general public”.

The importance and number of institutional care places is increasing. The Chinese government's latest high-level document on aging titled *Opinions on strengthening the work on aging in the new era* called on local governments to develop institutional care in a variety of ways (Central Committee of the Communist Party of China & State Council, 2021). Compared with home and community-based care, institutional care can provide larger scale and better services (Cai et al., 2017). High quality institutions provide more available care resources and a healthy lifestyle for the elderly. In addition, people's ideas about filial piety have changed over time. Placing elderly parents in a quality care institution can satisfy the requirement for filial piety of both parties, provided the adult children's emotional and financial commitments remain strong (Zhan et al., 2008). By the third quarter of 2020, there were 42,300 aged care institutions with

4.291 million beds in China. Institutional care has become an important aged care arrangement (Ministry of Civil Affairs, 2020b; Shi et al., 2020).

### 3.3.2 Service Content of Institutional Care

To address the demand side challenges mentioned in Section 3.2.3, the Chinese government requires that the provision of aged care services should meet the actual needs of the elderly. Correspondingly, the government has issued a series of policies and documents to support the diversification of services. For example, the concept of the combination of healthcare and aged care was first proposed in 2015 (Ministry of Civil Affairs, 2015), i.e., providing healthcare and aged care services for the elderly simultaneously (Uittenbroek et al., 2015). In 2018, the central government clearly stated that “the integration of the aged care industry with industries such as health, tourism, culture, and real estate will be the trend in the future” (Central Committee of the Communist Party & State Council, 2018). *Measures for the administration of aged care institutions*, which came into effect on 1 November 2020, clearly defined the types of services that aged care institutions should provide (Ministry of Civil Affairs, 2020a).

As a result, the service content of institutional care has changed in practice from simple living care (for example, food, laundry, cleaning, etc.) to diversified services including care services (for example, basic chronic disease management, professional treatment of illness or injury, etc.) and support services (for example, social interaction, culture and entertainment, education, etc.) (Cheng et al., 2012; Shi et al., 2020; Su & Wang, 2019; Wang et al., 2021).

### 3.3.3 Providers of Institutional Care

The providers of institutional care are shifting from having a single institution or facility to having multiple institutions. The earliest aged care institutions in China were public. They were invested in and built by local governments at all levels and village collectives. The reform of the social welfare system in the 1980s created opportunities

for private investors to enter this field. To further alleviate the pressure faced by the government, the State Council issued *Plan for the construction of aged care system (2011–2015)* in 2011, indicating that it would support private investors in the establishment of various aged care institutions (General Office of the State Council, 2011). That “publicly run beds account for no more than fifty percent of the total number in the local area by 2020” has been included as a target in the *13th five-year plan for the development of national aging cause and the construction of aged care system*. The target has been achieved ahead of schedule. By the end of 2019, the proportion of private aged care institutions and beds in China had reached 54.7% and 57.6% respectively (Li, 2020).

### 3.4 Aged Care PPP Projects in China

#### 3.4.1 The Emergence of Aged Care PPP Projects

Since 2011, the government has been reforming public aged care institutions, trying to cooperate with private investors in a broad sense. Public institutions, especially newly built ones, were required to gradually encourage the participation of private investors through the model of “public construction and private operation”. In other words, the government entrusts public aged care institutions to private investors to operate in this model. Up to now, this model has become the main reform direction of public aged care institutions in China (Lin & Gou, 2018).

In the meantime, the PPP model emerged in the field of institutional care. Some “public construction and private operation” aged care projects adopted the PPP model spontaneously. In May 2014, the PPP Work Leading Group of the Ministry of Finance was formally established, marking that PPPs had entered a comprehensive development stage. In 2015, the *Implementation opinions on encouraging private capital to participate in the development of aged care service industry* indicated that the government supported the construction or development of aged care institutions via the



PPP model. According to the Ministry of Finance (2019), this model can be adopted for projects in the field of public service, which meet the following criteria: a) the government has the obligation to provide; b) suitable for private investors to undertake; c) large investment scale; d) long-term stability of social demand; and e) clear project outputs. There is no doubt that a PPP is suitable for aged care projects. Meanwhile, the government hopes that private investors will become more involved in providing aged care services affordable to the general public (Ministry of Civil Affairs & National Development and Reform Commission, 2021).

### 3.4.2 Implementation Overview

Aged care PPP projects in the project management database operated by China's Ministry of Finance are analysed in this section. This database (<https://www.cpppc.org:8082/inforpublic/homepage.html#/projectPublic>) is used because it provides open, rich and dynamic project information (Cheng et al., 2018). However, not all aged care PPP projects are included in it. Information about these projects is difficult to obtain publicly. As a consequence, the analysis here only represents the implementation overview of projects in the database, but not all projects in China.

The earliest aged care PPP project in China was launched in 2015, and the number of such projects reached its peak in 2017. As of 17 June 2022, there were 100 aged care PPP projects in the database. Of these, 65 were in the implementation phase, and provide institutional care. As only projects in the implementation phase can provide sufficient and publicly available information, the following analysis is conducted for the 65 projects.

From the perspective of time distribution, the earliest aged care PPP projects began in 2015. The number peaked in 2017 (see Figure 3-2). Recognising the importance of good management practice after an influx of PPPs from 2014 to 2017, the Chinese

government issued a series of regulatory documents from 2017 (Wang et al., 2019).

Aged care PPP projects have been greatly impacted and the number of projects dropped sharply.



Figure 14-2 Time distribution of 65 aged care PPP projects

Regarding the concession period, the shortest was 10 years and the longest was 35 years. The average period for all projects was 23.97 years (see Figure 3-3).

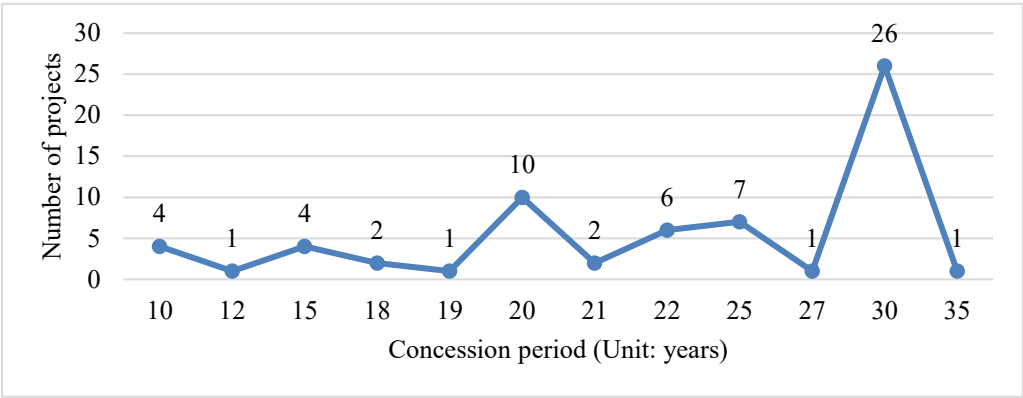


Figure 15-3 Concession period distribution of 65 aged care PPP projects

As for the investment scale, the minimum investment amount was 61.86 million CNY (about AUD 12.60 million), and the maximum investment amount was 13,078 million CNY (about AUD 2,856 million). The average investment amount of all projects was 612.82 million CNY (about AUD 130.19 million).

Regarding the geographical distribution, there were 25 projects in the eastern region, 27 projects in the central region and 13 projects in the western region (see Figure 3-4). Most projects were distributed in the eastern and central regions, which compared with the western region, have a more concentrated population and better social and economic development.

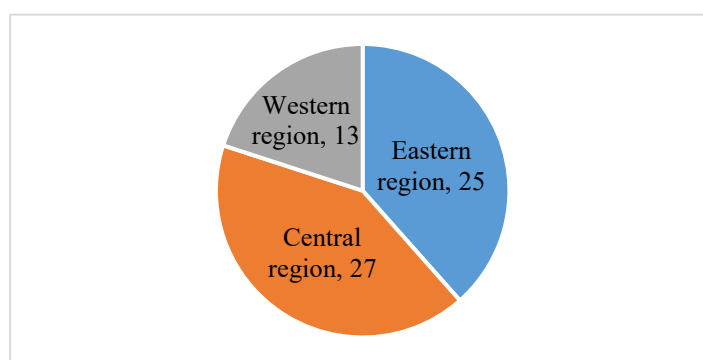


Figure 16-4 Geographical distribution of 65 aged care PPP projects

By PPP modality, there were 33 Build–Operate–Transfer (BOT) projects, 21 Build–Own–Operate (BOO) projects, and 4 Renovate–Operate–Transfer (ROT) projects. There were also some projects that use a combination mode, for example BOO together with BOT, or Transfer–Operate–Transfer (TOT) together with ROT. Other modalities, such as Transfer–Build–Operate–Transfer (TBOT), were sporadically adopted (see Figure 3-5). The degree of private sector’s involvement and risk sharing mechanism varies in different modalities. The definition of these different modalities captures the concept of legal ownership and control of the asset. In BOT and BOO, a concession is granted by a public party to a private party to build and operate a project. Control of the project is returned to the public at the end of the concession in BOT while the private party in BOO owns the project and does not transfer it. ROT, TOT, and TBOT are suitable for projects that have been built. ROT is appropriate when an existing project needs to be renovated before operation. If an existing project needs further construction before operation, TBOT can be considered. When a renovation or construction is not required, TOT is the modality to use.

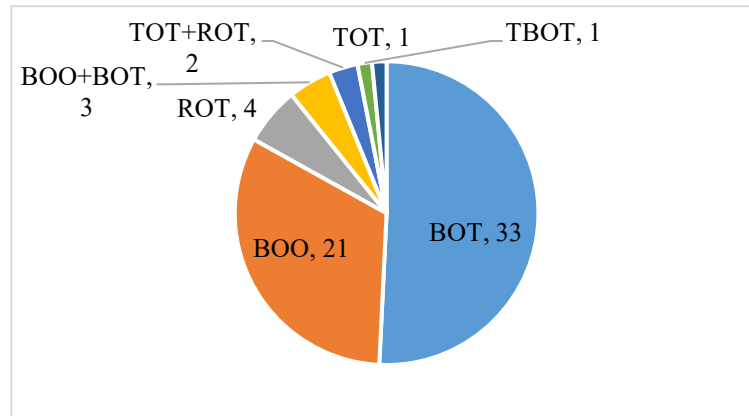


Figure 17-5 Modality of 65 aged care PPP projects

From the perspective of the payment mechanism, 40 projects adopted viability gap funding, and 25 adopted a user-pays regime (see Figure 3-6). Viability gap funding denotes that the government will make PPP projects financially viable by dedicating a portion of its budget to fund the gap between the expected project revenues and costs.

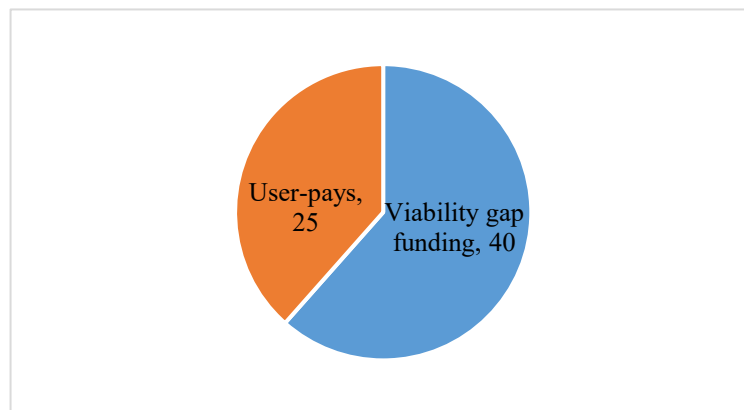


Figure 18-6 Payment mechanism of 65 aged care PPP projects

Regarding the procurement method, 35 projects adopted the open tender method, 28 projects adopted the competitive consultation method, and three projects used the method of single-source purchase (see Figure 3-7). Open tender is the first method listed in many government guidance documents. If private investors are selected through the open tender method, the shareholders of the private party can undertake the

design, construction, operation or maintenance directly without a procurement process. By using the method of competitive consultation, a consultative group negotiates the procurement matters with the qualified private investors, then the private investors submit the response documents and quotations. The winning investor will be determined according to a list of candidate investors proposed by the consultative group. Competitive consultation differs from open tender in terms of winning investor determination, time limit, evaluation method, and evaluation emphasis.

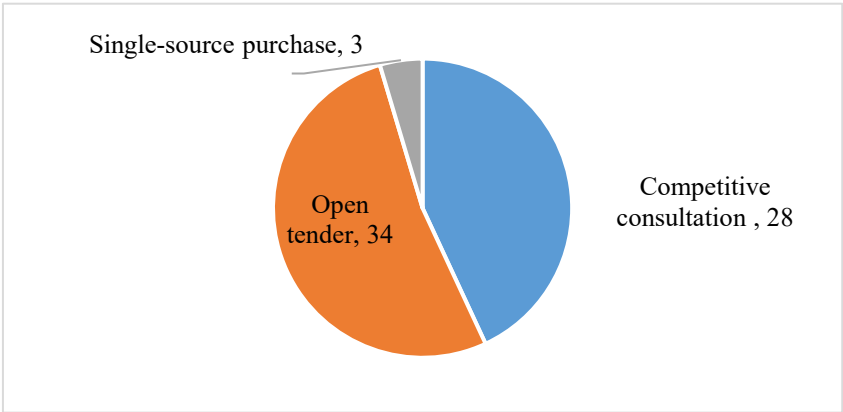


Figure 19-7 Procurement method of 65 aged care PPP projects

See Appendix 2 for details of the 65 aged care PPP projects at the implementation phase.

### 3.5 Establishment of a Preliminary Indicator Framework

The review on measurement and assessment of social sustainability in section 2.3.3 indicates that it is better to consider stakeholders and corresponding social impacts simultaneously when establishing the indicator framework. Only by integrating the two into one framework can the impacts of products, services or projects on social sustainability be fully reflected. A preliminary social sustainability indicator framework of aged care PPP projects is established based on stakeholder theory, Table 2-1, Table 2-2, and project characteristics, as shown in Table 3-1 below. The definitive

stakeholders and the social impacts of the project on them are identified. Then, the framework is established, and indicators are identified.

Employees, the elderly and their relatives, and the local community and society are identified as the three definitive stakeholders in the whole lifecycle of aged care PPP projects. According to stakeholder theory, stakeholder identification is very important. An organisation has neither the capability nor the necessity to allocate its limited resources to all stakeholders. The important ones must be identified. Many factors need to be considered. For example, the characteristics of the project and its stage (Eskerod et al., 2013; Levitt et al., 2019; Mitchell et al., 1997; Mitchell et al., 2017). Services in aged care PPP projects are produced and consumed simultaneously, and the quality of employees largely determines the service quality and experience of the elderly. In addition, the operation period needs to be focused on because it lasts for decades.

Further, according to Mitchell et al. (1997), the power to influence the firm, the legitimacy of the relationship to the firm, and the urgency of their claim are three attributes related to stakeholders. The dominant stakeholder with the first two attributes and the definitive stakeholder with all three attributes needs to be paid special attention by the firm. First, different stakeholders have different power. When a project enters the operation period, the stakeholders include the investors, employees, creditors, the elderly and their relatives, suppliers, government, local community and society, etc. According to Mitchell et al. (1997) and Freeman et al. (2017), employees have formal power because of the employment contract with the company. The elderly and their relatives can directly influence the economic outcomes of the project by voting with their feet, thus they have economic power. Local community and society can sway public opinion about a project and thus have political power. Besides, the investors, creditors, suppliers, and government all have one or more powers. Second, the investors, employees, creditors, the elderly and their relatives, suppliers and government all have legitimacy. Local community and society's legitimacy may also exist, as there

is usually a department within the project company to deal with the ongoing relationship between the project and the community or the public. Even community representatives or opinion leaders may be included in the project company's board of directors. When urgency is being considered, stakeholders begin to diverge. Urgency represents the degree to which stakeholder claims call for immediate attention. It is based on two attributes: time sensitivity - management delay in dealing with stakeholder claims is unacceptable; and criticality - the importance of the claim. In terms of social sustainability of aged care projects, stakeholders' claims focus on social issues such as equality and fairness, health and safety, education and training, etc. These claims are more relevant to employees, the elderly and their relatives, local community and society than to other stakeholders. Therefore, employees, the elderly and their relatives, and the local community and society in aged care PPP projects have power, legitimacy and urgency at the same time. They are the definitive stakeholders, and their social needs should be a focus.

In addition, some social impacts and corresponding indicators in Table 2-1 and Table 2-2 were ignored in the newly established framework, for example the basic human rights at work of the employees. They were ignored not because they were unimportant, but because they were constrained by laws and regulations to a greater extent. In this study, the ultimate goal of the indicator framework is to guide project participants to take practices to realise social sustainability. These practices are mainly driven by the pursuit of the vision of improving the stakeholders' well-being.

Table 3-1 A preliminary social sustainability indicator framework of aged care PPP projects in China

Stakeholders	Social impacts	Indicators	Explanations	Main sources*
1. Employees	1.1 Equity and fairness	1.1.1 Equal employment opportunity	The employees are treated equally without discrimination (for example age, gender, and Hukou) when seeking jobs.	Hendiani and Bagherpour (2019); Sierra, Yepes, García-Segura, et al. (2018)
		1.1.2 Fair employment contract and rational compensation system	The terms of the contract are fair. For example, the legitimate rights of the employees have not been unreasonably deprived, satisfied compensation and benefits, etc.	Global Reporting Initiative (2013); Labuschagne et al. (2005); Montalbán-Domingo et al. (2018)
	1.2 Health and safety	1.2.1 Healthy and safe workplace	The employees are provided with hard infrastructure that can ensure their health and safety.	Hendiani and Bagherpour (2019); Rajak and Vinodh (2015)
		1.2.2 Policies and procedures conducive to health and safety	The employees are provided with soft infrastructure that can ensure their health and safety.	Hendiani and Bagherpour (2019); Kumar and Anbanandam (2019)
	1.3 Education and training	1.3.1 The mastering of professional skills	The employees master and constantly improve their professional skills through education and training.	Global Reporting Initiative (2013); International Organization for Standardization (2010)
		1.3.2 Improved sustainability awareness	The employees have sustainability awareness through education and training.	Opp (2017); Popovic et al. (2018)
2. Elderly and their relatives	2.1 Equity	2.1.1 Equal access to a project	The access to a project is equal and there is no discriminatory recruitment, no matter if the elderly are rich or poor, infirm or healthy, local or non-local, etc.	Yu and Byles (2020); Bramley et al. (2009)
		2.1.2 Equal access to services, facilities, etc.	The elderly residents have equal access to services and facilities without discrimination.	Taylor et al. (2007); Wang et al. (2022)
	2.2 Health and comfort	2.2.1 Satisfied basic needs	The elderly residents have adequate and appropriate accommodation, food, clean water and sanitation, etc. Their personal and property	Opp (2017); Yee-Melichar et al. (2014)



			safety is guaranteed.	
		2.2.2 Satisfied health and physical comfort	The elderly residents have appropriate physical care. Proper treatment will be provided in time when they are ill.	Ahmad and Thaheem (2017); Olakitan Atanda (2019)
		2.2.3 Satisfied psychological comfort	The elderly residents do not feel abandoned, lonely, helpless and meaningless by establishing a social network and a sense of community in a project.	Global Reporting Initiative (2013); Sodangi (2019)
	2.3 Accessibility	2.3.1 Good accessibility of a project	A project has good accessibility to public transport and parking lots, and is convenient for family members to visit.	Abed (2017); Ahmad and Thaheem (2017)
		2.3.2 Good accessibility of facilities	A project is equipped with physical environment, entertainment, rehabilitation facilities for elderly residents. It also has payment systems, information platform and other technical components to provide convenience for family members.	Ahmad and Thaheem (2017); Karji et al. (2019)
		2.3.3 Easy access to the elderly	Family members have easy access to the elderly for emotional communication, especially in emergency situations.	Ministry of Civil Affairs (2020a)
3. Local community and society	3.1 Local economic welfare	3.1.1 Job creation	A project provides employment opportunities.	Montalbán-Domingo et al. (2018); Sierra, Yepes, et al. (2017)
		3.1.2 Induced business opportunities	A project induces other business opportunities in the local area.	Labuschagne et al. (2005); Sodangi (2019)
		3.1.3 Local actors' involvement	Local labour is employed, local companies are involved.	Hossain et al. (2018)
	3.2 Health	3.2.1 Improved local health level	A project complements the local healthcare facilities. Professional knowledge and skills accumulated in a project, for example nursing skill, are transferred to other	Hossain et al. (2018); International Organization for Standardization (2010)

			medical institutions and individuals.	
	3.3 Local identity	3.3.1 Protected/Established local culture	A project contributes to the protection/establishment of local culture, especially the culture of respect for the elderly.	Labuschagne et al. (2005); Sierra, Yepes, García-Segura, et al. (2018)
	3.4 Social inclusion and social cohesion	3.4.1 The promotion of social mixing	A project promotes the mixing of people from all walks of life in the community.	Gallou and Fouseki (2019); Sierra, Yepes, García-Segura, et al. (2018)
		3.4.2 Enhanced community vitality	A project builds a strong, active and inclusive relationship between residents, private investors, the public sector and civil society organisations.	Gallou and Fouseki (2019); Sierra, Yepes, García-Segura, et al. (2018)

\*: see Table 2-1 and Table 2-2 for more sources.

Attention has been paid to the impacts of socio-cultural and institutional backgrounds on the understanding of social sustainability. The impacts of the former mainly come from two aspects: Confucianism and collectivism. Confucianism advocates filial piety and believes that the interactions between parents and children should include physical care in old age. Collectivism culture makes the Chinese pursue a sense of community and judges whether they behave properly according to the culture. These two aspects may affect four indicators: 2.2.3, 2.3.1, 2.3.3 and 3.3.1. First, based on the idea of filial piety, both the elderly and their relatives might feel that entering an aged care institution is shameful, which means that they are abandoned by their families. This affects the psychological comfort of the elderly residents to a great extent. Second, to reduce the negative psychological impact, it is very important to have good accessibility and easy access to the elderly, which are the prerequisites for the elderly to keep in touch with their families. Third, if a project helps to protect or establish local culture, especially the culture of respecting the elderly, it would also greatly reduce the psychological burden. In addition, China's unique institutional system, the Hukou system, also affects the understanding of social sustainability. The Hukou system is a household-based population management system. A citizen's habitual residence is registered as the location of his or her Hukou. When the habitual residence changes, Hukou migration is

needed, which is a complicated and difficult issue. Hukou is linked to many aspects of welfare related to citizens' vital interests, such as employment, education, housing, healthcare, aged care and social security. It means immigrants (born in other areas of China) are largely excluded from the welfare and opportunities available to local residents and leads to inequity between the local-born and immigrants. It may affect three indicators: 1.1.1, 2.1.1 and 2.1.2.

### 3.6 Summary

Demographic changes and other key social changes have brought challenges to China's traditional aged care arrangements from both the supply side and the demand side. The importance and number of institutional care places is increasing. Services are diversifying. The providers of institutional care are shifting from having a single institution or facility to having multiple institutions. In the meantime, the PPP model emerged in the field.

A preliminary social sustainability indicator framework of aged care PPP projects in China is established based on stakeholder theory, literature review, and project characteristics. It contains three definitive stakeholders and 21 indicators.

## Chapter 4 Research Methodology and Methods

### 4.1 Introduction

The literature review in Chapter 2 indicates that social sustainability is a complex construct, which contains different themes in different contexts. Its measurement and assessment need to be implemented through an indicator framework, which considers both stakeholders and social impacts. Various behaviours and decisions are conducive to social sustainability, such as the selection of appropriate project partners, reasonable spatial planning, risk factor identification and management. They are adopted by different organisations or individuals at different stages of the project lifecycle. Consolidating these fragmented behaviours and decisions would be more conducive to achieving social sustainability. This is particularly important for PPPs, considering their long-term nature and complexity.

To realise the social sustainability of aged care PPP projects in the Chinese context, three propositions are identified: an indicator framework considering various stakeholders and social impacts helps to understand what the social sustainability of aged care PPP project is; the specific behaviours and decisions of both public and private parties at specific stages are the cornerstones of social sustainability; and a consolidated realisation process contributes to the realisation of social sustainability.

The research methodology and methods of this study are built around these three propositions, with the ultimate goal of answering the three research questions raised in Section 1.4.

## 4.2 Research Paradigm

Ontologically, social constructivism is relevant. There are many stakeholders in aged care PPP projects, such as the government, the private investors, the employees, the elderly and their relatives, and local communities. Different stakeholders have different views on the social impacts of the projects and the specific indicators, as well as how to realise social sustainability. The difference will lead them to take different actions. Moreover, views may change over time. Therefore, the social sustainability of aged care PPP projects is not completely an external existence independent of human beings but constructed through the interaction of stakeholders.

Epistemologically, the views of various stakeholders on the social sustainability of projects are analysed, as well as the critical practices the government and private investors have already adopted and are supposed to adopt to realise the aim based on China's specific social, cultural, and institutional background. Realisation paths for different indicators and a consolidated realisation path are established to achieve social sustainability. The analysis process is inevitably influenced by the researcher's own values.

Interpretivism is chosen based on philosophical assumptions. The social sustainability of aged care PPP projects is defined, and the realisation process is explained. Specifically, this study first establishes a preliminary indicator framework. Data is then collected and analysed to finalise and evaluate it. Next, the critical practices that are conducive to the promotion of socially sustainable development are identified. They are linked to various indicators and attributed to different stages in the lifecycle of aged care PPP projects, to form the realisation path of social sustainability.

Qualitative research is adopted in this study. The history of aged care PPP projects in China is short, and their social sustainability has not yet received sufficient attention

from scholars and practitioners. Therefore, it is not possible to obtain the required information through the adoption of quantitative methods, such as large-scale surveys. In addition to collecting secondary data, it is appropriate to collect first-hand data from professionals in this field through the methods of focus groups, Delphi survey and interviews. All the above methods belong to qualitative research. In addition to qualitative data, quantitative data is also collected and analysed in the Delphi survey. Five-level Likert scales are adopted to evaluate indicators, and the mean value, consistency and difference of experts' evaluation of various indicators are computed. Two considerations determine that this study is qualitative: according to Hasson et al. (2000), the quantitative analysis conducted in this study produces only statistical summaries, which are used to objectively study the subjective notion of social sustainability; and the sample size is quite small. Therefore, the whole study can be regarded as qualitative research with some quantitative analysis elements.

### 4.3 Research Framework

The nature of this research is exploration and interpretation. The research problem of the low achievement of the social sustainability in aged care PPP projects in China is novel. Therefore, exploration is the first step. The direct results of exploratory research are to clarify what the social sustainability of aged care PPP projects is. This is only a “preliminary impression” of the research problem, which cannot achieve the research aim. Therefore, the purpose of the next step is the explanation, i.e., to find ways to realise social sustainability. Specifically, this study explores how to establish socially sustainable development processes by adopting critical practices at different stages in the project lifecycle to ensure the realisation of social sustainability.

A research framework (shown in Figure 4-1) was established according to the research aim and research objectives, combined with the above considerations. The whole research is divided into three phases under the guidance of the research objectives:

Phase 1, to establish an indicator framework for social sustainability of aged care PPP projects in China; Phase 2, to identify various critical practices that are conducive to the realisation of social sustainability in the project lifecycle; and Phase 3, to establish realisation paths and managerial implications for government and private investors.

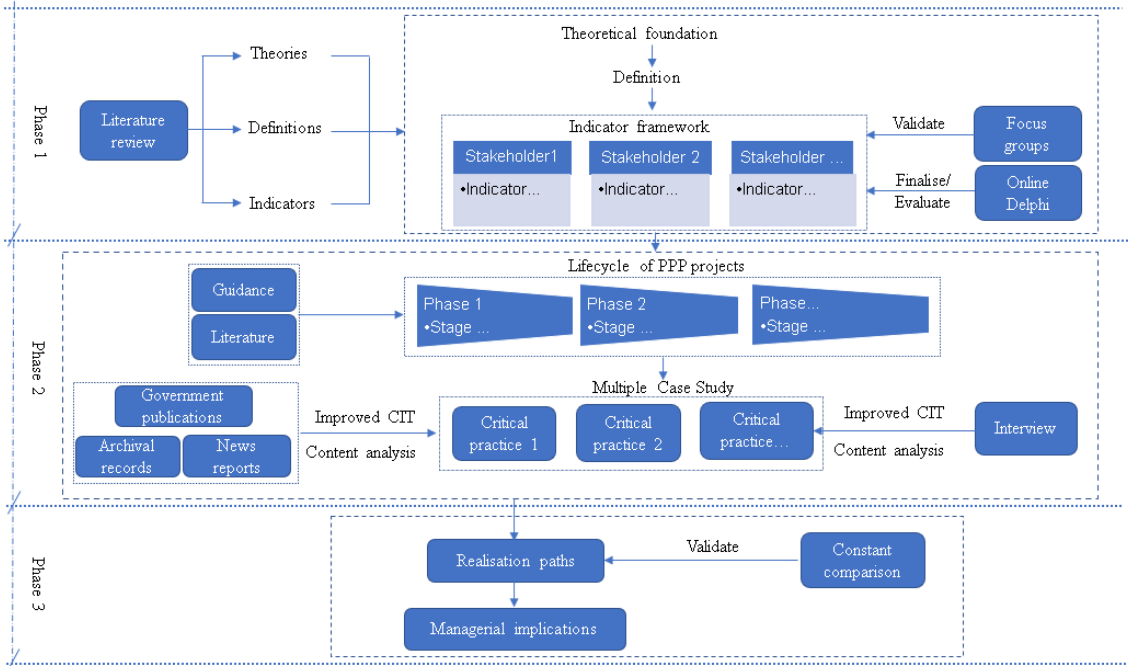


Figure 20-1 Research framework

#### 4.4 Data Collection and Data Analysis Methods

There are three phases in this study according to the research framework. The specific data collection and data analysis methods for each phase are discussed below.

##### 4.4.1 Phase 1

Phase 1 corresponds to the research objective 1 in Section 1.5. The main purpose is to establish an indicator framework for the social sustainability of China's aged care PPP projects. Figure 4-2 illustrates the development process of the framework. Two steps were carried out in this phase.

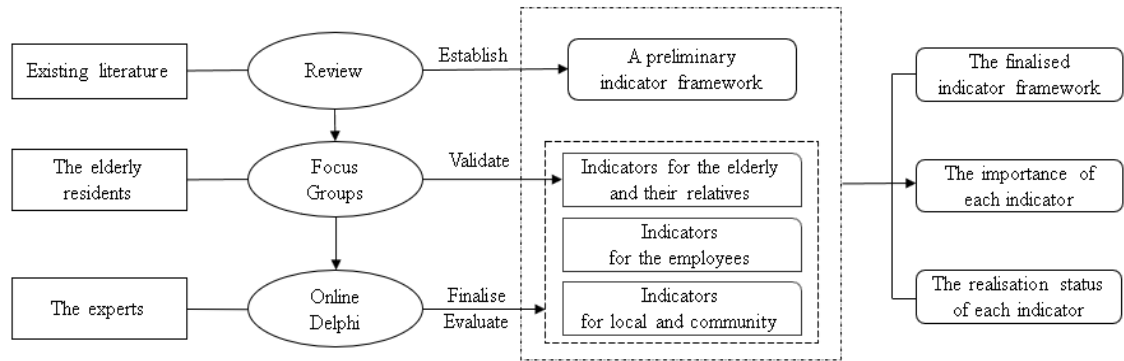


Figure 21-2 The development process of the indicator framework

#### (1) Establish a preliminary indicator framework

A preliminary social sustainability indicator framework of aged care PPP projects was established based on stakeholder theory and the analysis of existing literature. The framework considers stakeholders affected by the projects and the social impacts brought by the projects on them. It could thoroughly explain what a socially sustainable project should be.

#### (2) Finalise the framework, and evaluate the importance and realisation status of social sustainability indicators

Focus groups and online Delphi surveys were adopted successively to collect data. The aim of the focus group is to validate the preliminary indicator framework related to the elderly and their relatives. They are end users of aged care PPP projects and the framework includes considerations about them. Considering the cognitive and judgmental capabilities of the elderly, the discussion scope of the focus groups is set for the indicators related to the elderly and their relatives. The main issues are whether the existing indicators are important and why; and whether any indicators need to be added or deleted.

Focus groups are adopted to describe and understand social sustainability from the perspective of the elderly residents; to provide rich and detailed information about the



elderly residents' feelings, thoughts, perceptions and impressions; and to provide an alternative safe environment for people who do not like one-to-one interaction, where they can share their ideas with people from the same background (Liamputtong, 2016). Subject to age, cognition capability and environment, the elderly in this study are likely to provide more useful information in an environment accompanied by other elderly people.

Two rounds of focus group meetings were held, with 12 participants per round. The number is appropriate for a focus group meeting (Liamputtong, 2016). Moreover, the total number of participants was roughly the same as the final number of participants in the following online Delphi survey, ensuring that the finalisation of the framework was balanced with input from the elderly and industry experts. The participants were elderly residents of two aged care institutions. The institutions are in Ningbo, Zhejiang Province. Zhejiang is one of China's first provinces to enter an aging society. In 2021, it became an aged society, with the elderly making up over 14% (Zhejiang Provincial Bureau of Statistics, 2022). Ningbo is a city that entered an aging society earlier in China. By the end of 2021, there was 1.269 million elderly, accounting for 13.27% of the total population, which is close to an aged society (Ningbo Municipal Statistics Bureau, 2022). Ningbo was selected into the national list of key cities to actively cope with population aging in June 2022. It has 264 aged care institutions, ranking the first in Zhejiang Province (Zhejiang Civil Affairs Bureau, 2022). Meanwhile, Ningbo is also the researcher's home city, which facilitated the focus group meeting. The selection criteria of an institution are that it has a good reputation, and it is recognised as successful by practitioners. There is no requirement for the institutions to be operated under a PPP model because the social needs of the elderly residents are the same regardless of the model. The two selected institutions were recommended by the researcher's acquaintance, who is the manager of a local aged care institution and is very familiar with the local institutions. After obtaining consent, the contact information of the managers of the two institutions was provided to the researcher. Subsequently,

the researcher contacted each of them, provided them with an invitation letter and participant information sheet, and asked them to recommend elderly residents suitable for participation. To collect high quality data, the elderly participants were required to have the ability to live independently and with cognition, be able to understand the aim of the focus group and provide opinions clearly. Although the ability to live independently is not a necessary prerequisite for participants, it can reduce the inconvenience of the focus group meeting for the elderly and the involved aged care institutions. The managers communicated with potential participants to make them aware of the aim of the focus group and agreed on the meeting time.

This study referred to the focus group process proposed by Liamputtong (2016), which includes five stages: preparation, on arrival and pre-discussion stage, introduction stage, questioning stage, and ending the interview stage. The site was set as the reading room of the institution, which is accessible for the elderly. On the day of the focus group, the researcher arrived early to greet the elderly who arrived and ease their nerves through “small talk”. Meanwhile, participants’ informed consent and demographic information were obtained. The researcher then described the upcoming focus group session, the research topic and the aim. Respect for the views of all participants and confidentiality of information were assured. Permission was requested to record the focus group. The researcher used a prepared question guide to trigger group discussion. The participants were asked to discuss an indicator when it was introduced, for example, whether it is important, why, and if there are any examples to illustrate its importance. This continued until all the indicators were discussed in depth and the information obtained was sufficient. At the end of the focus group, the researcher summarised the key points raised by the participants and asked if there was anything they wanted to add, such as whether existing indicators needed to be deleted or new indicators needed to be added.

Content analysis was used to analyse the importance of each indicator and corresponding reasons. Indicators were the basis for grouping. The analysis unit was the

discussion of various indicators. All the discussion of a certain indicator by the elderly helped to judge its importance.

Aged care PPP projects involve other stakeholders, and their social needs cannot be ignored. After obtaining the views of the elderly on the relevant indicators through focus groups and making possible modifications, online Delphi surveys were conducted to finalise the validated indicator framework, evaluate the importance of each indicator and assess the realisation status.

Delphi is a systematic and interactive research technique, which can construct relatively consistent judgments on a specific topic from a group of experts (Hyndman & Athanasopoulos, 2018). This method is particularly useful in the following situations: the research problem is complex, there is an absence of empirical evidence or information, or the experimental research is unrealistic (Alshubbak et al., 2015; Alvarez Etxeberria et al., 2015). The social sustainability of aged care projects is such a complex problem. There is a lack of academic and practical consideration on this issue in China and in the rest of the world. In other words, people's knowledge of this field is still incomplete. In this case, collecting the experts' inaccurate known or available data on social sustainability and adopting a structured iterative approach are conducive to obtaining more consistent and more accurate collective views (Landeta, 2006). Moreover, this technique is considered to be suitable for the development of indicators (Hasson & Keeney, 2011). Online Delphi was adopted because it is conducive to obtaining collective opinions on the social sustainability indicator framework of aged care PPP projects. In addition, as an appropriate technique for utilising expertise without travel, online Delphi can make data collection more efficient, convenient and cheaper (Cohen et al., 2018; Landeta, 2006).

To ensure the rigour of application, this study followed the Delphi procedure suggested by Hallowell and Gambatese (2010). The Delphi method has been applied several times

in research to study social sustainability (Jafari et al., 2019; Sierra et al., 2016; Sierra, Pellicer, et al., 2017). Figure 4-3 demonstrates the whole Delphi procedure, which consists of three stages and a series of steps. It is explained in detail below.

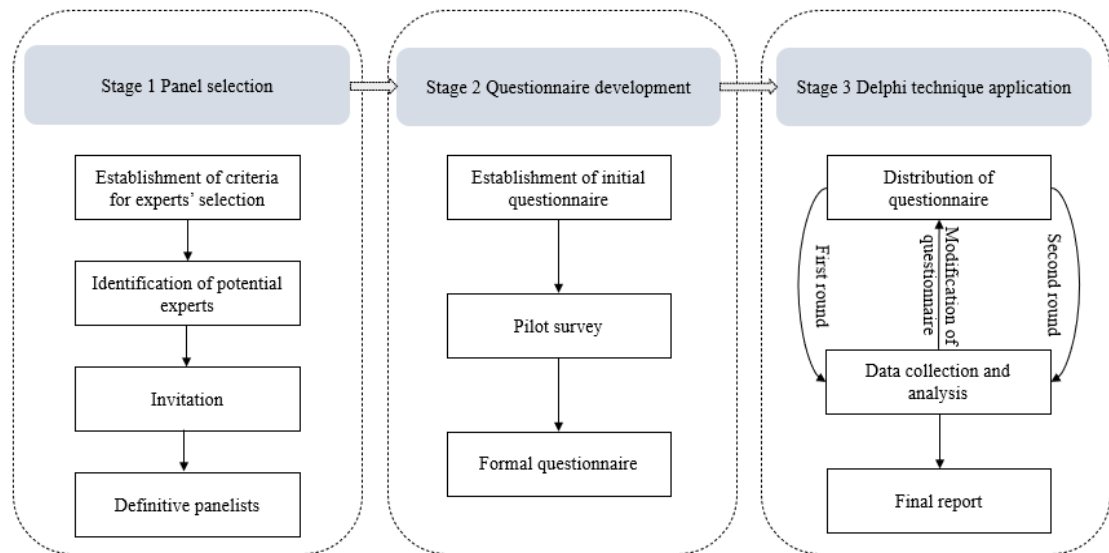


Figure 22-3 The procedure of online Delphi

### Stage 1: Panel Selection

The online Delphi participants included practitioners who have directly participated or are participating in aged care projects and/or scholars with in-depth research on aged care and/or sustainable development. This can encourage a healthy balance of professional and academic experience among the panellists and ensure they can provide deep insights. The aged care projects here refer to the general ones. As with the selection of institutions in the focus groups, participants are not specifically required to engage in practice or research on PPP projects. The social sustainability of the project is the same whether the PPP model is adopted or not. In the Delphi process, the most important aspect of selecting experts is their expertise level. When analysing the application of the Delphi method to construction, engineering and management, Hallowell and Gambatese (2010) proposed that the qualifications of experts should be specified in advance. Eight requirements were raised, and the experts should meet at

least four of them. Considering that institutional care has not been recognised for a long time in China and there is a lack of professionals, this study excluded three requirements in the Hallowell and Gambatese (2010) study: the authors of books or book chapters related to the field, professional registration, and advanced degree in a related field. Five requirements were retained after appropriate adjustments: a) Faculty member of a higher education institution; b) at least two years work or research experience related to aged care or sustainable development; c) primary or secondary author of at least two peer-reviewed journal papers related to aged care and/or sustainable development; d) invited to speak at least once at a conference on aged care or sustainable development; and e) chair or member of a nationally recognised related committee. A new requirement was added: f) participated in at least one aged care project. The panellists should meet at least two of the six requirements. This study post-verified the experts' status. That is, participants were verified as meeting the criteria after they had filled out the questionnaire. Questionnaires by participants who do not meet the requirements were excluded. This avoids dampening the enthusiasm of experts to participate, considering there are not many experts who are suitable for participation.

The list of potential experts was identified in three ways: a) a few experts known by the researcher; b) experts identified according to the above six requirements, including scholars who have published high-quality papers retrieved by SSCI/SCI/EI in the field of aged care and/or sustainable development, professionals who expressed their views on aged care issues in the authoritative WeChat Official Account (such as “Dao PPP”, sponsored by the Government and PPP Research Centre of the Ministry of Finance, a new media form popular in China), and practitioners in SPVs, consulting agencies and government departments of aged care PPP projects; and c) other qualified experts recommended by the existing experts. The contact information of scholars and some professionals is publicly available in their published papers and official account articles. For practitioners from organisations, the organisation's email address was first obtained

from their website, and then invitation letters were sent to them. Asking for their help to recommend experts could not happen until after obtaining the organisations' informed consent. Subsequently, the snowball sampling technique was used to ask these participants to nominate more experts (Skulmoski et al., 2007). It is difficult to find aged care experts who are familiar with social sustainability. Therefore, snowball sampling is particularly suitable for expanding the panel size, which provides the opportunity to contact experts who might otherwise be inaccessible (Singh et al., 2009). Invitation letters and a Participant Information Sheet were provided to all potential participants.

The number of experts to be invited to participate in the first round was between 30 and 40. When determining the panel size, there is a consensus in the literature that the Delphi technique does not have a standard range (Skulmoski et al., 2007). The specific number of panellists should be dictated by the characteristics and objectives of a study. In addition, the possibility of experts dropping out should also be considered. Based on the above considerations, it is decided to gather 30 to 40 participants. In this way, there is no need to worry about the number of experts, and it can also ensure that the opinions provided by the panel are adequate (Olakitan Atanda, 2019). Meanwhile, it can guarantee that the total number of experts at the end of the Delphi process is roughly equal to the number of participants in the focus groups. Furthermore, the numbers of valid responses in this study are higher than the numbers in previous studies that analysed social sustainability using Delphi method with participants ranging from 11 to 24 (Jafari et al., 2019; Sierra et al., 2016).

## **Stage 2: Questionnaire Development**

An initial questionnaire was developed based on the literature review and the preliminary indicator framework. The questionnaire was semi-structured, with five sections: a) Participant Information Sheet; b) questionnaire description; c) basic

information of participants; d) judgment of social sustainability indicators; and e) suggestions on improving the indicator framework.

A pilot survey was conducted before the formal online survey to verify the rationality of the questionnaire, find any possible problems in the formal survey and address them in advance. Compared with the initial questionnaire, the pilot questionnaire had two extra sections: pilot survey description and suggestions for improving the questionnaire and online Delphi survey process. The formal first round questionnaire was determined based on the results of the pilot survey (see Appendix 3).

A second round questionnaire was developed after the collection and analysis of the first round data (see Appendix 4). The questionnaire was still semi-structured. The experts were supposed to evaluate the importance and realisation status of social sustainability indicators again according to the results of the first round. The questionnaire had three parts: a) questionnaire description; b) supporting information; and c) re-judgment of social sustainability indicators.

### **Stage 3: Delphi Technique Application**

Two rounds of online Delphi were conducted. Delphi research is a multiple round technique that aims to reduce variance, form consensus, and improve precision (Hallowell & Gambatese, 2010). A summary of peer-reviewed Delphi studies showed that more than half of the studies found that consensus could be reached after three or fewer iterations (Dalkey et al., 1970; Gupta & Clarke, 1996; Linstone & Turoff, 1975). Dalkey et al. (1970) suggested that Delphi results are most accurate after the second round and Alvarez Etxeberria et al. (2015) confirmed this conclusion. In addition, the concept of social sustainability in this study is complex and no consensus has been reached. Hence, the main purpose of online Delphi in this study is not to reach consensus, but to find any inconsistencies among the experts, and to explain and analyse

them. The final judgment is made by the researcher based on explanation and analysis. Therefore, two rounds of online Delphi were conducted.

The first round Delphi survey was conducted using Qualtrics, a survey platform. The researcher created the questionnaire in Mandarin on the Qualtrics platform and carried out the survey over the internet. Questionnaire links were sent to the participants through WeChat and email for easy participation. Whenever there was no response, the researcher contacted the experts again to improve the participation rate.

The researcher analysed the data after the first round survey in five sections: status analysis of the panellists; quality analysis of the data; the analysis of each indicator's importance and realisation status; consistency and difference analysis of panellists' judgment. The experts were divided into a researcher group and a practitioner group. The level of consensus and differences in the judgment of the importance and realisation status of the indicators among the two groups were analysed; and suggestions for open-ended questions analysed.

Statistical Package for the Social Sciences (SPSS) was used for the analysis:

- Descriptive statistical analysis was used to judge the status of experts.
- Cronbach's Alpha coefficient and content validity test were used to analyse the reliability and validity of the data. Content validity is appropriate because the scale of the Delphi survey is small and statistical methods are not applicable.
- Mean Score method was used to evaluate the importance and realisation status of each social sustainability indicator. The importance and realisation status of indicators in the Delphi questionnaire were evaluated by five-level Likert scales. The most common method to deal with scale data is the Maximum Frequency method (Roumboutsos & Anagnostopoulos, 2008) and the Mean Score method (Ke et al., 2010). Maximum Frequency is suitable for category scale. However, the scale in this study is distance scale. Therefore, the Mean Score method was chosen.



- Kendall's consistency coefficient was used to measure the overall consistency of the panelists' evaluation on the importance and realisation status of social sustainability indicators, and the consistency of different expert groups. Kendall's Consistency coefficient (or Kendall's W) is suitable to measure the degree of consistency among the panelists (Sierra et al., 2016; Singh et al., 2009). The value of W is between 0 and 1, where 0 means no consensus and 1 means perfect consensus. When Kendall W is greater than 0.70, it indicates a strong consensus; when Kendall W is between 0.50 and 0.70, it indicates a moderate consensus; and if Kendall W is less than 0.50, it indicates that there is little consensus among the panel members (Schmidt, 1997). Since the participants included both researchers and practitioners, the consistency of evaluation of different expert groups was also analysed. Nonparametric tests of two independent samples in SPSS were used to analyse the significance of differences between the evaluation of the importance and the realisation status of all indicators.
- The suggestions for open-ended questions were analysed through content analysis to determine whether the framework needed to be modified. There are several open-ended questions in the last section of the first round questionnaire: whether the three stakeholder categories listed in the framework are reasonable, whether new categories need to be added or the existing ones need to be adjusted; and whether the indicators are reasonable and need to be adjusted.

The questionnaire in the second round was in the form of a Word document and was emailed to experts who provided their contact details in the first round as each questionnaire was developed separately. In the importance scale and realisation status scale, each indicator's mean value and the evaluation value of each expert in the first round were provided to them respectively.

The data was analysed again after the second round in three sections: data reliability analysis; the analysis of each indicator's importance and realisation status; and

consistency and difference analysis of panellists' judgment. The data analysis method was the same as that of the first round.

#### 4.4.2 Phase 2

Phase 2 corresponds to the research objective 2 in Section 1.5. The critical practices that should be adopted in the lifecycle of aged care PPP projects to realise social sustainability are identified. Critical practices (referred to as CPs) refer to the behaviours and decisions adopted by government departments, private investors and SPVs involved in aged care PPP projects, which are expected to have significant effects directly or indirectly on social sustainability (the indicators in the indicator framework) in the short run or in the long run. Hu, Xia, Skitmore, Buys and Hu (2017) pointed out that developers are key decision makers in delivering sustainable aged care projects, as they are both the investors and final decision makers. Government departments, private investors and SPVs are the developers of aged care PPP projects. Some aged care PPP projects that are in operation and operated successfully are chosen for multiple case study in this phase. Relevant data are collected and analysed. Three steps were carried out.

##### (1) Divide the lifecycle of aged care PPP projects into phases

This study divided the aged care PPP projects into different phases and stages in time order before data collection. The main tasks in each stage were also described. The purpose is to lay the foundation for later determining the relative timing of each CP.

##### (2) Select aged care PPP project cases

Multiple-case study was adopted. A case study is appropriate for in-depth understanding of a complex phenomenon within its specific context (Eisenhardt & Graebner, 2007; Yin, 2017). As a complex social issue, the social sustainability of China's aged care PPP projects needs to be deeply explored and explained. At present, a single case cannot provide sufficient information. It is only possible to obtain the required

information through the analysis of multiple cases. Further, compared with a single-case study, the evidence in a multiple-case study is more convincing, and the overall research is considered more rigorous (Yin, 2017).

The cases in this study were divided into main cases and parallel reference cases. Main cases are the main objects of the multiple-case study. Their primary and secondary data was thoroughly collected and analysed. This study did not predetermine the sample size. It can be considered that the data saturation point has been reached and no new case study is needed when a case cannot provide further information about CPs (Kumar, 2011). The two selection criteria of main cases are: the project is in operation and is unanimously considered a success by practitioners; and the project has no negative news. Project success and social sustainability are not interchangeable. However, considering the novelty of social sustainability, it is feasible to replace social sustainability with success when recommending cases. The underlying logic is that the realisation status of social sustainability of a successful project is high.

The main cases were recommended by Delphi experts. They were asked to recommend qualified cases in the second round survey as they would have deep understanding of social sustainability of aged care projects after two rounds of survey. Therefore, they had the ability to identify appropriate cases.

In addition, this study also selected some other aged care PPP projects in the project management database operated by China's Ministry of Finance as parallel reference cases. The purpose is to supplement and triangularly verify the data provided by the main cases, as social sustainability has not yet attracted adequate attention in China's aged care institutions. Only secondary data from these cases is collected and analysed. The selection criteria for these cases include: the project is a national demonstration project, as national PPP demonstration projects are selected by the Ministry of Finance to highlight key examples of best practice in PPP implementations to further promote

PPP on a larger scale; the project is in the implementation phase; the project's documents are accurate and sufficient; and the project has no negative news. (3) Identify CPs in the lifecycle of aged care PPP projects

Information about CPs in aged care PPP projects is abundant, scattered and has complex sources. A systematic method is needed to collect and analyse these practices to provide complete information related to the realisation of social sustainability.

An improved critical incident technique (CIT) was adopted to achieve the research objective. CIT is a procedure to collect certain critical incidents concerning behaviours or decisions in a specific situation, which was proposed by Flanagan in 1954. 'Incident' refers to any observable human activity. To be critical, the behaviour or decision involved in an incident must have a clear purpose or intent, and its consequences or effects should also be clear (Bott & Tourish, 2016). As Flanagan (1954) said, CIT is not a rigid set of rules, but a flexible set of principles that must be modified and adjusted to adapt to the specific situation. The traditional CIT does not exactly match this study. Therefore, it has been improved in three aspects.

- Information sources. The traditional CIT only collects primary data. This might lead to inadequate data collection in this study as social sustainability is a new concept in China. Interview methods are not enough to collect all the CPs. Second-hand data is an indispensable complement. Therefore, this study expands the information sources. There are three sources: a) expert interviews with semi-structured in-depth interviews conducted with government advisors (representatives of the government) and senior managers of the SPVs (representatives of private investors) in main cases; b) documents of the main cases, including government publications such as feasibility study reports, business cases, PPP contracts, etc., archival records of the SPVs, and related news reports; and c) government publications of the parallel reference projects.

- The observers. The observers in traditional CIT are people who have made numerous observations on persons performing the activity under study. They can make accurate judgment on whether an incident is critical according to the activity aim. The general aim of this study is to achieve social sustainability of aged care PPP projects, which is new to most potential observers. They have not specifically observed which incidents are conducive to social sustainability. Therefore, the observer scope of this study is expanded, includes not only the interviewees, but also the researcher herself. The interviewees provide data based on their own observations. The researcher conducts analysis on the primary and secondary data to identify the CPs.
- The relative timing of critical practices. The traditional CIT does not focus on this issue. However, for aged care PPP projects, the lifecycle is long, and the CPs are related to each other. The occurrence of one practice might determine the occurrence of other practices. Therefore, the improved CIT focuses on the relative timing of each practice. This is helpful to index practices and define the interrelationship between them.

These improvements are largely inspired by Event Sequence Mapping (ESM), developed by Soomro and Zhang (2015), which is a structured data collection method that can assimilate multiple sources of information and develop a complete story describing events conducive to a general aim. This technique is performed individually for all the selected main cases, and the specific procedure is shown in Figure 4-4.

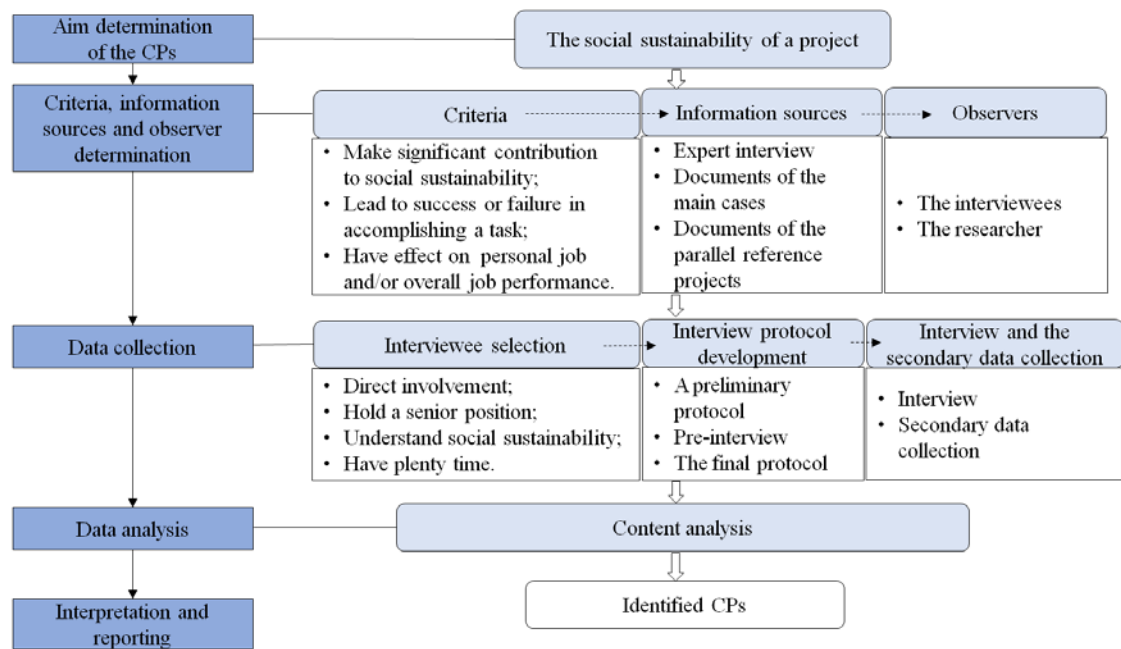


Figure 23-4 The procedure of the improved CIT

First, determine the general aim of the CPs, i.e., the social sustainability of a project.

Second, determine the criteria, information sources and observers of the CPs.

- The criteria of the CPs, which include practices that make significant, direct positive or negative contributions to the social sustainability of a project; practices that lead to success or failure in accomplishing a main task in the project lifecycle; and practices that have positive or negative effects on practitioners' personal job and/or the overall job performance in a project (Haussner et al., 2018). The CPs are not limited to the practices that have already been adopted, and the ones that an observer believes should be adopted are also included.
- The information sources of the CPs. As mentioned earlier, there are three sources. In addition, a reliability hierarchy is developed based on different information sources. The data provided by the interviewees is placed at the top of the reliability level; the data that comes from government publications comes second; the data extracted from archival records ranks third; and the data extracted from news reports ranks last. Information that comes from one source is always cross-checked with other sources as far as possible.

- The observers of the CPs. As mentioned earlier, there are two types of observers.

Third, collect the data. Data collection includes three stages.

- Interviewee selection. The potential participants in the interview should meet the following four criteria: direct involvement in the main cases; hold senior positions in the cases, which could ensure that they have high-level understanding of the cases and could provide sufficient information; recognise and have some consideration of social sustainability; and have plenty of time for in-depth discussion. Furthermore, only when the researcher can obtain the support of both the government department and the private investor participating in the same project, i.e., both parties are willing to participate, can a potential participant become a definitive interviewee and a potential project become a definitive main case. The list of potential participants is recommended by the Delphi experts. While recommending the main cases, they also recommended experts suitable for the interview and helped the researcher contact them. Then, using snowball sampling technique, these participants were asked to nominate more experts.
- Interview protocol development. Based on the lifecycle division of aged care PPP projects and the indicator framework of social sustainability, a preliminary semi-structured interview protocol was established with five parts: Participant Information Sheet; interview description; basic information of participants; identification of CPs; and suggestions to enhance social sustainability. Two pre-interviews were conducted before the formal interview and the formal interview protocol was determined after that (see Appendix 5 for Interview Protocol).
- Interview and the collection of secondary data. The researcher conducted one-to-one and face-to-face interviews with all the interviewees. Interview locations were determined by the interviewees. Some participants were interviewed twice to obtain supplementary information. One week before the interview, the researcher distributed the interview protocol to the interviewees through WeChat, a popular social app in China, to allow them enough time to recall their previous

practices, to enhance the efficiency of the interview. The number of participants in each main case was not predetermined. When saturation is reached, the interviews stop. Saturation means that the addition of further participants can only provide very few new CPs. Meanwhile, the researcher collected government documents, internal records and related news reports of the main cases, together with the materials of the parallel reference cases.

Fourth, analyse the data. Content analysis was adopted to analyse the data, as it is the data analysis method used in most CIT studies (Gremler & Dwayne, 2004). According to Riffe et al. (2019), content analysis could produce useful generalisations with minimal information loss such as to describe institutional focus, theme, trend, etc. (Downe-Wamboldt, 1992). To correctly identify CPs conducive to social sustainability, the following are defined:

- Sample selection. The interviews, government publications, archival records, news reports of the main cases, and the government publications of the parallel reference cases are the samples. They contain rich and reliable information relevant to the CPs of government departments, private investors and SPVs in the cases.
- Analysis unit. Full-length interviews, full-length documents, and individual news coverage are the analysis unit. Graneheim and Lundman (2004) believed that they are the most appropriate analysis unit. They are large enough to be considered as a whole, which is conducive to the correct identification of CPs.
- Coding and grouping. According to Bott and Tourish (2016), to be critical, the behaviour or decision involved in an incident must have a clear purpose or intent, and its consequences or effects should also be clear. Therefore, a behaviour or decision is coded when it meets the above requirements and is adopted by the government department, private investor, or SPV. Hence, each CP consists of five components: title; the observer, either the interviewees or the researcher; adopted or not, i.e., whether a CP is adopted in a main case or not; purpose or intent; and



consequences or effects, i.e., the criteria of the CPs. There are two grouping criteria: the stage in which the practice is adopted, and its adopter.

- Reliability assessment. The identified CPs are validated, including self-validation of an individual main case. By switching back and forth between the text and output of content analysis of an individual main case, the coding and grouping are gradually refined and validated. There is mutual validation of all main cases. The CPs identified in an individual main case are compared with those in other main cases to validate. In parallel reference case verification, the CPs identified in these cases are used to validate the practices in the main case.

Fifth, interpret and report. The last procedure of improved CIT, interpretation and reporting, was conducted in phase 3. At the end of phase 2, a list of CPs that are conducive to the realisation of social sustainability in the lifecycle of aged care PPP projects was provided.

#### 4.4.3 Phase 3

Phase 3 corresponds to research objective 3 in Section 1.5. The main purpose is to develop realisation paths (referred to as RPs) and propose managerial implications to guide the socially sustainable development of aged care PPP projects to realise social sustainability. There are two steps.

##### (1) Establish RPs for the projects

Two tasks need to be completed in this step:

- Work out the enabling relationships between CPs. The enabling relationship refers to the relationship between two CPs, that is, the CP adopted earlier triggers the CP adopted later. In other words, the presence of the former favours the presence of the latter. CPs are distributed throughout the lifecycle of aged care PPP projects. It is found that there may be multiple CPs in one stage. They may occur simultaneously or successively. A CP may trigger one or more CPs closely following it, or CPs

with a long-time interval. The enabling relationships between CPs are determined by the analysis of CPs' consequences or effects, which is the last component of each CP.

- Establish RPs for each social sustainability indicator and a consolidated RP for a project. The realisation of each social sustainability indicator is not driven by a single CP, but by a series of CPs which occur simultaneously or successively. This series is termed a RP of social sustainability. The consolidation of all RPs corresponds to the realisation of social sustainability of an aged care PPP project. A path diagram is used to illustrate the enabling relationships between CPs and their relationships with social sustainability indicators. A path diagram is a tool to help identify, sort and display the possible causes of a specific result. It vividly illustrates the causal relationship between two or more factors or variables. An enabling relationship can be regarded as cause-and-effect relationships in a broad sense. That is, the CPs that occur before are the foreshadowing of the CPs that occur after. Without the previous CPs, the later ones are difficult to occur. Taking the time distribution of lifecycle as the horizontal axis, the path diagrams can well explain the RP of social sustainability, and indicate which party needs to adopt what CPs at certain stages to promote the realisation of social sustainability.

Validation is manipulated after the establishment of RPs. A “constant comparison method” was adopted. It is a method of validating qualitative research, using existing findings, data and cases to validate the hypothesised concept (Lewis–Beck et al., 2003; Silverman, 2014). In this study, the established RPs are decomposed into enabling relationships, and then each relationship is compared with specific practices in the chosen cases. In this way, each relationship is validated.

(2) Propose managerial implications for the government and private investors

The RPs demonstrate the socially sustainable development of aged care PPP projects, which is a process of realising social sustainability. However, knowing the process does

not necessarily mean achieving the aim. There are various factors hindering the social sustainability of aged care PPP projects, which require the government and private investors to take corresponding countermeasures to deal with.

#### 4.5 Ethical Considerations

The ethical considerations in this study include considerations for research participants and considerations for the researcher. The considerations for research participants include ensuring the study is useful and reasonable; obtaining the informed consent of the participants; and protecting the safety of the participants. The considerations for the researcher include avoiding bias; choosing an appropriate research methodology; conducting correct reporting; and using properly the information obtained from the research.

This research meets the requirements of Australian National Statement on Ethical Conduct in Human Research (2007) and has been approved by the UTS Human Research Ethics Committee on 18 May 2020. The approval number is UTS HREC Ref No. ETH20-4838 (see Appendix 6).

#### 4.6 Summary

This chapter describes in detail the research methodology and methods in this study. Based on stakeholder theory, the socially sustainable development of aged care PPP projects is explained through the adoption of qualitative methods including focus groups, Delphi surveys and interviews. There are three phases according to the research framework. The specific data collection and analysis methods are discussed for each phase.

## Chapter 5 Results

### 5.1 Introduction

This chapter presents the data analysis results. First, focus groups and online Delphi are adopted to validate and finalise the established preliminary social sustainability indicator framework of aged care PPP projects and evaluate the realisation status. Second, multiple case analysis is conducted to identify the CPs conducive to the realisation of social sustainability. Third, the realisation paths (i.e., RPs) for each social sustainability indicator are established based on the enabling relationships between CPs.

### 5.2 Social Sustainability Indicator Framework of Aged Care Projects

#### 5.2.1 Validation of the Framework through Resident Focus Groups

Two focus groups were held in August 2020. Each session lasted about an hour. Table 5-1 lists the basic information about the two involved institutions. They are both considered successful institutions in the industry. Institution 1 was awarded the excellent case of national public aged care institution reform in 2020 and was in the first batch of four-star aged care institutions in Zhejiang province in 2022 (the highest level in Zhejiang province at present). Institution 2 was also rated in the first batch of four-star aged care institutions in Zhejiang province in 2022.

Table 4-1 Basic information of the two aged care institutions involved in focus groups

No.	Date of establishment (Year)	Location	Model	Scale	Payment Mechanism
1	2000	Ningbo, Zhejiang province	public construction and private operation	500 beds	User pay
2	2014	Ningbo, Zhejiang province	public construction and private operation	200 beds	User pay

Table 5-2 demonstrates the demographic profiles of the elderly who participated in the focus groups. The average age of the participants was 82.2 years, and most (83%) of them have been in their institution for more than one year.

Table 5-2 Demographic profile of the elderly participating in focus groups

Characteristic	Panel profile (N=24)
1. Gender	Male: 11 (45.8%) Female: 13 (54.2%)
2. Age (years old)	Average: 82.2, among which < 80: 5 (20.8%) 80–85: 14 (58.4%) ≥86: 5 (20.8%)
3. Length of stay in the institution (years)	< 1: 4 (16.7%) 1–5: 17 (70.8%) ≥ 6: 3 (12.5%)
4. Have blood relation who can contact at any time	Yes: 21 (87.5%) No: 3 (12.5%)

The results of the focus groups are detailed below in Table 5-3. Overall, participants considered each indicator in the framework to be important. At the end of the focus group, when asked whether it is necessary to delete any existing indicators or add any new indicators, all participants agreed that there was no need.

Table 6-3 The results of the focus groups

<b>Indicator</b>	<b>2.1.1 Equal access to a project</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	“My son is very busy. He is relieved that I am smoothly admitted here. I feel at ease myself.” “No one wants to be in an aged care institution unless they have an urgent need in China. Therefore, the institutions should accept the elderly whenever there are beds available.”		
<b>Indicator</b>	<b>2.1.2 Equal access to services, facilities, etc.</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	“We all live in the same place. It’s hard to imagine limiting the right of some elderly to use certain facilities or services. It’s wrong.” “Unless the elderly cannot enjoy it for their own reasons, restricting their rights will cause contradictions among the elderly, and the managers will be criticised too.”		
<b>Indicator</b>	<b>2.2.1 Satisfied basic needs</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	“It’s impossible to have so many dishes at home alone, and they’re all hot and fresh.” “I visited several aged care institutions before I moved here. It’s clean and the room is big.”		
<b>Indicator</b>	<b>2.2.2 Satisfied health and physical comfort</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	“This facility has a small clinic. I can get medical treatment immediately if I don’t feel good.” “Recently, a granny fell to the ground due to a sudden illness. The caregivers and the doctors came soon. The doctor took blood pressure immediately, and the caregivers called an emergency ambulance. The granny might be very dangerous if she’s alone at home in such a situation.”		
<b>Indicator</b>	<b>2.2.3 Satisfied psychological comfort</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	“There are many activities every day, such as singing, dancing, playing cards, etc. We are afraid of being alone. These activities enrich our life.”		
<b>Indicator</b>	<b>2.3.1 Good accessibility of a project</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	All the participants’ own homes are not far away from the institutions. “I once visited a facility. Its accommodation space is very large, but the location is far, it’s not convenient for children to visit me. I gave it up in the end.”		
<b>Indicator</b>	<b>2.3.2 Good accessibility of facilities</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	“There are TVs, movies and many fitness facilities here. I exercise every day to live longer.” “My children live in other cities, and it isn’t convenient to visit me regularly. They learn about our situation through the official account of the institution, and there is a special way to pay the fees, which brings a lot of convenience.”		
<b>Indicator</b>	<b>2.3.3 Easy access to the elderly</b>	<b>Important or not</b>	<b>Yes</b>
Reasons/ Examples	“I want to contact my family if something goes wrong. I need to hear from them first. This is very important to me because I am old, and it is difficult to make correct judgments and decisions like before.”		

## 5.2.2 Finalisation and Evaluation of the Framework

### (1) Results of the first round online Delphi survey

#### *The experts’ characteristics*

It took two months to conduct the first round of the online Delphi survey. It began at the end of October 2020 and finished at the end of December 2020. A total of 43 participants filled out the questionnaire. A post-verification of the expert characteristics found that four of them did not meet the requirements previously set. In addition, two

questionnaires had incomplete information. Finally, 37 valid questionnaires were obtained. Table 5-4 summarises the characteristics of experts. They meet at least two of the six requirements, and 19 of them meet at least four requirements. Table 5-4 also indicates that more than 80% of the participants have at least two years of relevant work or research experience and participated in at least one aged care project. In addition, about half of experts have published at least two relevant papers, been invited to speak at least once at relevant conferences, or joined relevant committees.

Table 7-4 The experts' characteristics in the first round online Delphi survey

Requirements No.	a) Faculty member of higher education institutions	b) At least two years work/research experience	c) Primary or secondary author of at least two peer-reviewed journal papers	d) Invited to speak at least once at a conference	e) Chair or member of a nationally recognised committee	f) Participated in at least one aged care project	Total*
1	√		√	√	√		4
2	√		√				2
3	√	√	√	√		√	5
4	√	√	√	√	√	√	6
5	√	√	√	√		√	5
6		√	√	√		√	4
7		√		√	√	√	4
8		√			√	√	3
9		√		√	√	√	4
10		√				√	2
11	√		√	√	√		4
12		√		√	√	√	4
13	√		√				2
14		√	√	√	√	√	5
15		√		√		√	3
16		√				√	2
17		√			√	√	3
18		√			√		2
19		√	√	√		√	4
20		√	√	√		√	4
21		√		√	√	√	4
22		√		√	√	√	4
23	√	√	√	√			4
24		√			√	√	3
25		√			√	√	3
26		√			√	√	3
27		√				√	2
28		√				√	2
29		√		√	√	√	4
30		√				√	2
31		√				√	2
32		√				√	2
33	√		√				2
34		√	√	√		√	4
35	√	√	√	√	√	√	6
36		√	√		√	√	4
37	√	√				√	3
Total**	11	32	16	19	18	30	

Note: "√" means an expert meets corresponding requirement. Total\* is the number of requirements that an expert meet. Total\*\* refers to the number of experts that meet a certain requirement.



### *Data quality*

Reliability tests indicated that the data from the first round survey has good reliability (Table 5-5). The Cronbach's Alpha coefficients of the importance and realisation status of social sustainability indicators were 0.894 and 0.970 respectively.

Table 8-5 Measurement of data reliability of the first round

	<b>Importance of indicators</b>	<b>Realisation status of indicators</b>
<b>Cronbach's Alpha coefficients</b>	0.894	0.970
<b>Sig.</b>	0.000	0.000

The content validity test demonstrated that the content of the questionnaire is in line with the research purpose and requirements and has good validity. First, the main body of the questionnaire – the establishment of the indicator framework of social sustainability – was based on extensive literature review, which could well represent the social impacts of the project on the identified definitive stakeholders. Second, the design process of the questionnaire was guided by two experienced supervisors and had undergone several adjustments. Third, the researcher conducted a pilot survey on the questionnaire, and it was approved by four experts. In addition, the subsequent analysis of the open-ended questions' suggestions also indicated that the panellists agreed with the indicator framework.

### *Each indicator's importance and realisation status*

Table 5-6 lists the importance and realisation status of each indicator. The experts' evaluation was converted into a numerical value for calculation. For importance, 1 is completely unimportant, 2 is not very important, 3 is moderately important, 4 is relatively important, and 5 is very important. For realisation status, 1 is completely unrealised, 2 is slightly realised, 3 is moderately realised, 4 is realised well, and 5 is realised fully. The first number in the columns of importance mean value and realisation status mean value is the mean value calculated according to the experts' evaluation. The

numbers in brackets are the intra-group ranking of the indicators (each stakeholder category is an independent group).

Table 9-6 The mean value and analysis of social sustainability indicators' importance and realisation status of the first round

Stakeholders	Indicators	Mean value of importance (ranking from high to low)	Mean value of realisation status (ranking from high to low)	Proportion of mean value of realisation status to mean value of importance (ranking from low to high)	Sig.
1. Employees	<b>1.3.1 The mastering of professional skills</b>	4.70 (1)	3.03(5)	0.645(1)	0.000
	<b>1.3.2 Improved sustainability awareness</b>	4.27(5)	2.86(6)	0.669(2)	0.000
	<b>1.1.2 Fair employment contract and rational compensation system</b>	4.57(2)	3.43(3)	0.751(3)	0.000
	1.2.1 Healthy and safe workplace	4.41(3)	3.49(1)	0.791(4)	0.000
	1.2.2 Policies and procedures conducive to health and safety	4.35(4)	3.46(2)	0.795(5)	0.000
	1.1.1 Equal employment opportunity	4.08(6)	3.41(4)	0.836(6)	0.003
2. Elderly and their relatives	<b>2.2.3 Satisfied psychological comfort</b>	4.70(1)	3.16(8)	0.672(1)	0.000
	<b>2.1.1 Equal access to a project</b>	4.30(7)	3.22(7)	0.749(2)	0.000
	<b>2.3.1 Good accessibility of the project</b>	4.38(4)	3.30(6)	0.753(3)	0.000
	2.2.2 Satisfied health and physical comfort	4.51(3)	3.43(2)	0.761(4)	0.000
	2.2.1 Satisfied basic needs	4.54(2)	3.51(1)	0.773(5)	0.000
	2.1.2 Equal access to services, facilities etc.	4.38(4)	3.41(3)	0.779(6)	0.000
	2.3.3 Easy access to the elderly	4.32(6)	3.38(4)	0.782(7)	0.000
	2.3.2 Good accessibility of facilities	4.30(7)	3.38(4)	0.786(8)	0.000
3. Local community and society	<b>3.4.2 Enhanced community vitality</b>	4.08(1)	3.11(4)	0.762(1)	0.000
	<b>3.2.1 Improved local health level</b>	3.81(3)	2.97(6)	0.780(2)	0.000
	3.4.1 The realisation of social mixing	3.78(4)	3.14(3)	0.831(3)	0.002
	3.1.2 Induced business opportunities	3.57(5)	3.00(5)	0.840(4)	0.003
	3.3.1 Protected / Established local culture	3.22(7)	2.81(7)	0.873(5)	0.045
	3.1.1 Job creation	3.84(2)	3.43(1)	0.893(6)	0.095*
	3.1.3 Local actors' involvement	3.41(6)	3.32(2)	0.974(7)	0.846*

Nonparametric tests of two independent samples in SPSS were used to analyse the significance of differences between the evaluation of the importance and the realisation status of all indicators. The last column of Table 5-6 listed the P value of each indicator. Except for indicator 3.1.1 Job creation and indicator 3.1.3 Local actors' involvement, there were significant differences between the evaluation of the importance and realisation status of other indicators ( $P < 0.05$ ). Combined with the mean value of importance and realisation state, it can be inferred that except for indicators 3.1.1 and 3.1.3, other indicators' realisation status is lagging behind and needs to be improved compared with their importance.

Furthermore, the penultimate column in Table 5-6 indicated the proportion of mean value of realisation status to mean value of importance of each indicator. For each group of stakeholders, the lower the proportion of an indicator, the lower the realisation level of the indicator compared with its importance. An indicator needs to be paid special attention if its ranking of importance is high and no less than the ranking of its realisation status. This means that its realisation status is relatively less, compared with its importance, and it needs special attention. A total of eight indicators (bold in the table) conform to the above characteristics.

#### *Consistency and difference of panellists' evaluation*

Kendall's Consistency Coefficient was used to measure the overall consistency of the panellists' evaluation on the importance and realisation status of social sustainability indicators (Table 5-7). The results demonstrated that the consensus level of experts is low. The consensus of importance evaluation was higher than that of realisation status evaluation. In addition, this coefficient was also used to measure the consistency of the evaluation of different expert groups. Among the 37 panellists, 11 are faculty members of higher education institutions. They belong to the researcher group. The remaining 26 are from aged care service firms, consulting agency, real estate firm, etc., which belong

to the practitioner group. The results showed that the consensus level within each group was weak, and the consensus level of the researcher group was slightly higher than that of the practitioner group.

Table 10-7 Measurement of consistency of panellists' judgment of the first round

	<b>Importance</b>			<b>Realisation Status</b>		
	<b>Panel</b>	<b>Researcher group</b>	<b>Practitioner group</b>	<b>Panel</b>	<b>Researcher group</b>	<b>Practitioner group</b>
<b>Kendall's W</b>	0.313	0.389	0.304	0.107	0.247	0.104
<b>Sig.</b>	0.000	0.000	0.000	0.000	0.000	0.000

The nonparametric test of two independent samples was manipulated to analyse the differences between the researcher group and the practitioner group in the evaluation (Table 5-8, Table 5-9). There was a difference between the two groups in indicator 2.2.3 Satisfied psychological comfort when evaluating the importance. Experts from the practitioner group scored higher on this indicator. In the evaluation of the realisation status, there were differences between the two groups in four indicators: 1.1.2 Fair employment contract and rational compensation system, 2.2.3 Satisfied psychological comfort, 3.1.3 Local actors' involvement, and 3.4.2 Enhanced community vitality. The experts of the practitioner group believed that these four indicators have higher realisation level.

Table 11-8 Differences in the importance evaluation of the indicators between the researcher group and the practitioner group of the first round

	<b>Sig.</b>	<b>Mean value of researcher group</b>	<b>Mean value of practitioner group</b>
1.1.1 Equal employment opportunity	0.178	3.82	4.19
1.1.2 Fair employment contract and rational compensation system	0.383	4.45	4.62
1.2.1 Healthy and safe workplace	0.239	4.27	4.46
1.2.2 Policies and procedures conducive to health and safety	0.333	4.18	4.42
1.3.1 Mastering professional skills	0.222	4.82	4.65
1.3.2 Improving sustainability awareness	0.530	4.18	4.31
2.1.1 Equal access to a project	0.115	4.09	4.38
2.1.2 Equal access to services, facilities etc.	0.183	4.18	4.46
2.2.1 Satisfied basic needs	0.491	4.45	4.58
2.2.2 Satisfied health and physical comfort	0.055	4.27	4.62
2.2.3 Satisfied psychological comfort	0.034	4.45	4.81
2.3.1 Good accessibility of the project	0.511	4.27	4.42
2.3.2 Good accessibility of facilities	0.627	4.36	4.27
2.3.3 Easy access to the elderly	0.251	4.55	4.23
3.1.1 Job creation	0.364	3.64	3.92
3.1.2 Induced business opportunities	0.078	3.18	3.73
3.1.3 Local actors' involvement	0.056	3.00	3.58
3.2.1 Improved local health level	0.522	3.73	3.85
3.3.1 Protected / Established local culture	0.916	3.18	3.23
3.4.1 Achieved social mixing	0.758	3.82	3.77
3.4.2 Enhanced community vitality	0.102	3.82	4.19

Table 12-9 Differences in the realisation status evaluation of the indicators between the researcher group and the practitioner group of the first round

	<b>Sig.</b>	<b>Mean value of researcher group</b>	<b>Mean value of practitioner group</b>
1.1.1 Equal employment opportunity	0.587	3.27	3.46
1.1.2 Fair employment contract and rational compensation system	0.038	3.00	3.62
1.2.1 Healthy and safe workplace	0.646	3.36	3.54
1.2.2 Policies and procedures conducive to health and safety	0.068	3.00	3.65
1.3.1 Mastering professional skills	0.143	2.73	3.15
1.3.2 Improving sustainability awareness	0.069	2.36	3.08
2.1.1 Equal access to a project	0.243	2.91	3.35
2.1.2 Equal access to services, facilities etc.	0.294	3.09	3.54
2.2.1 Satisfied basic needs	0.559	3.36	3.58
2.2.2 Satisfied health and physical comfort	0.313	3.18	3.54
2.2.3 Satisfied psychological comfort	0.023	2.55	3.42
2.3.1 Good accessibility of the project	0.698	3.18	3.35
2.3.2 Good accessibility of facilities	0.972	3.36	3.38
2.3.3 Easy access to the elderly	0.315	3.09	3.50
3.1.1 Job creation	0.266	3.18	3.54
3.1.2 Induced business opportunities	0.111	2.64	3.15
3.1.3 Local actors' involvement	0.001	2.55	3.65
3.2.1 Improved local health level	0.065	2.55	3.15
3.3.1 Protected / Established local culture	0.127	2.45	2.96
3.4.1 Achieved social mixing	0.502	3.00	3.19
3.4.2 Enhanced community vitality	0.010	2.36	3.42

### *Suggestions for open-ended questions*

Table 5-10 reflects the experts' suggestions collected in the first round of the Delphi survey. The researcher carefully analysed these suggestions and made a decision not to adjust the indicator framework. The suggestions and analysis appeared on the second round of questionnaire as supporting information. First, suggestions A and B were mentioned the most. Investors and government departments are important stakeholders. However, they are not the objects of social sustainability, but important forces to achieve it. As stated in Section 4.4.2, both are included to explore how to achieve social sustainability by adopting CPs in phase 2 of this study. Second, of suggestions C, and E to H, social sustainability is a complex concept. To reduce the complexity of the framework, the indicators selected have a high degree of aggregation. To facilitate the judgment of experts, all indicators are explained in detail in the second round of the questionnaire, and it can well be demonstrated that these suggestions have already been reflected in the framework. Finally, on suggestion D, regardless of the nature of employees' work, the social impacts of the project on them involve three aspects: equity and fairness, health and safety, and education and training. Combined with considerations to reduce the complexity and frequency of suggestions, it was decided not to adjust the framework.

Table 13-10 Suggestions for improving the indicator framework

Question 1: Whether the three stakeholder categories listed in the framework were reasonable, whether new categories need to be added or the existing ones need to be adjusted		
No.	Suggestions	Frequency
A	Add the investors/operators as stakeholders	7
B	Add government departments as stakeholders	6
C	Clarify the meaning of the third category of stakeholders in the framework – “local community and society”	2
D	Subdivide the first category of stakeholders – employees	1
E	Subdivide the second category of stakeholders – elderly and their relatives	1
Question 2: Whether the indicators were reasonable and need to be adjusted		
No.	Suggestions	Frequency
F	Consider the combination of social sustainability and economic sustainability indicators	1
G	Add social interaction indicators for the elderly	1
H	Add indicators, for example the increase of social welfare and the decline of social costs	1

## (2) Results of the second round online Delphi survey

It took six weeks to conduct the second round of the Delphi survey. It started in mid-January 2021 and finished at the end of February 2021. The questionnaire was in a Word file and sent to 30 experts by email who had provided their contact details in the first round. Finally, 28 valid questionnaires were obtained.

A reliability test indicated that the data from the second round survey has good reliability (Table 5-11). The Cronbach's Alpha coefficients of the importance and realisation status of social sustainability indicators were 0.846 and 0.918 respectively.

Table 14-11 Measurement of data reliability of the second round

	<b>Importance of indicators</b>	<b>Realisation status of indicators</b>
<b>Cronbach's Alpha coefficients</b>	0.846	0.918
<b>Sig.</b>	0.000	0.000

Each indicator's importance and realisation status are shown in Table 5-12.

Nonparametric tests of two independent samples in SPSS were used to analyse the significance of differences between the evaluation of the importance and the realisation status of all indicators. The result is the same as in the first round.

Table 15-12 The mean value and analysis of social sustainability indicators' importance and realisation status of the second round

Stakeholders	Indicators	Mean value of importance (Ranking high to low)	Mean value of realisation status (Ranking from high to low)	Proportion of mean value of realisation status to mean value of importance (Ranking low to high)	Sig.
1. Employees	<b>1.3.2 Improved sustainability awareness</b>	4.21(5)	2.71(6)	0.644(1)	0.000
	<b>1.3.1 The mastering of professional skills</b>	4.68(1)	3.18(4)	0.679(2)	0.000
	<b>1.1.2 Fair employment contract and rational compensation system</b>	4.61(2)	3.29(2)	0.714(3)	0.000
	1.2.1 Healthy and safe workplace	4.43(3)	3.39(1)	0.765(4)	0.000
	1.2.2 Policies and procedures conducive to health and safety	4.29(4)	3.29(2)	0.767(5)	0.000
	1.1.1 Equal employment opportunity	4.07(6)	3.18(4)	0.781(6)	0.000
	Total	4.38	3.17	0.724	
2. Elderly and their relatives	<b>2.2.3 Satisfied psychological comfort</b>	4.68(1)	2.96(8)	0.632(1)	0.000
	<b>2.3.3 Easy access to the elderly</b>	4.46(4)	3.32(4)	0.744(2)	0.000
	<b>2.2.2 Satisfied health and physical comfort</b>	4.54(3)	3.39(2)	0.747(3)	0.000
	<b>2.3.1 Good accessibility of the project</b>	4.18(5)	3.14(7)	0.751(4)	0.000
	2.2.1 Satisfied basic needs	4.57(2)	3.54(1)	0.775(5)	0.000
	2.1.1 Equal access to a project	4.11(8)	3.25(6)	0.791(6)	0.000
	2.3.2 Good accessibility of facilities	4.14(7)	3.32(4)	0.802(7)	0.000
	2.1.2 Equal access to services, facilities etc.	4.18(5)	3.39(2)	0.811(8)	0.001
	Total	4.36	3.29	0.755	
3. Local community and society	<b>3.2.1 Improved local health level</b>	3.75(2)	2.75(6)	0.733(1)	0.000
	<b>3.4.2 Enhanced community vitality</b>	3.82(1)	2.82(4)	0.738(2)	0.000
	3.4.1 The realisation of social mixing	3.61(4)	2.89(3)	0.801(3)	0.001
	3.1.2 Induced business opportunities	3.43(5)	2.79(5)	0.813(4)	0.000
	3.3.1 Protected/Established local culture	3.14(7)	2.61(7)	0.831(5)	0.007
	3.1.1 Job creation	3.71(3)	3.29(1)	0.887(6)	0.112
	3.1.3 Local actors' involvement	3.25(6)	3.14(2)	0.966(7)	0.718
	Total	3.53	2.90	0.822	



There are nine indicators that need to be paid special attention (bold in Table 5-12). The reasons for this judgment remain the same as that in the first round. Although the ranking of the importance of indicator 2.2.2 is less than the ranking of its realisation status, the latter accounts for a relatively low proportion of the former, which also needs to be paid attention. Compared with Table 5-6, the changes in indicators that need special attention mainly occur in the elderly and their relatives group. Specifically, indicator 2.1.1 equal access to a project was replaced with indicator 2.3.3 easy access to the elderly and indicator 2.2.2 satisfied health and physical comfort. Among them, the proportion of mean value of realisation status to mean value of importance of indicator 2.3.3 changed greatly. Its ranking has improved from the previous seventh to now second. Other indicators remain unchanged.

Table 5-13 indicates that the consensus level of experts is higher than that of the first round, but it is still weak. Among the 28 participants, 10 belong to the researcher group and 18 belong to the practitioner group. The results show that although the level of consensus within each group is higher than before, it is still weak.

Table 16-13 Measurement of consistency of panellists' judgment of the second round

	<b>Importance</b>			<b>Realisation Status</b>		
	<b>Panel</b>	<b>Researcher group</b>	<b>Practitioner group</b>	<b>Panel</b>	<b>Researcher group</b>	<b>Practitioner group</b>
<b>Kendall's W</b>	0.394	0.421	0.407	0.143	0.305	0.115
<b>Sig.</b>	0.000	0.000	0.000	0.000	0.000	0.000

A nonparametric test of two independent samples was manipulated to analyse the differences between the researcher group and the practitioner group in the evaluation of the importance and realisation status of each indicator (Table 5-14, Table 5-15). Compared with the results of the first round, there is no significant difference in the two groups' evaluation of importance. The indicators with significant differences in the evaluation of realisation status also changed from the original four to the current one,

i.e., indicator 3.1.3 local actors' involvement. Experts of the practitioner group believed that this indicator has a higher realisation level.

Table 17-14 Differences in the importance evaluation of the indicators between the researcher group and the practitioner group of the second round

	<b>Sig.</b>	<b>Mean value of researcher group</b>	<b>Mean value of practitioner group</b>
1.1.1 Equal employment opportunity	0.294	3.90	4.17
1.1.2 Fair employment contract and rational compensation system	0.198	4.40	4.72
1.2.1 Healthy and safe workplace	0.377	4.30	4.50
1.2.2 Policies and procedures conducive to health and safety	0.089	4.00	4.44
1.3.1 Mastering professional skills	0.241	4.80	4.61
1.3.2 Improving sustainability awareness	0.609	4.30	4.17
2.1.1 Equal access to a project	0.767	4.10	4.11
2.1.2 Equal access to services, facilities etc.	0.287	4.00	4.28
2.2.1 Satisfied basic needs	0.861	4.60	4.56
2.2.2 Satisfied health and physical comfort	0.679	4.50	4.56
2.2.3 Satisfied psychological comfort	0.139	4.50	4.78
2.3.1 Good accessibility of the project	0.899	4.20	4.17
2.3.2 Good accessibility of facilities	0.762	4.10	4.17
2.3.3 Easy access to the elderly	0.782	4.50	4.44
3.1.1 Job creation	0.640	3.80	3.67
3.1.2 Induced business opportunities	0.871	3.40	3.44
3.1.3 Local actors' involvement	0.140	3.00	3.39
3.2.1 Improved local health level	0.504	3.90	3.67
3.3.1 Protected / Established local culture	0.868	3.20	3.11
3.4.1 Achieved social mixing	0.525	3.70	3.56
3.4.2 Enhanced community vitality	0.604	3.80	3.83

Table 18-15 Differences in the realisation status evaluation of the indicators between the researcher group and the practitioner group of the second round

	Sig.	Mean value of researcher group	Mean value of practitioner group
1.1.1 Equal employment opportunity	0.281	3.40	3.06
1.1.2 Fair employment contract and rational compensation system	0.833	3.30	3.28
1.2.1 Healthy and safe workplace	0.100	3.70	3.22
1.2.2 Policies and procedures conducive to health and safety	0.832	3.30	3.28
1.3.1 Mastering professional skills	0.569	3.10	3.22
1.3.2 Improving sustainability awareness	0.189	2.40	2.89
2.1.1 Equal access to a project	0.778	3.30	3.22
2.1.2 Equal access to services, facilities etc.	0.663	3.50	3.33
2.2.1 Satisfied basic needs	0.526	3.70	3.44
2.2.2 Satisfied health and physical comfort	0.326	3.60	3.28
2.2.3 Satisfied psychological comfort	0.510	2.80	3.06
2.3.1 Good accessibility of the project	0.381	3.30	3.06
2.3.2 Good accessibility of facilities	0.206	3.60	3.17
2.3.3 Easy access to the elderly	0.477	3.50	3.22
3.1.1 Job creation	0.900	3.30	3.28
3.1.2 Induced business opportunities	0.820	2.80	2.78
3.1.3 Local actors' involvement	0.026	2.70	3.39
3.2.1 Improved local health level	0.714	2.70	2.78
3.3.1 Protected / Established local culture	0.517	2.50	2.67
3.4.1 Achieved social mixing	0.087	3.30	2.67
3.4.2 Enhanced community vitality	0.676	2.70	2.89

## 5.3 CPs that Contribute to the Realisation of Social Sustainability

### 5.3.1 Division of Lifecycle of Aged Care PPP Projects

Table 5-16 demonstrates the lifecycle of an aged care PPP project. There are three phases: project preparation, procurement, and implementation. Each phase contains several stages and a series of tasks. As the research site is set as China, the *Public-Private Partnership operation guide (revised version)* issued by China's Ministry of Finance in 2019 is mainly referred to. It is an official document adopted by the Chinese government to regulate the preparation, procurement and implementation of PPP projects.

Table 19-16 The lifecycle of an aged care PPP project

Phases	Stages	Main tasks
A. Project Preparation	A1. Project Initiation	<ul style="list-style-type: none"> <li>To initiate an aged care PPP project</li> <li>To carry out a feasibility study</li> </ul>
	A2. Implementing Agency Authorisation	<ul style="list-style-type: none"> <li>To authorise implementing agency</li> <li>To select professional advisors</li> </ul>
	A3. Business Case Preparation	<ul style="list-style-type: none"> <li>To prepare business case</li> </ul>
	A4. Market Sounding	<ul style="list-style-type: none"> <li>To conduct market sounding</li> </ul>
	A5. Value for Money Assessment	<ul style="list-style-type: none"> <li>To conduct Value for Money assessment</li> </ul>
	A6. Fiscal Affordability Assessment	<ul style="list-style-type: none"> <li>To conduct fiscal affordability assessment</li> </ul>
	A7. Project Approval	<ul style="list-style-type: none"> <li>To complete project approval</li> </ul>
B. Project Procurement	B1. Tender and Draft Contract Preparation	<ul style="list-style-type: none"> <li>To prepare full tender documents and draft PPP contracts</li> </ul>
	B2. Prequalification	<ul style="list-style-type: none"> <li>To conduct prequalification</li> </ul>
	B3. Response Documents Preparation and Evaluation	<ul style="list-style-type: none"> <li>To prepare and submit response documents</li> <li>To evaluate response documents</li> </ul>
	B4. Negotiation and Contract Award	<ul style="list-style-type: none"> <li>To conduct pre-contract confirmation negotiation</li> <li>To sign the contract</li> </ul>
C. Project Implementation	C1. SPV Establishment	<ul style="list-style-type: none"> <li>To establish a SPV</li> </ul>
	C2. Investment, Construction and Operation	<ul style="list-style-type: none"> <li>To invest, construct and operate the aged care PPP project in accordance with the contract</li> </ul>
	C3. Performance Monitoring and Mid-term Evaluation	<ul style="list-style-type: none"> <li>To conduct performance monitoring and pay for performance</li> <li>To conduct mid-term evaluation</li> </ul>
	C4. Project Handover and Ex-post Evaluation	<ul style="list-style-type: none"> <li>To handover the project</li> <li>To conduct ex-post evaluation</li> </ul>

Note: Division based on *Public–Private Partnership operation guide (revised version)* issued by China’s Ministry of Finance in 2019.

### 5.3.2 Selection of Cases and Interviewees

#### (1) Main cases and interviewees

Three aged care PPP projects were chosen as the main cases. They were all recommended by experts who participated in the previous online Delphi survey and meet the two selection criteria set out in Section 4.4.2. The number of cases was three because the data saturation point was reached when the third case was being analysed. The basic information of the three cases is shown in Table 5-17.

Table 20-17 Summary of the three main cases

No.	Case	Scale	Contract Signing Date	Concession Period (Years)	Location	Modalities	Payment Mechanism	Procurement Method
1	A	420 beds	December 2016	15	Shenzhen, Guangdong Province	ROT	User Pay	Open Tender
2	B	791 beds	July 2019	15	Shenzhen, Guangdong Province	OM	User Pay	Competitive Consultation
3	C	397 beds	October 2020	15	Shenzhen, Guangdong Province	ROT	User Pay	Open Tender

These three cases are highly representative. First, they are in Shenzhen, the window of China's reform and opening up. Shenzhen became China's first special economic zone in 1980 and a pilot demonstration zone of socialism with Chinese characteristics in 2019. According to the national arrangement, Shenzhen's public service level is supposed to reach the international advanced level by 2025. To this end, Shenzhen is committed to build a high quality aged care service system (Central Committee of the Communist Party & State Council, 2019). The high-level government strategy provides a solid foundation for the development of aged care PPP projects. Second, these three are all reform projects of public aged care institutions. Case A is the first public institution in Shenzhen to adopt the PPP model for reform. Both Case B and Case C are the first reformed projects in their administrative regions. These cases have been operating for a long time and accumulated extensive experience before adopting the PPP model. Their experience are far more extensive than newly built projects. Third, they are well run. Case A became a five-star aged care institution in Guangdong province in 2019, which is the highest rating for aged care institutions. It has the first "A-class canteen of food service and food safety" in Shenzhen's aged care institutions. Case B became one of the top ten best aged care institutions and a five-star aged care institution in Guangdong province in 2017. Its employees won first place in the professional skills competition of Shenzhen caring staff in 2019 and 2020. Case C was awarded as "National Civilisation for Respecting the Elderly" by the National Committee on Aging and was in the first set of five-star aged care institutions in

Guangdong province in 2016. In 2019, it was recommended by the China Social Welfare and Aged Care Service Association as one of the “National Top 100 Aged Care Service Brand” and “National Standardised Demonstration Unit”.

Nine experienced professionals were identified as the interviewees based on Delphi experts’ recommendation and snowball sampling method. They participated in one of the three main cases and met the four selection criteria set in Section 4.4.2. Table 5-18 summarises the demographic information of all the interviewees. They are evenly distributed in the three main cases. Four are from consulting agencies, representing public departments. The other five are from the SPVs, representing the private investors. Interviewees A1–A3 are from Case A, B1–B3 are from Case B, and C1–C3 are from Case C.

Table 21-18 Demographic information of the interviewees

<b>Interviewees</b>	<b>Work Unit</b>	<b>Position in the main cases</b>	<b>Years of experience in aged care industry</b>	<b>Number of aged care projects have participated in</b>	<b>Number of aged care PPP projects have participated in</b>
A1	consulting agency	Senior project manager	2–5	≥4	2–3
A2	consulting agency	Project manager	2–5	2–3	2–3
A3	SPV	Head of the aged care institution	2–5	2–3	2–3
B1	consulting agency	Senior project manager	2–5	2–3	2–3
B2	SPV	Head of the aged care institution	2–5	2–3	2–3
B3	SPV	Vice head of the aged care institution	2–5	2–3	2–3
C1	consulting agency	Senior project manager	2–5	2–3	2–3
C2	SPV	Head of the aged care institution	≥10	≥4	≥4
C3	SPV	Vice head of the aged care institution	≥10	≥4	2–3

## (2) Parallel Reference Cases

Another 17 aged care PPP projects were also selected as parallel reference cases in this study. They all meet the selection criteria set in Section 4.4.2. Brief information is presented in Table 5-19.

Table 22-19 The 17 parallel reference cases

No.	Case Name
63	Jiuding Mountain Aged Care Service and Ecological Comprehensive Treatment Project in Jiaxiang county, Jining city
42	Ziyun Valley Aged Care Demonstration Project in Xiangcheng county, Xuchang city
43	Xinfeng Senior Apartment & Nanshan Ecological Aged Care Centre in Kezuo county
28	Zhongdu Yiyangyuan Integrated Care for the Elderly Project in Wenshang county, Jining city
51	Senior Services Centre, Tongchuan city
31	Huaiyang Ankang Hospital (Aged Care Centre) PPP project in Huaiyang county, Zhoukou city
33	Aged Care Service Centre in Huating county, Pingliang city
54	Smart Aged Care PPP Project, Penglai city
35	Henan Longyao Health City PPP Project in Xiangcheng county, Xuchang city
56	Minsheng Nursing Home, Kaifeng city
44	Second Nursing Home, Hami city
46	Nursing Home in Yintai district, Tongchuan city
62	Fengyezhonghong Integrated Care for the Elderly Project in Mudan district, Heze city
45	Yikang Comprehensive Integrated Care Centre & Second Social Welfare Home, Baishan city
41	Comprehensive Aged Care Project, Changchun city
20	Social Welfare Home in Jiaocheng county, Lvliang city
48	Senior Apartment in Yunnan, Kunming city

Notes: To maintain consistency and avoid confusion, the No. of a case in this table matches its No. in Appendix 2. See Appendix 2 for details of these projects.

### 5.3.3 The Identified CPs

Data collection began in May 2021 and ended in October 2021. After the determination of the three main cases, the government publications and news reports related to them were collected to familiarise the researcher with the cases and establish interview protocols. In July 2021, the researcher conducted one-to-one and face-to-face interviews with the nine participants. Interview locations included the interviewees' offices, meeting rooms and cafes. Each interview lasted around two hours. On the day of the interview, the researcher asked the participants whether they would allow recording. Interviews available for recording were recorded and transcribed afterwards. For interviews that could not be recorded, notes were taken. The researcher then further collected the archival records of the cases provided by the participants and relevant

materials of the 17 parallel reference cases. Four interviewees (A1, A3, B2 and C2) were interviewed for a second time in October 2021 to collect supplementary information.

Next, a content analysis was conducted of the transcripts and notes of the interviews, government publications, internal records, and related news reports of the three main cases to identify the CPs. A content analysis on the government publications of the other 17 projects was also conducted for parallel reference.

#### (1) The overall results

A total of 42 first-level and 85 second-level CPs were identified. A second-level CP is an extension of a first-level CP. When a first-level CP contains multiple behaviours and decisions which occur simultaneously, they are set as the second-level CPs of that first-level CP. This is to reduce the complexity of each first-level CP and clarify the logic between them.

See Appendix 7 for the details of the identification of the CPs.

From the perspective of time distribution, most first-level CPs are adopted in the project implementation phase, followed by the preparation phase, and the least CPs are adopted in the procurement phase. From the perspective of the key decision maker or adopter, CPs that need to be adopted by government departments are the most common, followed by SPVs and private investors (Figure 5-1). After the superposition of the above two perspectives, it is found that different key decision makers need to adopt CPs at different phases to achieve the social sustainability of aged care PPP projects. Specifically, government departments are most important in the preparation phase, as they are the adopters of all 14 CPs. Private investors become important in the procurement phase. They adopt 5 of the 9 CPs and one in conjunction with government



departments. SPVs are critical in the implementation phase. They adopt 12 CPs out of 19, and one in conjunction with government departments (Figure 5-2).

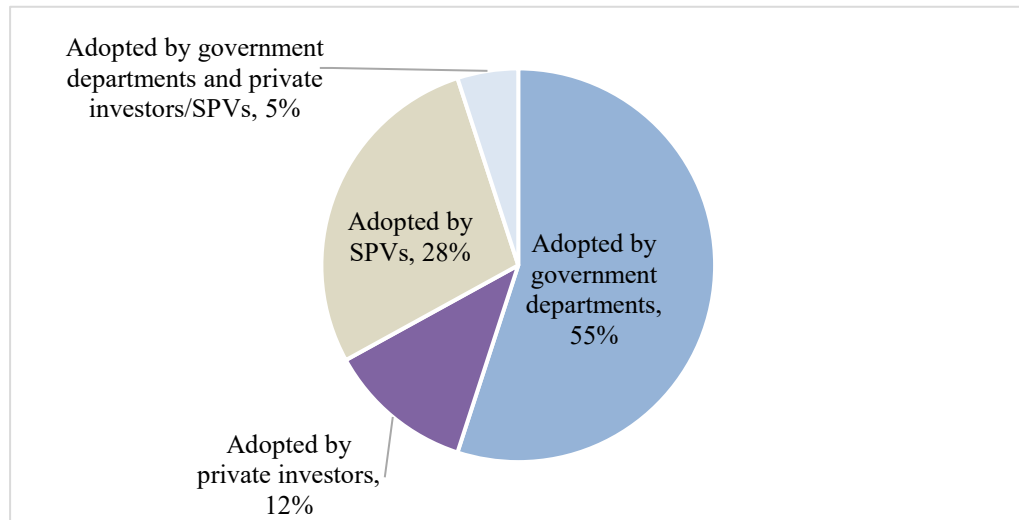


Figure 24-1 Adopters of first-level CPs

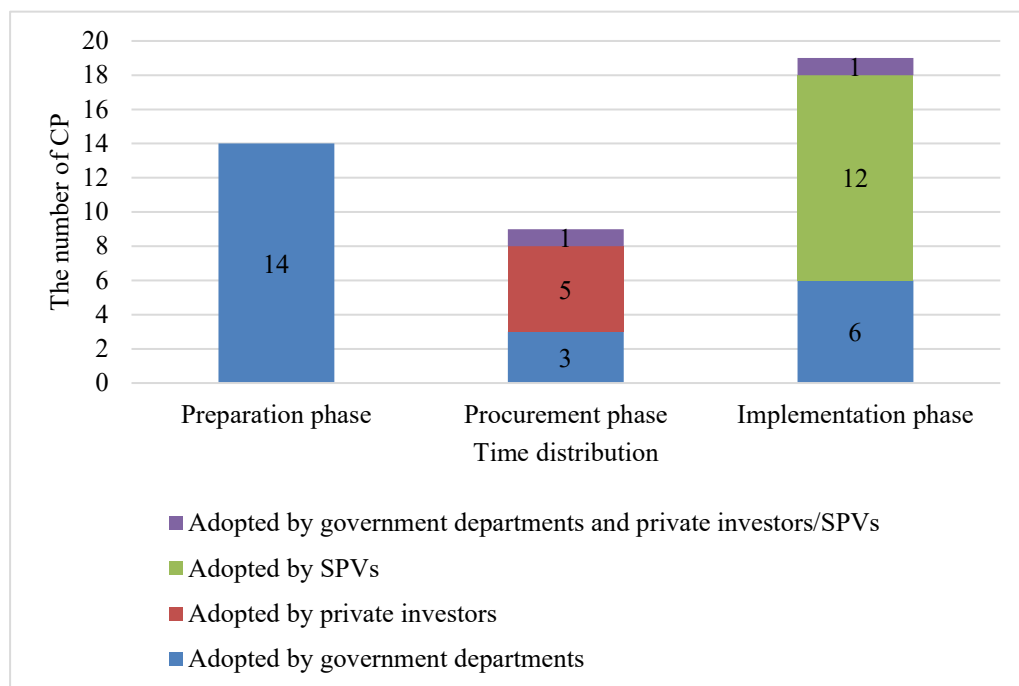


Figure 25-2 Time and adopter distribution of first-level CPs

(2) CPs in project preparation phase

There are 14 first-level and 30 second-level CPs in this phase (see Table 5-20).

Table 23-20 CPs in project preparation phase

Stage A1. Project Initiation	
CP-1	The Civil Affairs Department defines social sustainability as the strategic aim of a project
CP-2	The Civil Affairs Department makes preliminary consideration of the employees' well-being
	<i>CP-2-1: To consider employees' equity and fairness</i>
	<i>CP-2-2: To consider employees' health and safety</i>
	<i>CP-2-3: To consider employees' education and training</i>
CP-3	The Civil Affairs Department makes preliminary consideration of the elderly and their relatives' well-being
	<i>CP-3-1: To consider the elderly's equity</i>
	<i>CP-3-2: To consider the elderly's health and comfort</i>
	<i>CP-3-3: To consider the accessibility of a project</i>
CP-4	The Civil Affairs Department makes preliminary consideration of local community and society's well-being
	<i>CP-4-1: To consider local economy</i>
	<i>CP-4-2: To consider local health</i>
	<i>CP-4-3: To consider local identity</i>
	<i>CP-4-4: To consider social inclusion and social cohesion</i>
Stage A2. Implementing Agency Authorisation	
CP-5	The implementing agency takes the lead in establishing a project management team dedicated to achieving social sustainability
CP-6	The implementing agency selects appropriate advisors to assist in achieving social sustainability
Stage A3. Business Case Preparation	
CP-7	The implementing agency assists the advisors in conducting industry investigation to provide a reference for the preparation of a business case conducive to social sustainability
CP-8	The implementing agency involves stakeholder engagement to understand their social needs and jointly determine the project outputs
	<i>CP-8-1: To deliver reform information to stakeholders (exclusive to existing projects)</i>
	<i>CP-8-2: To establish communication channels</i>
CP-9	The implementing agency prepares output specifications that are in line with stakeholders' well-being
	<i>CP-9-1: To determine the outputs – To build aged care facilities and provide diversified services for all groups of the elderly</i>
	<i>CP-9-2: To determine the performance requirements of the outputs</i>
	<i>CP-9-3: To require the SPV to provide equal services for the publicly-funded and self-funded elderly</i>
CP-10	The implementing agency identifies risks associated with social sustainability and develops response plans
	<i>CP-10-1: To identify and allocate high-level risks associated with social sustainability</i>
	<i>CP-10-2: To develop response plans for social sustainability risks</i>
CP-11	The implementing agency determines the main source of profit, and outlines an initial payment mechanism
	<i>CP-11-1: To determine the main source of profit – basic aged care service fees</i>
	<i>CP-11-2: To outline payment mechanism related to outputs, performance and risk allocation</i>
CP-12	The implementing agency makes initial consideration of contractual arrangements relating to social sustainability
	<i>CP-12-1: To require the SPV to provide a performance guarantee to urge it to deliver the outputs as agreed in the contract</i>
	<i>CP-12-2: To require the SPV to prepare contingency planning to reduce the negative impacts of emergencies on the project and stakeholders</i>
	<i>CP-12-3: To restrict shareholding arrangement changes in the SPV to ensure smooth</i>

	<i>operation</i>
	<i>CP-12-4: To define the scope and standards for initial project handover (exclusive to existing projects)</i>
	<i>CP-12-5: To define the scope and standards for project handover upon contract expiration</i>
	<i>CP-12-6: To define the situations of government step-in due to the SPV's non-socially sustainable behaviours</i>
CP-13	The implementing agency establishes a preliminary monitoring framework to constrain the SPV's behaviours
	<i>CP-13-1: The implementing agency is responsible for monitoring the implementation of the contract</i>
	<i>CP-13-2: Different administrative departments are responsible for the corresponding administrative monitoring</i>
	<i>CP-13-3: The public is responsible for public monitoring</i>
CP-14	The implementing agency determines the procurement strategy to best procure the required outputs
	<i>CP-14-1: To determine a competitive procurement methodology to make choice in an open market</i>
	<i>CP-14-2: To determine the high-level evaluation criteria to choose the most appropriate partner</i>

### *CPs in stage A1. Project Initiation*

This stage contains two main tasks: to initiate an aged care PPP project and to carry out a feasibility study. A project is often initiated to address the need of a government (World Bank, 2017). The strategic aim of a project must be consistent with high-level government strategies. At present, actively coping with aging has become China's major national strategy, which seeks to achieve "continuous improvement of human capital" and "rich and high-quality products and services". With the implementation of this strategy, training/education, health, job creation and regional development have been included in the development agenda of the aged care industry (Central Committee of the Communist Party of China & State Council, 2019). The purpose of these aims, however, is social sustainability. Therefore, local civil affairs department should define social sustainability as the strategic aim when initiating an aged care PPP project, i.e., CP-1.

Projects with strategic aims are still in the early stage of initiation, and a feasibility study needs to be carried out. According to Chinese National Development and Reform Commission (2019), all projects proposed to adopt the PPP model should carry out a feasibility study. Whether a project meets the requirements of economic and social development and is conducive to improving people's quality of life constitutes an

important aspect of feasibility. Hence, the civil affairs department should make preliminary consideration of the well-being of the employees, the elderly and their relatives, and the local community and society in the feasibility study, and analyse whether the project can improve their quality of life. This involves CP-2, CP-3 and CP-4.

#### *CPs in stage A2. Implementing Agency Authorisation*

In this stage, the public sector authorises local civil affairs department or other public institution to be the implementing agency, which is responsible for the preparation, procurement and implementation of the project. A project management team can be established when the PPP knowledge reserve of the implementing agency is insufficient and the administrative capacity is not strong (CP-5). Members of the team include various local government departments, such as the Development and Reform Bureau, Finance Bureau, Price Bureau, Civil Affairs Bureau and Health Bureau. The management team solves the problems in the process through regular and temporary meetings to ensure the achievement of social sustainability. Meanwhile, the implementing agency selects appropriate advisors to assist the whole process (CP-6).

#### *CPs in stage A3. Business Case Preparation*

As a project planning and development tool, the business case is used to explain why a project is needed and how to promote it (Infrastructure and Projects Authority, 2020). The Chinese government requires that “procurement documents and draft contracts should be consistent with the substantive content of the business case being approved”. Therefore, it can be inferred that many CPs conducive to the social sustainability of aged care PPP projects first appear as an idea in the business case, and can then be further promoted in the subsequent procurement and implementation phases. CP-7 to CP-14 are CPs that the implementing agency should adopt when assisting the advisors to prepare the business case, including conducting industry investigation, conducting stakeholder engagement, preparing output specifications, developing a risk response

plan, outlining the initial payment mechanism, making initial consideration of contractual arrangements, establishing a preliminary monitoring framework, and determining the procurement strategy.

### (3) CPs in project procurement phase

There are 9 first-level and 30 second-level CPs in this phase (Table 5-21).

Table 24-21 CPs in project procurement phase

Stage B1. Tender and Draft Contract Preparation	
CP-15	The implementing agency determines the procurement process to select the partners and solutions that best serve the realisation of social sustainability
	<i>CP-15-1: To set pre-qualification criteria – potential bidders are required to have experience in construction, operation and maintenance of similar projects</i>
	<i>CP-15-2: To set the evaluation criteria and weight – the construction/operation/ maintenance scheme and similar project experience of a potential bidder shall be set as evaluation criteria and given a big weight</i>
CP-16	The implementing agency sets the terms of the draft contract relating to social sustainability
	<i>CP-16-1: To further define the performance requirements to be followed by project outputs</i>
	<i>CP-16-2: To initially determine the performance evaluation plan, set performance indicators related to social sustainability and assign a big weight</i>
	<i>CP-16-3: To further improve payment mechanisms related to outputs, performance and risk apportionment</i>
	<i>CP-16-4: To further clarify the details of the performance guarantee</i>
	<i>CP-16-5: To determine initially the content of the SPV's quality management system</i>
	<i>CP-16-6: To further clarify the restrictions on shareholding arrangement changes in the SPV</i>
	<i>CP-16-7: To further refine the scope and standards for initial project handover (exclusive to existing projects)</i>
	<i>CP-16-8: To further refine the scope and standards for project handover upon contract expiration</i>
	<i>CP-16-9: To stipulate breach clauses and penalty system for behaviours that hinder the realisation of social sustainability</i>
	<i>CP-16-10: To further clarify the situations of government step-in due to the SPV's non-socially sustainable behaviours</i>
	<i>CP-16-11: To further refine the monitoring measures for the project</i>
	<i>CP-16-12: To develop ex-post evaluation plan to promote the dissemination of lessons learned from social sustainability</i>
Stage B2. Prequalification	
CP-17	The private investors set the goal of participating in a project – mainly to achieve social benefits and market exploration, supplemented by gaining economic benefits
Stage B3. Response Documents Preparation and Evaluation	
CP-18	The private investors conduct detailed market investigation to understand market supply and the social needs of stakeholders
CP-19	The private investors establish person-centred planning, design and construction/renovation schemes
CP-20	The private investors establish person-centred overall operation schemes
	<i>CP-20-1: To determine the characteristics of a project based on the core social needs of the elderly</i>
	<i>CP-20-2: To define the specific content and requirements of the services to be provided</i>
	<i>CP-20-3: To plan human resource management based on the core social needs of the employees</i>
	<i>CP-20-4: To plan safety management to ensure the safety of stakeholders</i>

CP-21	The private investors establish facility maintenance scheme to ensure that the facilities are serviced in optimum conditions
Stage B4. Negotiation and Contract Award	
CP-22	The implementing agency selects appropriate partner
CP-23	The implementing agency signs PPP contracts committed to achieving social sustainability with the winning private investor
	<i>CP-23-1: To determine project outputs and performance requirements</i>
	<i>CP-23-2: To determine the performance evaluation indicators and plan</i>
	<i>CP-23-3: To develop payment mechanisms related to outputs, performance and risk apportionment</i>
	<i>CP-23-4: To require the SPV to provide performance guarantee</i>
	<i>CP-23-5: To require the SPV to establish a quality management system</i>
	<i>CP-23-6: To set up clauses to restrict shareholding arrangement changes in the SPV</i>
	<i>CP-23-7: To determine the scope and standards for initial project handover (exclusive to existing projects)</i>
	<i>CP-23-8: To determine the scope and standards for project handover upon contract expiration</i>
	<i>CP-23-9: To set up breach clauses and penalty system for behaviours that hinder the realisation of social sustainability</i>
	<i>CP-23-10: To set up clauses for government step-in due to the SPV's non-social sustainability behaviours</i>
	<i>CP-23-11: To set up clauses for monitoring</i>
	<i>CP-23-12: To set up clauses for ex-post evaluation</i>

#### *CPs in stage B1. Tender and Draft Contract Preparation*

In the project procurement phase, the implementing agency seeks to select appropriate partners and effective solutions (World Bank, 2017). The main task of this stage is to prepare complete full tender documents and draft PPP contracts. To this end, the implementing agency needs to determine the procurement process (CP-15), including setting pre-qualification criteria, evaluation criteria and weights. The purpose is to select the partners and solutions that best serve the realisation of social sustainability. Meanwhile, the implementing agency needs to set terms related to social sustainability in the draft contract (CP-16).

#### *CPs in stage B2. Prequalification*

The private investors are pre-qualified in this stage. Before participating, they should consider the goal of participation in a project, meaning the results they want to obtain. It is undeniable that profit is their ultimate goal. However, considering the beginning of an aged care PPP project and its welfare nature (recruiting publicly-funded elderly), as well as the public's rejection of institutional care, profit should not be the only or primary goal. Instead, social benefits and market exploration are more important (CP-17). They

help the private investors establish a good reputation, enhance competitiveness and occupy the market, and gain economic benefits in the long run.

#### *CPs in stage B3. Response Documents Preparation and Evaluation*

There are two main tasks in this stage: the private investors prepare and submit response documents, and the implementing agency makes the evaluation. To be the winner, the preparation of the response documents should be guided by the strategic aim of the project – social sustainability. Therefore, the private investors need to establish person-centred planning, design and construction/renovation schemes (CP-19), overall operation schemes (CP-20), and facility maintenance schemes (CP-21) based on a detailed market investigation to understand market supply and the social needs of stakeholders (CP-18).

#### *CPs in stage B4. Negotiation and Contract Award*

The implementing agency needs to adopt two CPs in this stage: to select an appropriate partner (CP-22), and to sign a PPP contract committed to achieving social sustainability (CP-23).

#### (4) CPs in project implementation phase

There are 19 first-level and 25 second-level CPs in this phase (Table 5-22).

Table 25-22 CPs in project implementation phase

Stage C1. SPV Establishment	
CP-24	The SPV defines its vision or mission as providing quality care and improving the quality of life for the elderly
Stage C2. Investment, Construction and Operation	
CP-25	The SPV drafts related documents for quality management system
	<i>CP-25-1: To prepare person-centred planning, design, construction/renovation schemes</i>
	<i>CP-25-2: To prepare person-centred annual operation schemes</i>
	<i>CP-25-3: To prepare facility maintenance manuals</i>
	<i>CP-25-4: To develop a complaint management and satisfaction evaluation system</i>
CP-26	The SPV involves stakeholder engagement to further understand their social needs and opinions and to improve services
	<i>CP-26-1: To disclose information through multiple channels</i>
	<i>CP-26-2: To establish diversified communication channels</i>
	<i>CP-26-3: To form autonomous organisations</i>

	<i>CP-26-4: To conduct satisfaction evaluation</i>
CP-27	The SPV conducts person-centred planning, design, and construction/renovation
CP-28	The SPV takes over the project as agreed at the beginning (exclusive to existing projects)
	<i>CP-28-1: The SPV contracts with existing employees and the elderly residents (exclusive to existing projects)</i>
	<i>CP-28-2: The implementing agency prepares project assets and archival materials in advance (exclusive to existing projects)</i>
CP-29	The SPV provides diversified services for all groups of elderly as agreed
	<i>CP-29-1: To provide equal access to all groups of the elderly</i>
	<i>CP-29-2: To provide diversified services for the elderly</i>
	<i>CP-29-3: To provide equal services for publicly-funded elderly residents and self-funded elderly residents</i>
	<i>CP-29-4: To provide accessibility services for the elderly's relatives</i>
	<i>CP-29-5: To introduce smart care for the elderly</i>
CP-30	The SPV provides good human resource management for the employees as agreed
	<i>CP-30-1: To provide equal employment opportunity, satisfactory salary and benefits for the employees</i>
	<i>CP-30-2: To provide labour security for the employees</i>
	<i>CP-30-3: To provide education and training for the employees</i>
CP-31	The SPV contributes to the local community and society
	<i>CP-31-1: To provide business opportunities</i>
	<i>CP-31-2: To provide training in care knowledge</i>
	<i>CP-31-3: To promote social participation of the elderly residents</i>
CP-32	The SPV provides contingency response for emergencies that affect the safety of the stakeholders
CP-33	The SPV performs facility maintenance as agreed
CP-34	The SPV implements quality management system certification
Stage C3. Performance Monitoring and Mid-term Evaluation	
CP-35	The SPV self-monitors the outputs to ensure compliance with the standards agreed in the contract
CP-36	The implementing agency and other government departments conduct contract implementation monitoring
CP-37	The implementing agency conducts performance evaluation and mid-term evaluation
CP-38	The implementing agency makes information public
CP-39	The implementing agency pays the SPV on a performance basis
Stage C4. Project Handover and Ex-post Evaluation	
CP-40	The government examines its options after contract expiration to reduce the adverse impacts on the stakeholders
CP-41	The implementing agency and the SPV conduct handover upon contract expiration as agreed
	<i>CP-41-1: The SPV prepares all assets and archives to be handed over in advance</i>
	<i>CP-41-2: The SPV repairs substandard assets</i>
	<i>CP-41-3: The SPV trains the new employees after the handover</i>
	<i>CP-41-4: The SPV places existing elderly and the employees</i>
CP-42	The civil affairs department conducts ex-post evaluation

Note: The identification of CPs in this phase depends entirely on the three main cases. The parallel reference cases are no longer used because their implementation information is not available in the PPP project database.

### *CPs in stage C1. SPV Establishment*

The SPV is the key decision-maker in the project implementation phase, and many CPs are adopted by the SPV. Providing quality care and improving the quality of life for the elderly should be defined as the vision or mission of the SPV when establishing it



(CP-24). Social sustainability is easier to achieve when the SPV's vision is aligned with the project's strategic aim.

*CPs in stage C2. Investment, Construction and Operation*

The SPV invests, constructs and operates the aged care PPP project in accordance with the contract in this stage. It should adopt a series of CPs to achieve social sustainability, including CP-25 to CP-34.

*CPs in stage C3. Performance Monitoring and Mid-term Evaluation*

To ensure that the SPV delivers the agreed outputs, diversified monitoring and evaluation are essential. In addition to the self-monitoring by the SPV (CP-35), the implementing agency and other government departments should conduct contract implementation monitoring (CP-36). The implementing agency should also conduct performance evaluation and mid-term evaluation (CP-37) and disclose relevant information (CP-38). Information disclosure is conducive to public monitoring, and the results of performance evaluation are linked to payment (CP-39).

*CPs in stage C4. Project Handover and Ex-post Evaluation*

There are three CPs in this stage. First, the government needs to examine its options after contract expiration to reduce the adverse impacts on stakeholders (CP-40). Second, the implementing agency and the SPV conduct handover upon contract expiration as agreed (CP-41). Last, the civil affairs department conducts ex-post evaluation (CP-42) to draw lessons from the implemented projects, to improve the contract design in the future, better prepare, purchase and implement the projects, and better realise the social sustainability of the projects.

## 5.4 RPs for Each Social Sustainability Indicator

A series of CPs that drive the achievement of a social sustainability indicator is termed a realisation path (RP). Each social sustainability indicator corresponds to a RP, which is based on the enabling relationships between CPs.

### 5.4.1 Enabling Relationships between CPs

As described in Section 4.4.3, there are enabling relationships between CPs, where the CP adopted earlier triggers the CP adopted later. The determination of enabling relationship is based on the analysis of the consequences or effects of each CP. They are the last component of a CP and are analysed in each CP's identification process (see Appendix 7 for details). For example, when initiating a project, the civil affairs department needs to adopt CP-1, to define social sustainability as the strategic aim of the project. The consequence is that "all participants will consider how to realise it. They will plan and take wise approaches step by step." CP-2, CP-3 and CP-4 are the "wise approaches" to follow CP-1. That is, the civil affairs department preliminarily considers the well-being of the employees, the elderly and their relatives, and the local community and society in the feasibility study. Therefore, there is an enabling relationship between CP-1 and CP-2, CP-3 and CP-4. It is represented by an arrow line from the former to the latter in the realisation path (see Figure 5-3 below for example).

### 5.4.2 The Established RPs

There are 21 RPs in total. They visually demonstrate the realisation process of each social sustainability indicator. RP1 is explained in detail. For the sake of length, no detailed explanation of the other RPs is provided because the explanations can be easily inferred by referring to the explanation of RP1.

### **RP1. The RP of indicator 1.1.1**

The RP diagram of indicator 1.1.1 Equal employment opportunity is shown in Figure 5-3. It is necessary to introduce the diagram before explaining the RP. The blue circle in the figure represents the social sustainability indicator to be achieved. The boxes represent CPs that need to be adopted. The CPs in the green box have a high degree of aggregation. Therefore, the focus of the same CP in different RPs might be different. For example, CP-1 refers to the local civil affairs department defining social sustainability as the strategic aim when initiating a project. Social sustainability is a complex construct, including various social impacts on employees, elderly residents and their relatives, and the local community and society. Therefore, the focus of CP-1 is different for different social sustainability indicators. To achieve equal employment opportunity, the government needs to set it as a strategic aim when launching a project. If the indicator is to provide a healthy and safe workplace, the content of the strategic aim in CP-1 should change. CPs in the yellow box are the opposite. They are consistent in all the RPs. That is, no matter how the indicator changes, the focus of these CPs remains unchanged. For example, CP-5 always refers to the establishment of a project management team led by the implementing agency to achieve social sustainability. From another perspective, the CPs in the green box can be seen as the specific behaviours and decisions that contribute to the realisation of the indicator, while the CPs in the yellow box can be regarded as the choice of the adopters of those practices.

In addition, the top of the diagram is the timeline. A1–A7 are the stages included in the preparation phase of the lifecycle of aged care PPP projects: A1 project initiation, A2 implementing agency authorisation, A3 business case preparation, A4 market sounding, A5 value for money assessment, A6 fiscal affordability assessment, and A7 project approval. B1–B4 represent the four stages of the procurement phase: B1 tender and draft contract preparation, B2 prequalification, B3 response documents preparation and evaluation, and B4 negotiation and contract award. C1–C4 is the four stages of the procurement phase: C1 SPV establishment, C2 investment, construction and operation,

C3 performance monitoring and mid-term evaluation, and C4 project handover and ex-post evaluation.

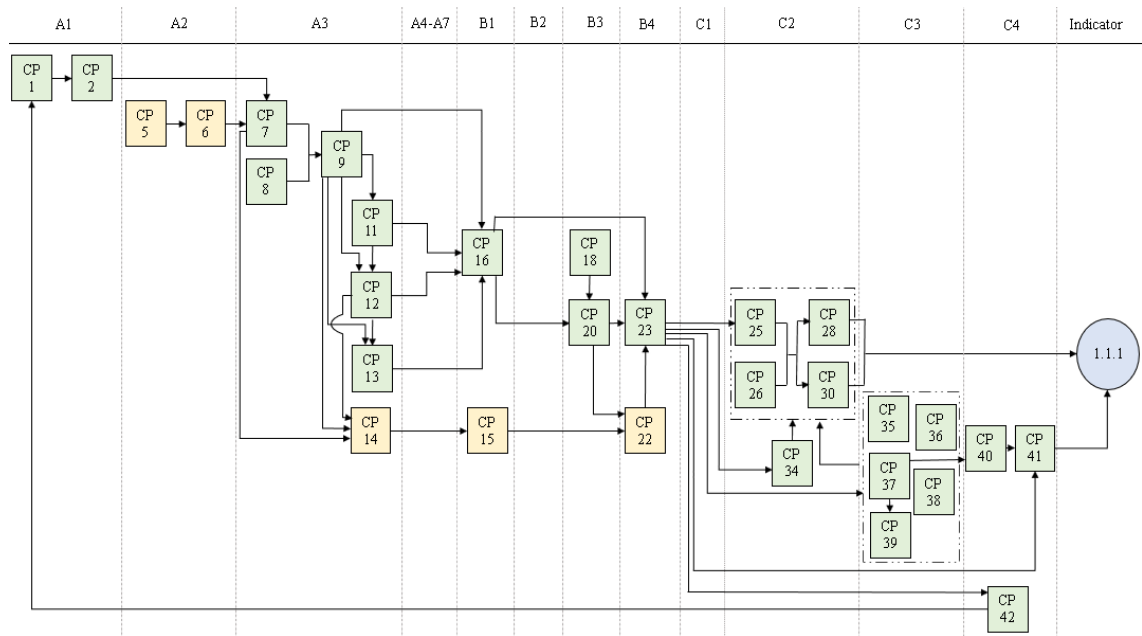


Figure 26-3 The RP diagram of social sustainability indicator 1.1.1

To ensure the employees have equal employment opportunity, it is necessary for the government, private investors and SPVs to adopt a series of CPs at different phases and stages of the lifecycle of aged care PPP projects.

#### (1) Preparation Phase

- The Civil Affairs Department defines the provision of equal employment opportunity as one of the strategic aims when initiating a project (CP-1). Although this CP has not been adopted, the interviewees in the three main cases have recognised its importance. It guides the participants to reflect on how to realise it.
- The Civil Affairs Department preliminarily analyses whether a project can achieve this aim in the feasibility study (CP-2). The main cases consider the provision of equal employment opportunity in the feasibility study. Projects unlikely to realise

the aim will be excluded. This CP provides direction for the follow-up industry investigation.

- When a project is feasible and an implementing agency is authorised by the government, it is responsible for establishing a project management team (CP-5). This CP has not been adopted in the main cases, but has been widely used in the parallel reference cases. It does not directly contribute to the provision of equal employment opportunities, but is committed to establishing an organisation that can promote the realisation of this aim.
- The implementing agency selects appropriate advisors (CP-6). It is adopted in the main cases. Like CP-5, this CP does not directly contribute to the provision of equal employment opportunities, but is committed to selecting advisors who can promote the achievement of this aim.
- The implementing agency assists the advisors in conducting industry investigation (CP-7), to learn about the experience and lessons of existing aged care institutions in providing equal employment opportunities. This CP has been widely adopted. It provides the basis for determining the performance requirements of project outputs in the business case.
- To have stakeholder engagement while conducting market investigation (CP-8), to understand the employees' needs for equal employment opportunity. This CP has been widely adopted. It provides the basis for determining the performance requirements of project outputs in the business case.

Based on the previous two CPs, the implementing agency needs to assist the advisors to prepare a business case conducive to the realisation of the aim, including:

- To set the provision of equal employment opportunity as one of the performance requirements for project outputs (CP-9). The main cases adopt this CP by setting regulations and standards to be followed by the projects. The provision of equal employment opportunities is not the output, but a performance requirement to

ensure the realisation of the output. It is a basis for the preparation of the other components of the business case and a core component of the procurement documents.

- To outline the payment mechanism related to the realisation of performance requirements and risk sharing (CP-11), to constrain the SPV to provide equal employment opportunity. The main cases link the performance evaluation results with the withdrawal of guarantee. It is the basis for the preparation of initial contractual arrangements in the business case and procurement documents.
- To make initial consideration of contractual arrangements related to the realisation of the aim (CP-12). The implementing agencies in the main cases establish a link between equal employment opportunity and contractual terms, to constrain the practices of the SPVs. It is the basis for the establishment of the preliminary monitoring framework, the determination of procurement strategy in the business case, and the preparation of procurement documents.
- To establish a preliminary monitoring framework (CP-13), to further constrain the SPV to provide equal employment opportunity. By monitoring the implementation of the contracts, the practices of the SPVs in the main cases are constrained. It is the basis for the preparation of draft contracts.
- The implementing agency determines the procurement strategy to best procure the required outputs (CP-14). This CP is not directly related to the provision of equal employment opportunity, but rather focuses on the selection of partners who could advance the aim.

## (2) Procurement Phase

- The implementing agency determines the procurement process to select the partners and solutions that best serve the realisation of social sustainability (CP-15). This CP does not directly contribute to the provision of equal employment opportunity but is conducive to the selection of partners and solutions who can achieve the aim.

- The implementing agency sets the terms of the draft contract relating to the realisation of this aim when preparing procurement documents (CP-16). The implementing agencies in the main cases establish a link between equal employment opportunity and draft contractual terms, for example performance requirements, performance evaluation plan, payment mechanism, evaluation etc. It is the basis for private investors to formulate tender documents and sign PPP contracts with the implementing agency.
- Private investors conduct detailed market investigation (CP-18), to understand the employment situation in other aged care projects. The interviewees from SPVs in all cases considered market investigation to be very important. It provides a basis for them to formulate competitive response documents that meet the social needs of stakeholders.
- Private investors consider the provision of equal employment opportunity when preparing response documents (CP-20). It is adopted in the main cases. It increases the competitiveness of the response documents.
- The implementing agency selects an appropriate partner (CP-22). This CP does not directly contribute to the provision of equal employment opportunity but is conducive to the selection of partners and solutions who can achieve the aim.
- The implementing agency signs a PPP contract committed to realising the aim with the winning private investors (CP-23). It will guide the SPV to set up a project vision, establish a quality management system and conduct self-management. Meanwhile, it will also guide government departments to conduct external monitoring, performance evaluation and mid-term evaluation, disclose information and pay on performance.

### (3) Implementation Phase

- The SPV considers the equal employment issue when preparing the annual operation scheme (CP-25). This is a natural consideration based on the contract which will guide the SPV's actual employment practices.
- The SPV involves stakeholder engagement (CP-26), to further understand employees' opinions on this issue and improve it. Approaches like establishing communication channels and satisfaction evaluation are adopted in the main cases. It helps the employees to understand, monitor and support the project, and facilitate projects' operation.
- The SPV accepts all the existing employees and signs employment contracts with them (for existing project) (CP-28). The interviewees in the main cases indicate that initial handover is an important step for a SPV to take over a project. It is necessary to ensure that the well-being of the existing employees would not be affected, eliminates their worries about the private investors and reduces the probability of public opposition.
- The SPV provides equal employment opportunity for potential employees (CP-30). This CP is conducive to the realisation of social sustainability indicators 1.1.1, 1.1.2, 1.2.2, 1.3.1, 1.3.2, 3.1.1 and 3.1.3.
- The SPV ensures the provision of equal employment opportunity through implementing Quality Management System Certification (CP-34). Two main cases have ISO9001 international quality system certification. It could constrain the SPV's practices.
- The SPV self-monitors the outputs to ensure compliance with the performance requirements agreed in the contract (CP-35), such as the provision of equal employment opportunity. It helps to ensure that the SPV provides outputs according to the standards agreed in the contract.
- The implementing agency and other government departments conduct contract implementation monitoring to ensure the provision of equal employment



opportunity (CP-36). It helps to ensure that the SPV provides outputs according to the standards agreed in the contract.

- The implementing agency conducts performance evaluation and mid-term evaluation (CP-37), to ensure the provision of equal employment opportunity. Performance and mid-term evaluations are effective means to ensure that the project achieves performance requirements (for example, equal employment opportunity) and important sources of information to provide lessons learned.
- The implementing agency makes information public to encourage the SPV to provide equal employment opportunity (CP-38). The disclosure of information can improve the transparency and efficiency of the project and ensure the realisation of the best socio-economic results.
- The implementing agency pays the SPV on a performance basis (CP-39). An appropriate payment mechanism can promote the SPV to provide outputs in strict accordance with performance requirements (APMG-International, 2016; Public Private Partnerships Programme, 2007). Whenever the SPV does not provide equal employment opportunity, measures will be taken to urge it to improve or take remedies.
- The government examines its options after contract expiration to reduce the adverse impacts on employment opportunity (CP-40). Early consideration of the options can provide the government and the SPV with sufficient time to comprehensively consider the arrangement of the employees, to reduce the negative impact caused by the contract expiration on existing employees' employment. In addition, the consideration will be based on the social needs of the stakeholders, the actual cooperation situation between the public and private parties and the realisation status of the strategic aims of a project. The new option will be more conducive to ensuring the realisation of the strategic aims, including the provision of equal employment opportunity.
- The implementing agency and the SPV conduct handover upon contract expiration as agreed (CP-41). It helps ensure the arrangements of the existing employees and protects the stability of their employment.

- The implementing agency conducts ex-post evaluation (CP-42), to better provide equal employment opportunity in the future. This CP has not been adopted yet. However, ex-post evaluation can draw lessons from implemented projects, to improve contract design in the future, better prepare, purchase and implement projects, and better realise the social sustainability of projects.

### RP2. The RP of indicator 1.1.2

The RP diagram of indicator 1.1.2 Fair employment contract and rational compensation system is the same as that of indicator 1.1.1 (Figure 5-4). As expected, compared with the RP of the first indicator, different participants have slightly different priorities in each CP.

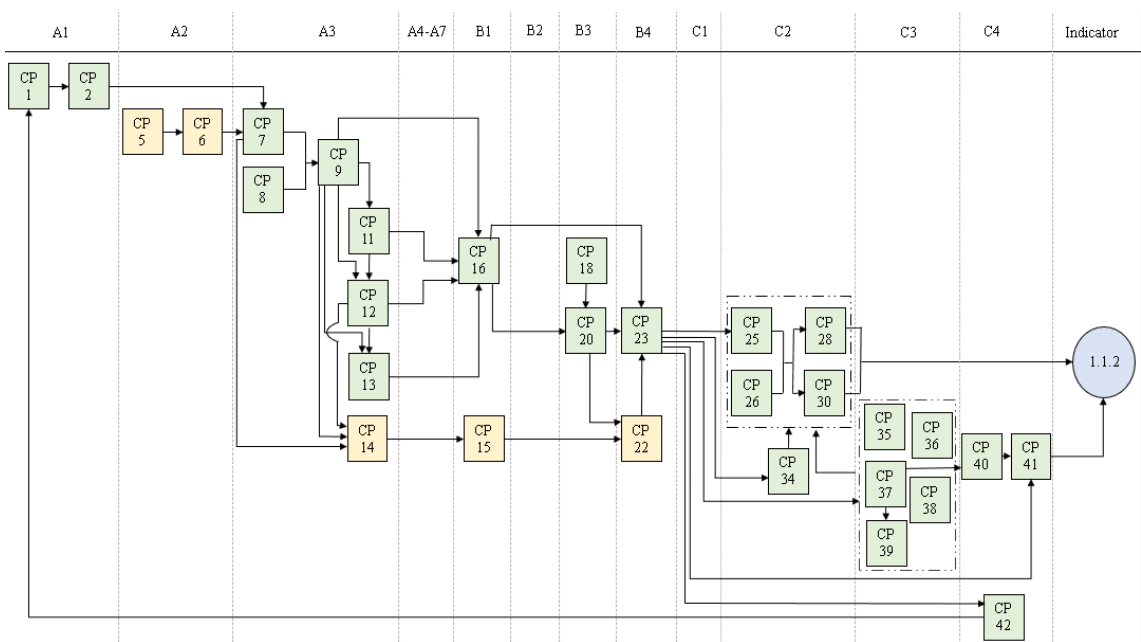


Figure 27-4 The RP diagram of social sustainability indicator 1.1.2

### RP3. The RP of indicator 1.2.1

The RP diagram of indicator 1.2.1 Healthy and safe workplace is shown in Figure 5-5.

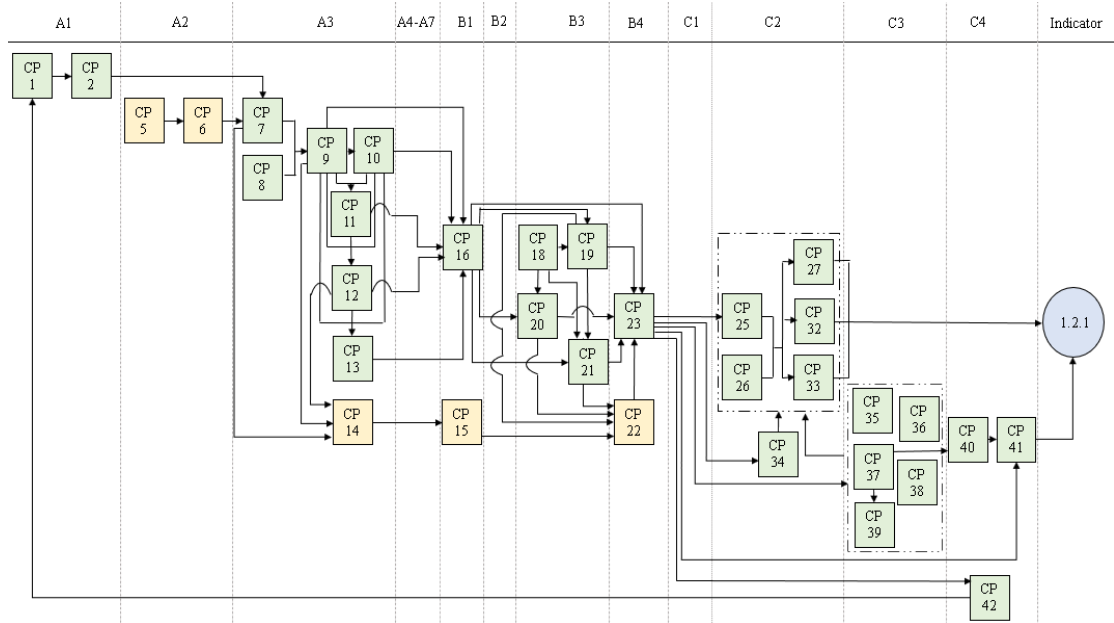


Figure 28-5 The RP diagram of social sustainability indicator 1.2.1

#### RP4. The RP of indicator 1.2.2

The RP diagram of indicator 1.2.2 Policies and procedures conducive to health and safety is shown in Figure 5-6.

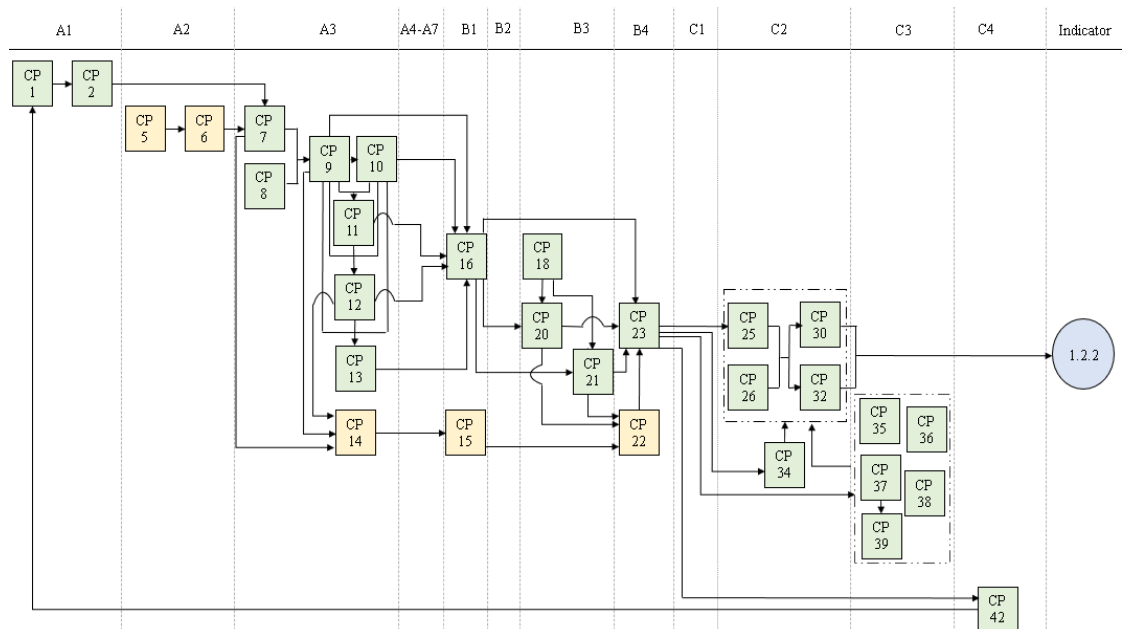


Figure 29-6 The RP diagram of social sustainability indicator 1.2.2

### RP5. The RP of indicator 1.3.1

The RP diagram of indicator 1.3.1 The mastering of professional skills is shown in Figure 5-7.

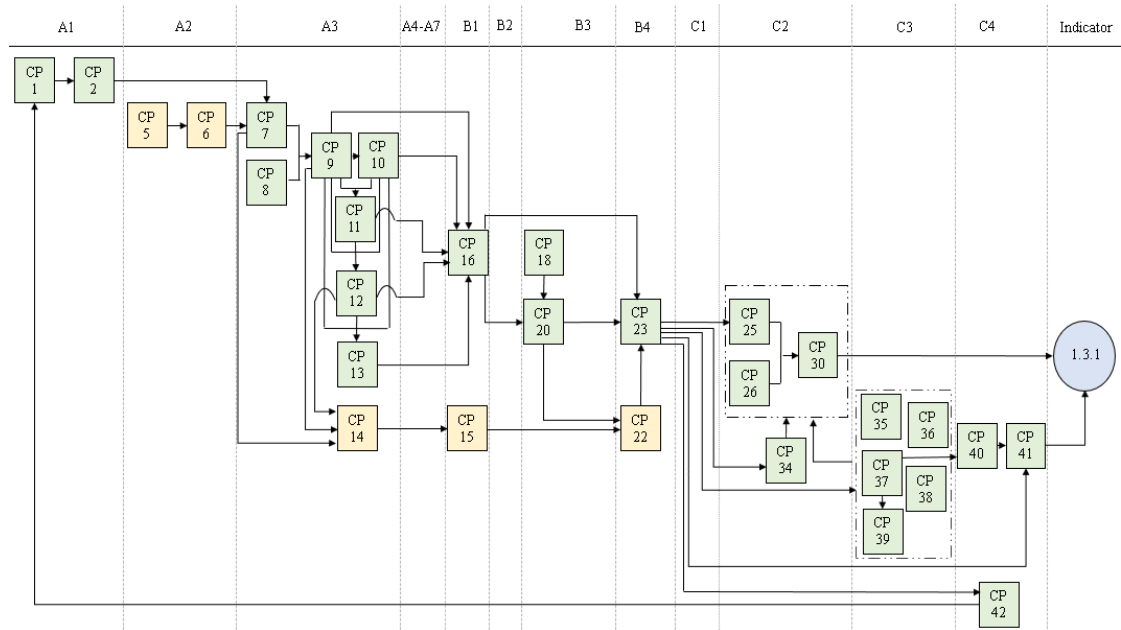


Figure 30-7 The RP diagram of social sustainability indicator 1.3.1

### RP6. The RP of indicator 1.3.2

The RP diagram of social sustainability indicator 1.3.2 Improved sustainability awareness is the same as that of indicator 1.3.1 (Figure 5-8). Compared with the RP of the latter, different participants have slightly different priorities in each CP.

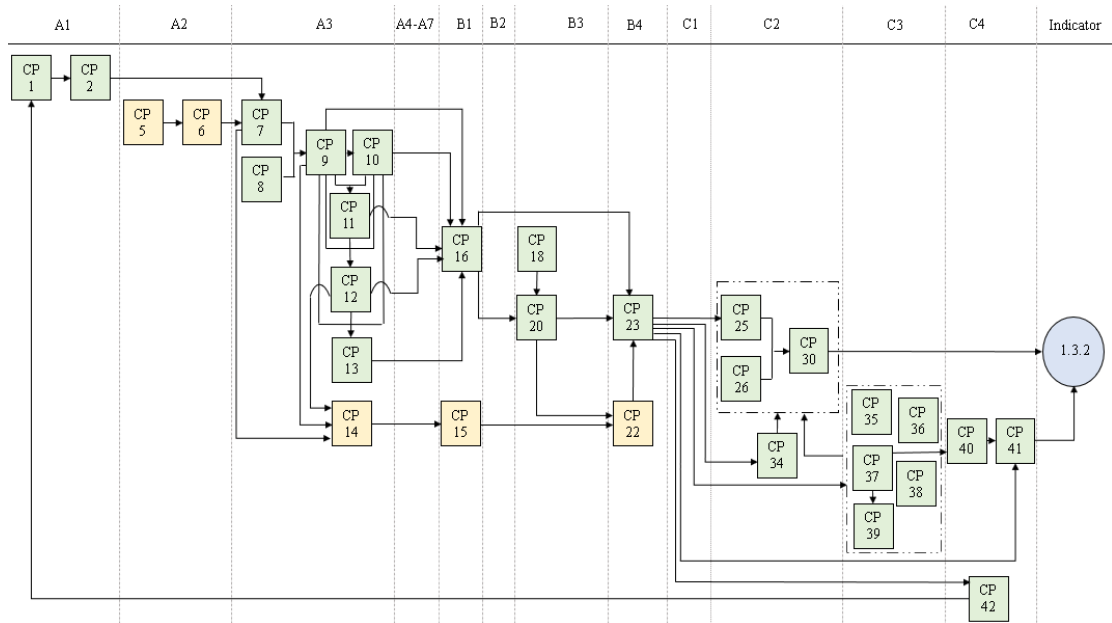


Figure 31-8 The RP diagram of social sustainability indicator 1.3.2

#### RP7. The RP of indicator 2.1.1

The RP diagram of indicator 2.1.1 Equal access to a project is shown in Figure 5-9.

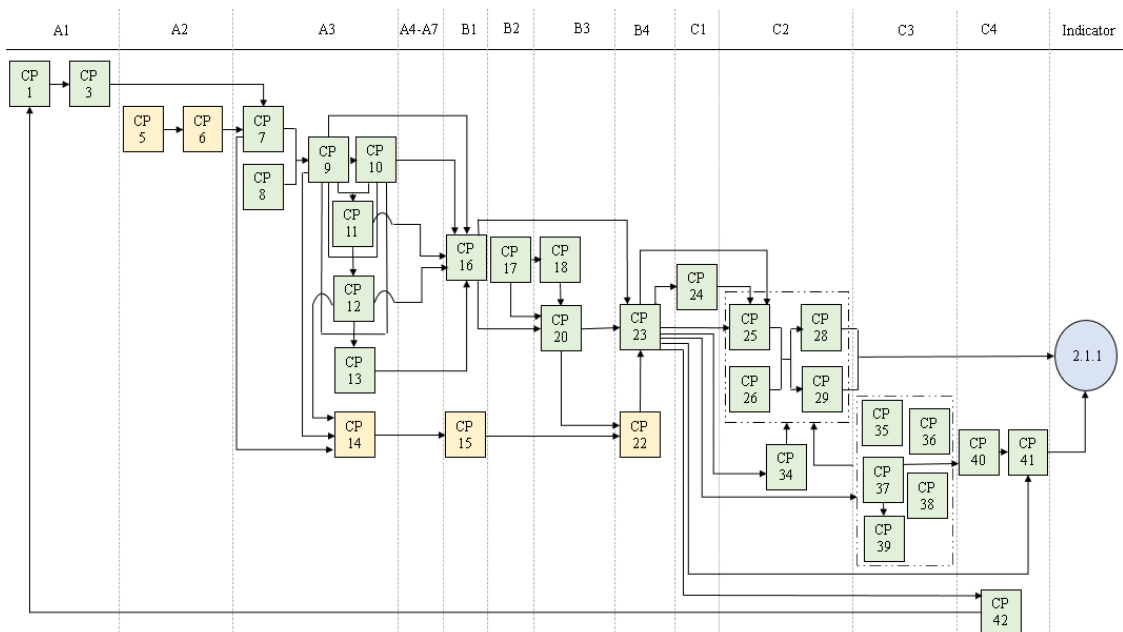


Figure 32-9 The RP diagram of social sustainability indicator 2.1.1

### RP8. The RP of indicator 2.1.2

The RP diagram of indicator 2.1.2 Equal access to services, facilities etc. is the same as that of indicator 2.1.1 (Figure 5-10). Compared with the RP of the latter, different participants have slightly different priorities in each CP.

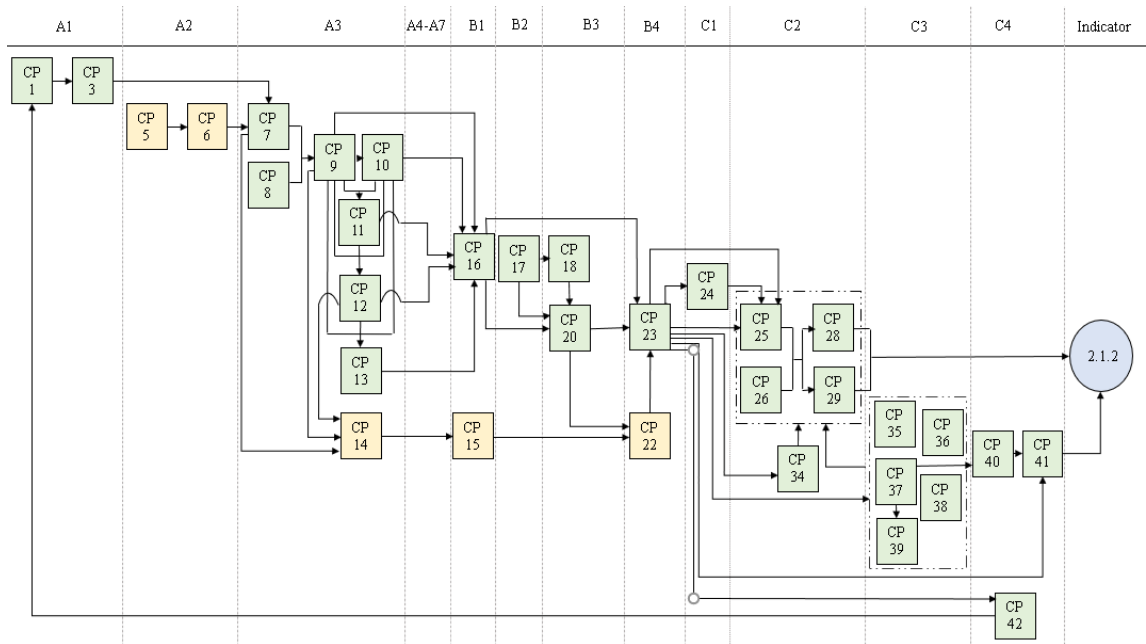


Figure 33-10 The RP diagram of social sustainability indicator 2.1.2

### RP9. The RP of indicator 2.2.1

The RP diagram of indicator 2.2.1 Satisfied basic needs is shown in Figure 5-11.

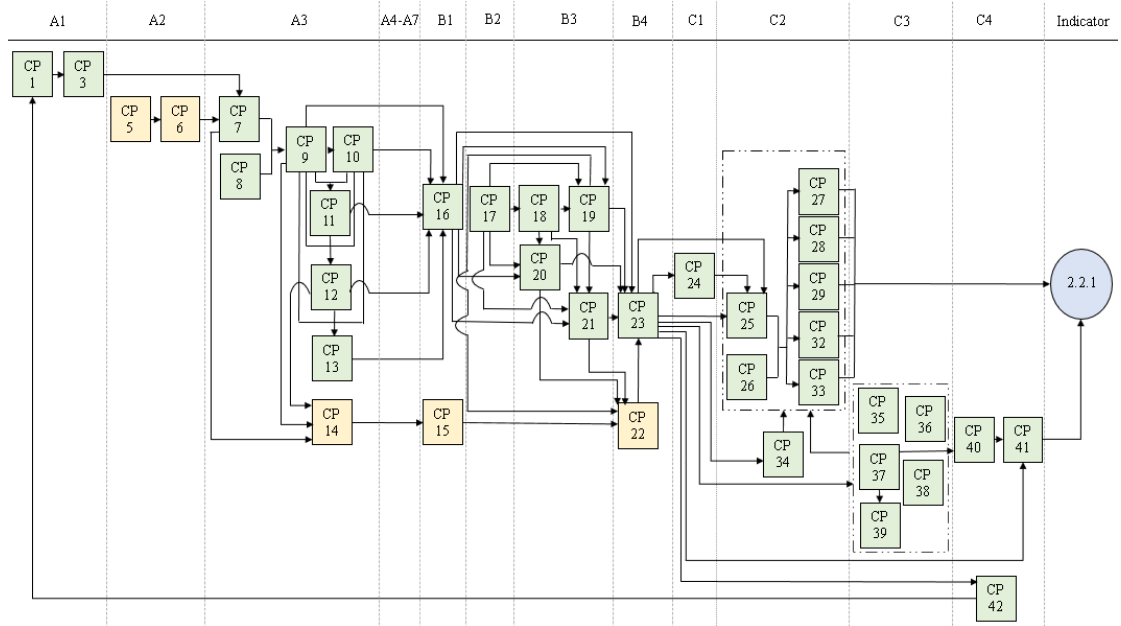


Figure 34-11 The RP diagram of social sustainability indicator 2.2.1

#### RP10. The RP of indicator 2.2.2

The RP diagram of indicator 2.2.2 Satisfied health and physical comfort is shown in Figure 5-12.

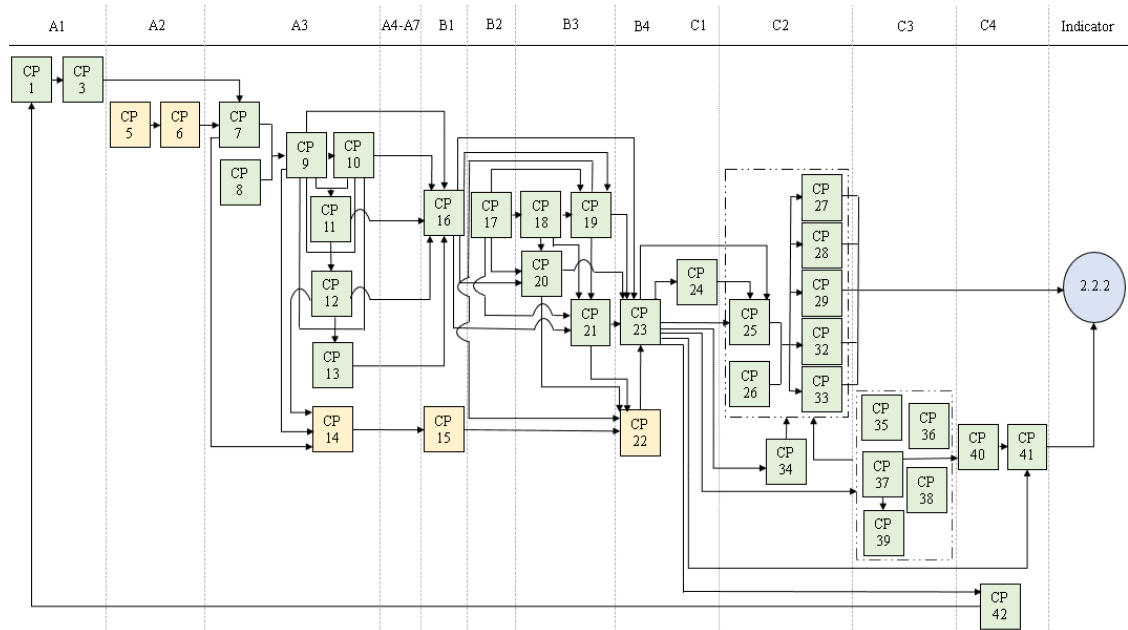


Figure 35-12 The RP diagram of social sustainability indicator 2.2.2

### RP11. The RP of indicator 2.2.3

The RP diagram of indicator 2.2.3 Satisfied psychological comfort is shown in Figure 5-13.

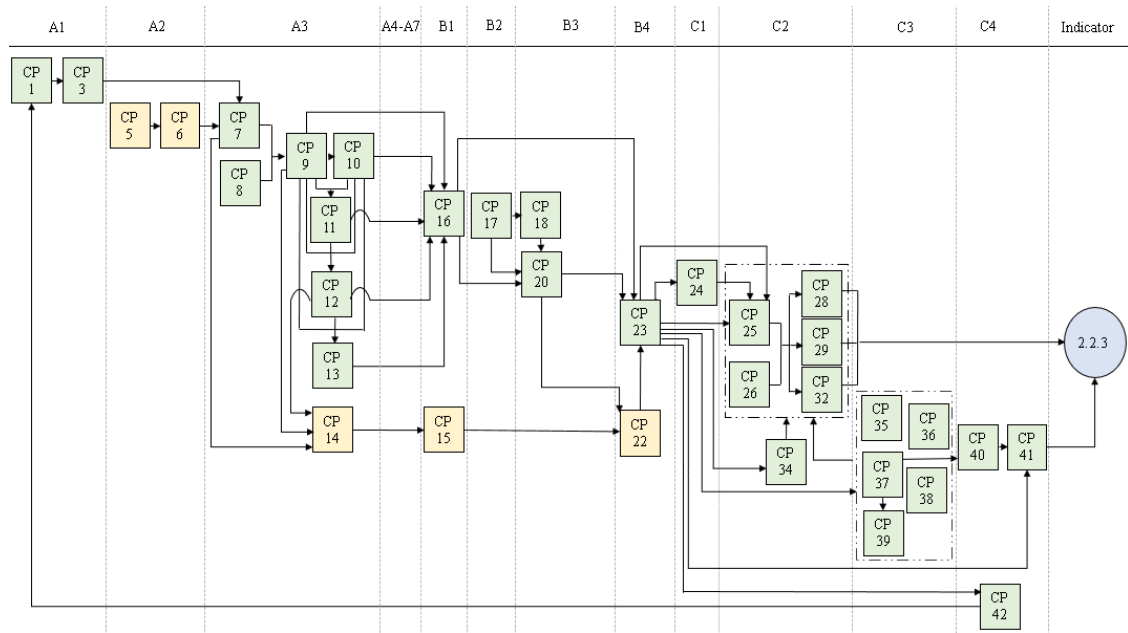


Figure 36-13 The RP diagram of social sustainability indicator 2.2.3

### RP12. The RP of indicator 2.3.1

The RP diagram of indicator 2.3.1 Good accessibility of the project is shown in Figure 5-14.



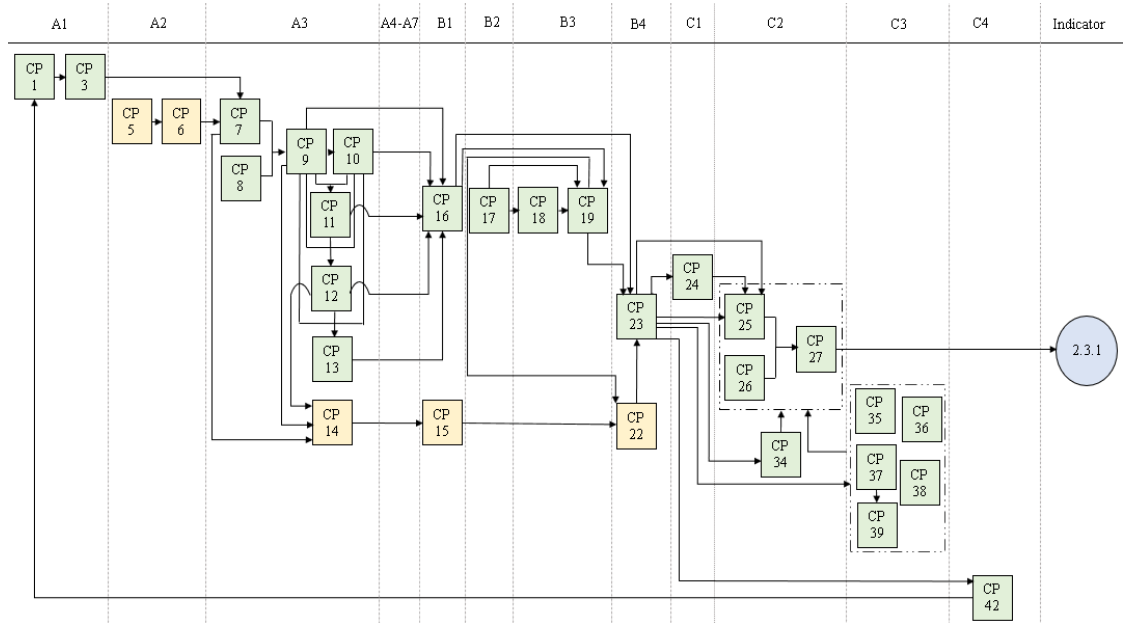


Figure 37-14 The RP diagram of social sustainability indicator 2.3.1

### RP13. The RP of indicator 2.3.2

The RP diagram of social sustainability indicator 2.3.2 Good accessibility of facilities is shown in Figure 5-15.

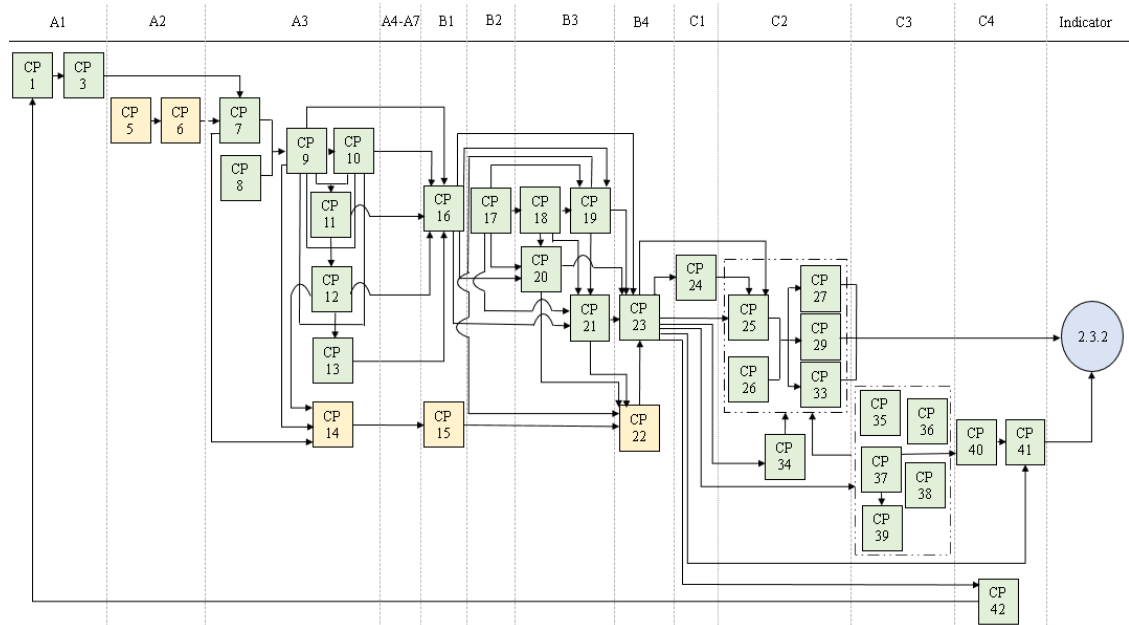


Figure 38-15 The RP diagram of social sustainability indicator 2.3.2

#### RP14. The RP of indicator 2.3.3

The RP diagram of indicator 2.3.3 Easy access to the elderly is shown in Figure 5-16.

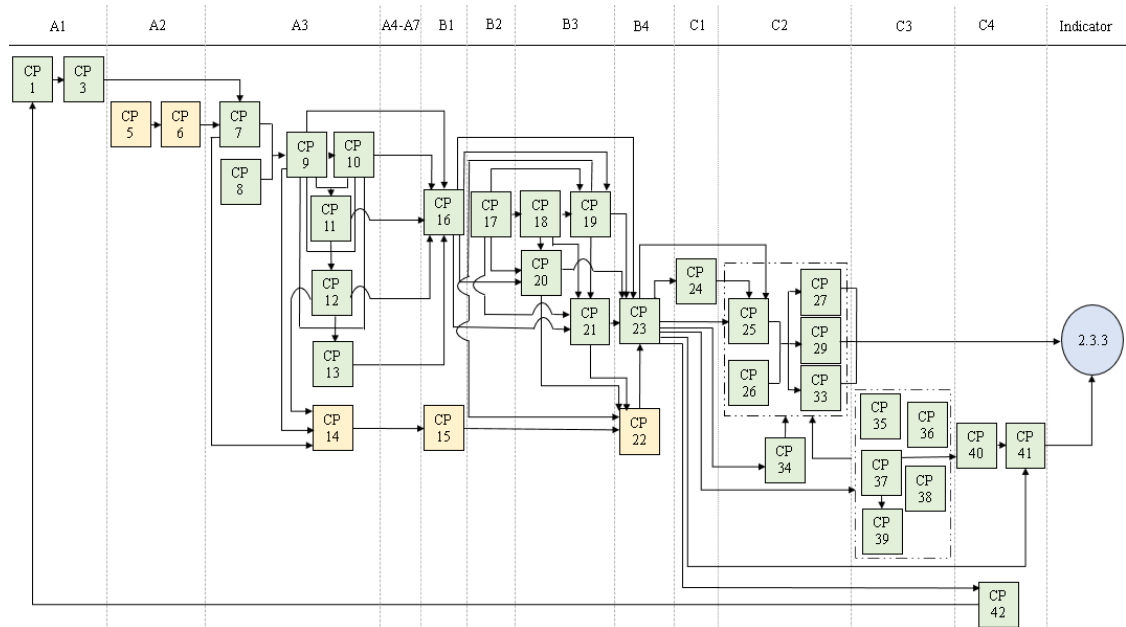


Figure 39-16 The RP diagram of social sustainability indicator 2.3.3

#### RP15. The RP of indicator 3.1.1

The RP diagram of indicator 3.1.1 Job creation is shown in Figure 5-17.

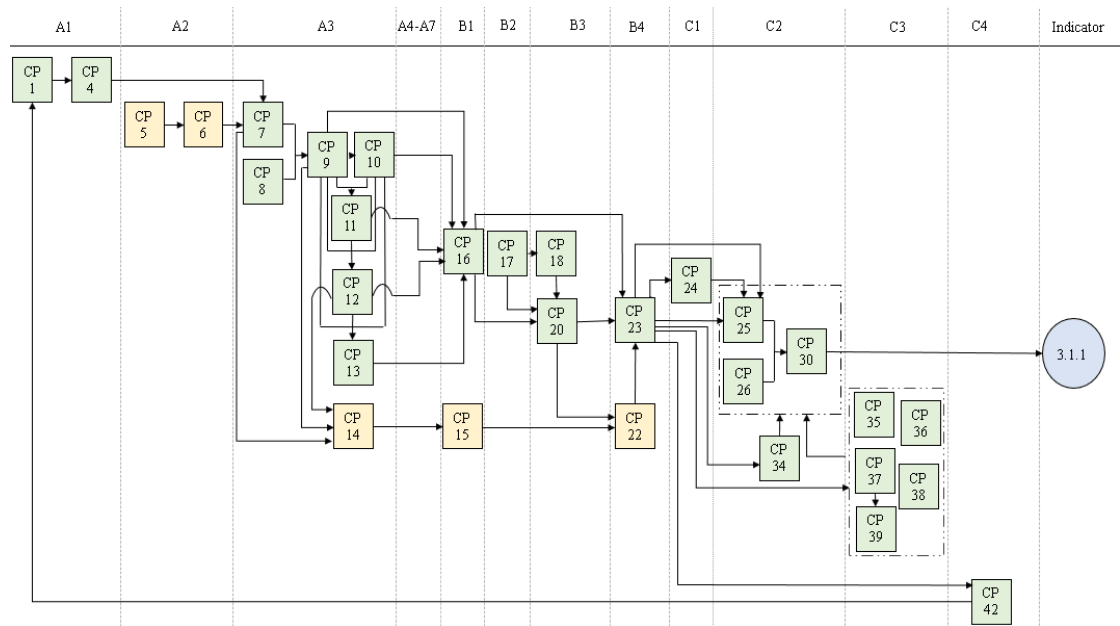


Figure 40-17 The RP diagram of social sustainability indicator 3.1.1

#### RP16. The RP of indicator 3.1.2

The RP diagram of indicator 3.1.2 Induced business opportunities is shown in Figure 5-18.

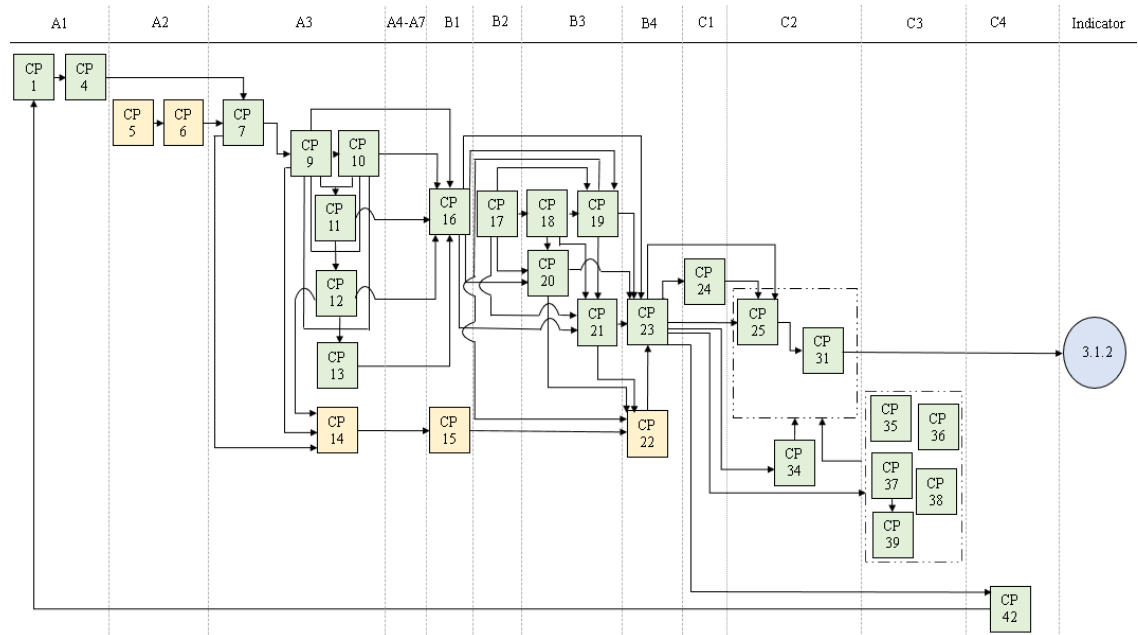


Figure 41-18 The RP diagram of social sustainability indicator 3.1.2

### RP17. The RP of indicator 3.1.3

The RP diagram of indicator 3.1.3 Local actors' involvement is the same as that of indicator 3.1.1 (Figure 5-19). Compared with the RP of the latter, different participants have slightly different priorities in each CP.

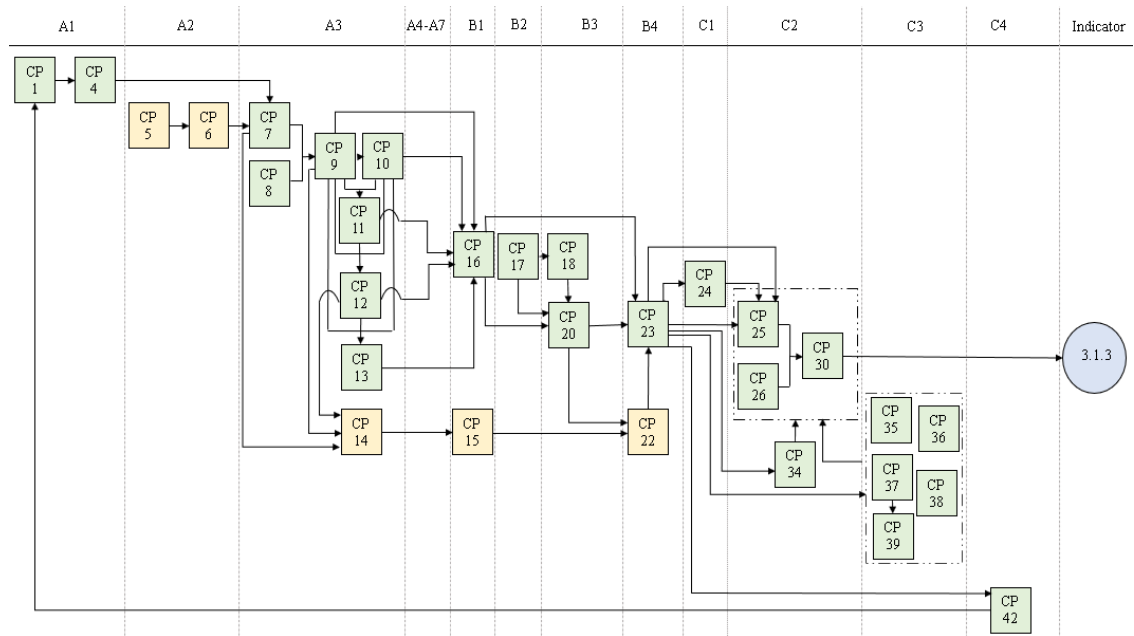


Figure 42-19 The RP diagram of social sustainability indicator 3.1.3

### RP18. The RP of indicator 3.2.1

The RP diagram of indicator 3.2.1 Improved local health level is shown in Figure 5-20.

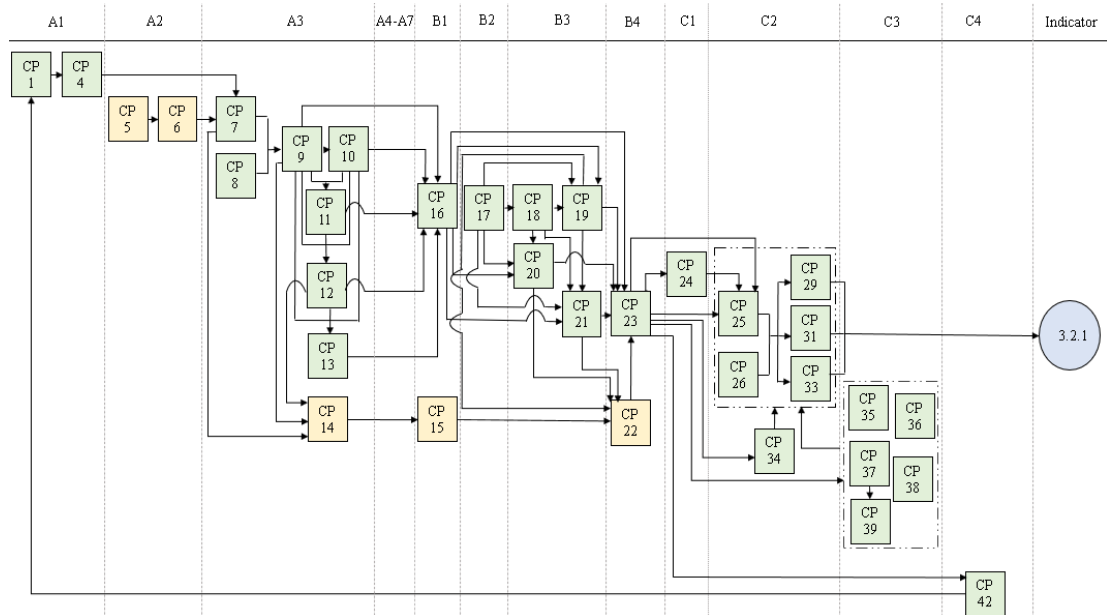


Figure 43-20 The RP diagram of social sustainability indicator 3.2.1

### RP19. The RP of indicator 3.3.1

The RP diagram of indicator 3.3.1 Protected/Established local culture is shown in Figure 5-21.

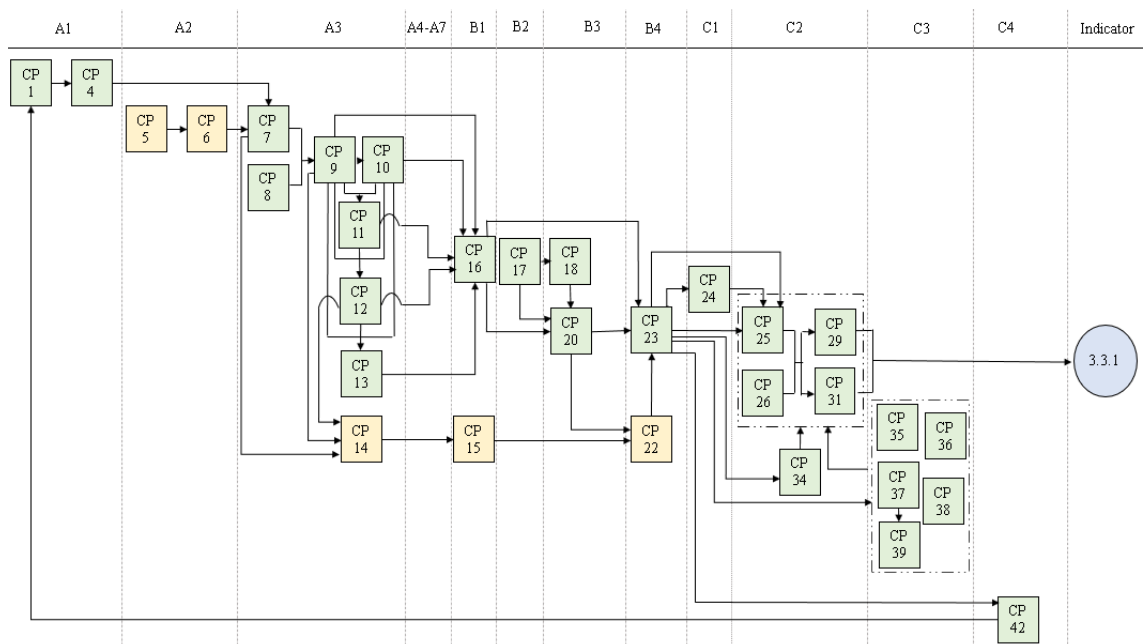


Figure 44-21 The RP diagram of social sustainability indicator 3.3.1

### RP20. The RP of indicator 3.4.1

The RP diagram of indicator 3.4.1 The realisation of social mixing is the same as that of indicator 3.3.1 (Figure 5-22). Compared with the RP of the latter, different participants have slightly different priorities in each CP.

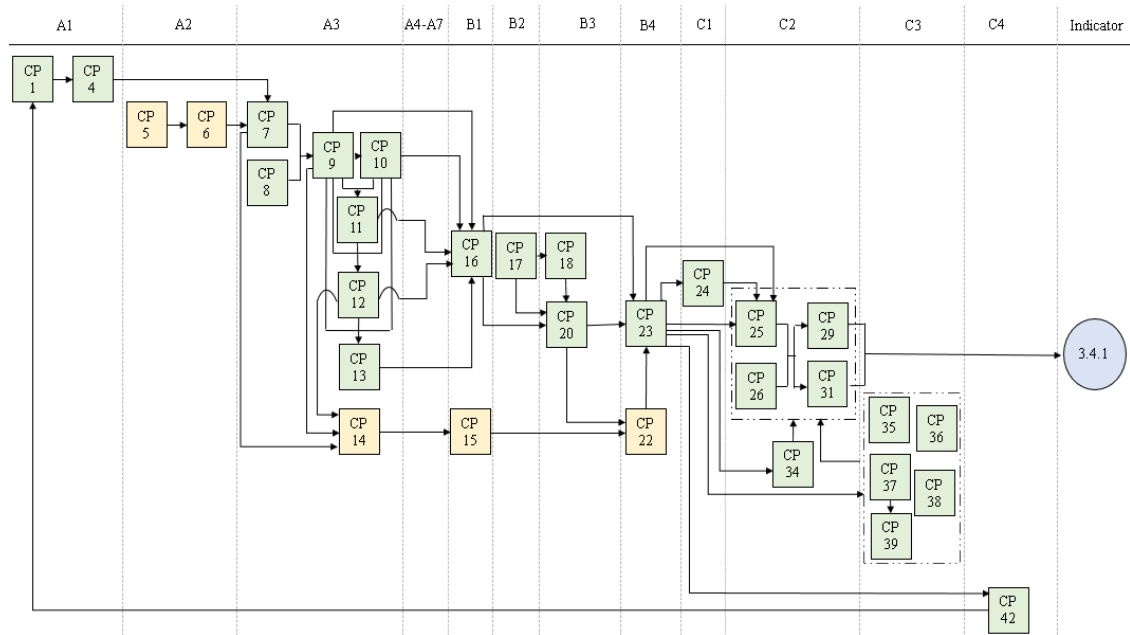


Figure 45-22 The RP diagram of social sustainability indicator 3.4.1

### RP21. The RP of indicator 3.4.2

The RP diagram of indicator 3.4.2 Enhanced community vitality is the same as that of indicator 3.4.1 (Figure 5-23). Of course, compared with the realisation path of the latter, different participants have slightly different priorities in each CP.

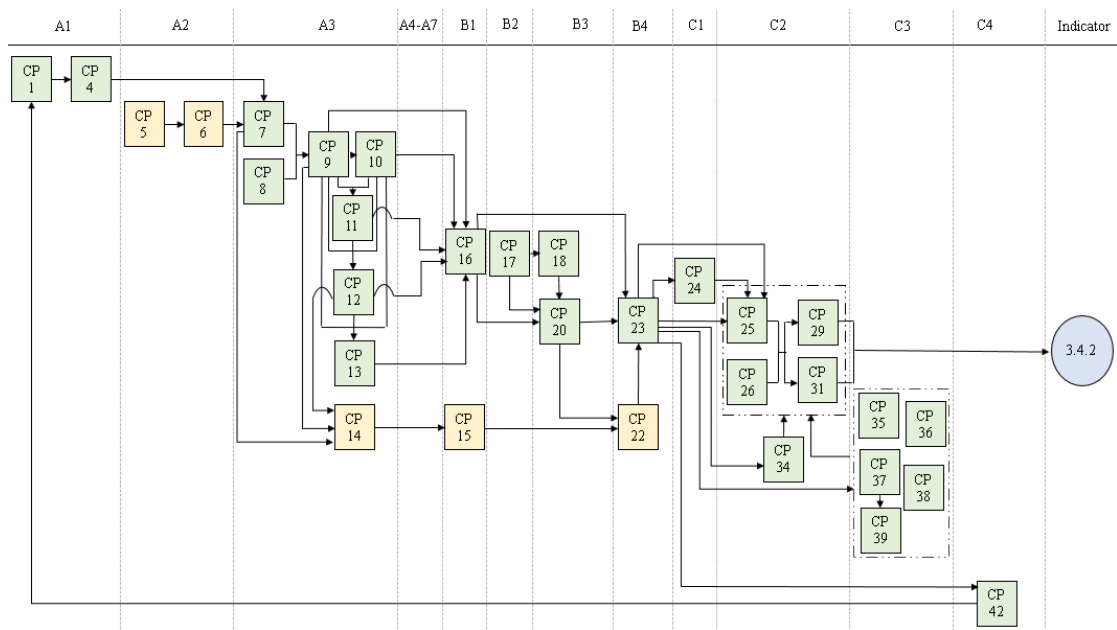


Figure 46-23 The RP diagram of social sustainability indicator 3.4.2

## 5.5 Summary

The data collected by the focus groups and the online Delphi process indicate that employees, the elderly and their relatives, and the local community and society are important stakeholders in the lifecycle of aged care PPP projects. The social sustainability of the project can be demonstrated through a framework containing 21 indicators. Except for indicator 3.1.1 Job creation and 3.1.3 Local actors' involvement, the realisation status of other indicators needs to be improved. Nine of them need to be paid special attention: 1.3.2 Improved sustainability awareness, 1.3.1 The mastering of professional skills, 1.1.2 Fair employment contract and rational compensation system, 2.2.3 Satisfied psychological comfort, 2.3.3 Easy access to the elderly, 2.2.2 Satisfied health and physical comfort, 2.3.1 Good accessibility of the project, 3.2.1 Improved local health level, and 3.4.2 Enhanced community vitality.

The multiple-case study identified 42 first-level and 85 second-level CPs that contribute to the realisation of social sustainability. They are adopted by government departments,

private investors and SPVs at different stages of the lifecycle of aged care PPP projects. The following chapter discusses the CPs in more detail.

In addition, 21 realisation paths for each social sustainability indicator are established according to the determination of the enabling relationships between critical practices.



## Chapter 6 Discussion

### 6.1 Introduction

The results in Chapter 5 are discussed in this chapter. The social sustainability indicator framework of aged care PPP projects is finalised and evaluated, critical practices (i.e., CPs) conducive to social sustainability are identified, and realisation paths (i.e., RPs) for each social sustainability indicator are established. Next, Section 6.2 presents a thorough discussion on each stakeholder group, the social impacts of the project on them, and the importance and realisation status of each social sustainability indicator in the framework. Then, Section 6.3 establishes and discusses a consolidated RP of social sustainability of aged care PPP projects.

### 6.2 Social Sustainability Indicator Framework

The mean value of importance and realisation status of all indicators of each stakeholder group in aged care projects are shown in Figure 6-1, with data derived from Table 5-12. According to the judgment of Delphi experts, three important stakeholder groups are employees, the elderly and their relatives, and the local community and society. The importance of employee-related social sustainability indicators was assigned the highest mean value, with the mean value of realisation status being in the middle. Social sustainability indicators related to the elderly and their relatives were slightly less important than those of employees, and have the highest mean value of realisation status. The mean value of importance and realisation status of social sustainability indicators related to the local community and society ranked last. The proportion of mean value of realisation status to mean value of importance was calculated to measure the gap between importance and realisation status and indicate the level of attention needs from practitioners. The results show that employees are the stakeholder group requiring the most attention, followed by the elderly and their relatives, and the local community and society.

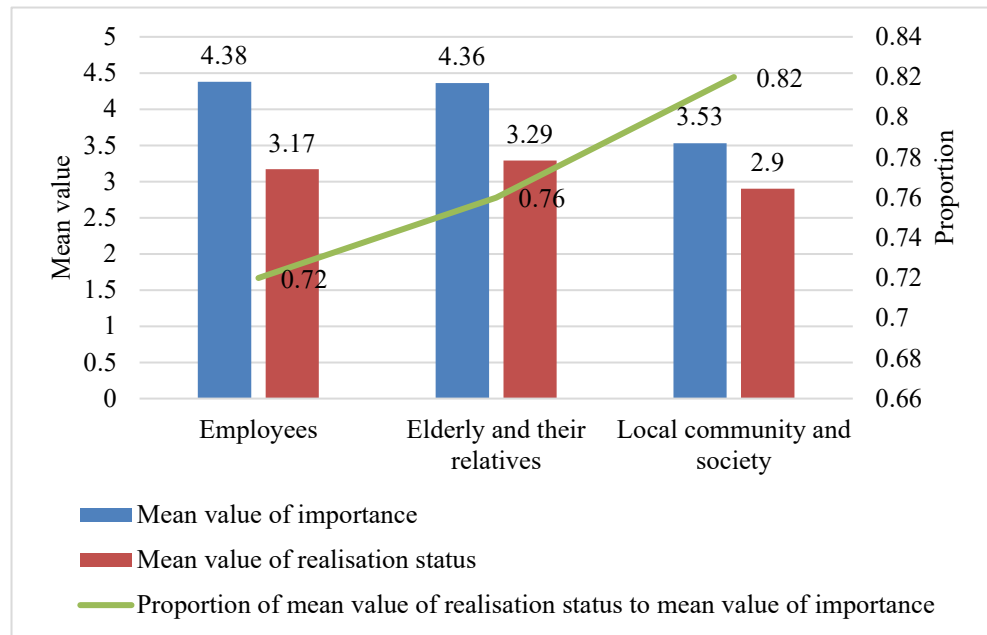


Figure 47-1 Three stakeholder groups' social sustainability

### 6.2.1 Social Impacts and Indicators Related to Employees

Employees are the most important stakeholders for the social sustainability of aged care PPP projects. This is the collective judgment given by the experts participating in the online Delphi survey. It is consistent with the analysis results in Appendix 1 of the problems in institutional care. The results indicate that employees are the most frequently mentioned stakeholder group, and all the problems they face are related to social sustainability. This judgment is also supported by other studies. Without exception, employees are identified as important stakeholders in the process of identifying indicators and establishing social sustainability frameworks for different industries and fields (Hossain et al., 2018; International Organization for Standardization, 2010; Nathan, 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009). In addition, the well-being of employees is also one of the core objectives of person-centred care in the aged care industry (World Alzheimer Report, 2013).

Figure 6-2 indicates the mean value of importance and realisation status of indicators related to the employees, with data derived from Table 5-12. The values are discussed in detail below.

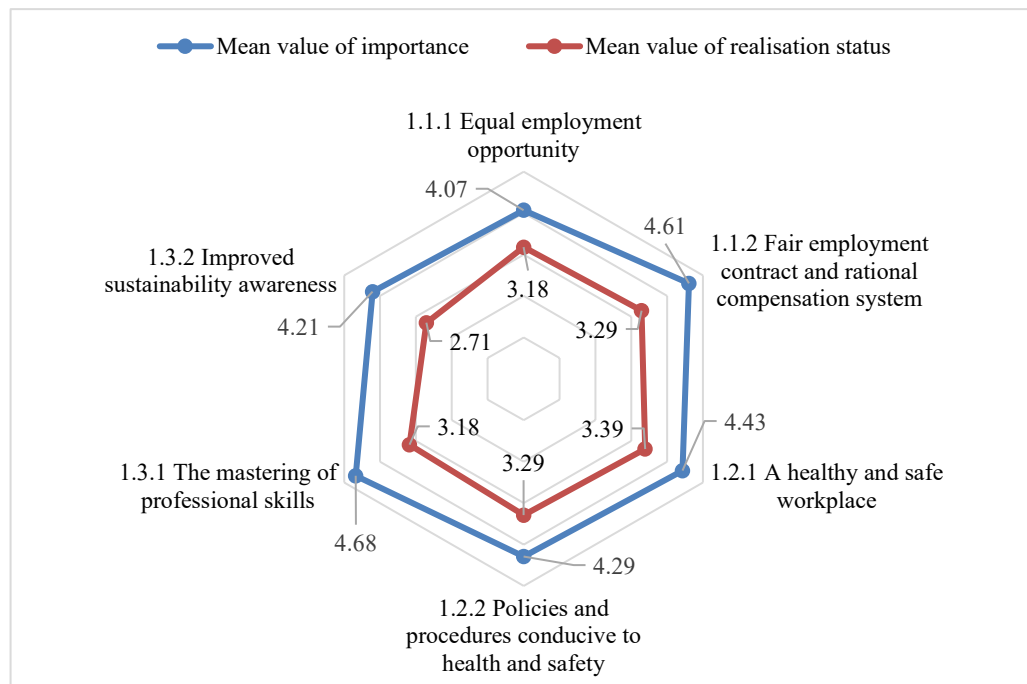


Figure 48-2 Radar chart for the employees' social sustainability indicators

### (1) Equity and Fairness

Equity and fairness are important social impacts of aged care PPP projects on employees. Studies have shown that inequity and unfairness may lead to “economic underperformance” and even have an impact on human health (Benner & Pastor, 2011). For aged care PPP projects, equity means that a project will provide more job opportunities for potential job seekers. The acquisition of income is necessary for realising employees' well-being (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2013). In the meantime, fairness could reduce the employee turnover rate, promote a stronger and higher quality labour force and improve service quality (Allan & Vadean, 2021). It is critical to the health of the elderly residents.

Two indicators can be used to measure this social impact.

#### *Indicator 1.1.1 Equal employment opportunity*

Among the six indicators related to employees, this indicator has the lowest mean value of importance. It means that Delphi experts consider it the least important. This result differs from that of existing social sustainability studies in other industries. According to Bramley et al. (2009), access to opportunities is an important indicator of social sustainability. Discrimination is regarded as the most serious violation of human rights. An organisation should pay special attention to non-discrimination against key vulnerable groups, for example women and immigrants (Moratis & Cochius, 2017). One participant explained why this indicator is ranked last, i.e., the differences between Chinese and Western culture lead to less attention to the equity issue. Another more important reason may be that the huge gap between the supply of and demand for employees greatly reduces the possibility of unequal employment. Wang et al. (2021) found that a shortage of professionals is the most frequently mentioned problem in China's aged care industry. The desire of aged care projects for employees has greatly reduced the chances of employees being discriminated against.

The realisation status of this indicator ranks fourth. Compared with its importance, the realisation status is not bad. However, it should be acknowledged that discrimination always exists. As one participant put it, the employment cost of local people is lower, so aged care projects prefer to hire local people.

#### *Indicator 1.1.2 Fair employment contract and rational compensation system*

It is the second important indicator. Some participants believed that this is the most important prerequisite to ensure the sustainability and to protect the rights and interests of employees in aged care PPP projects. It is consistent with existing research. Khosravi and Izbirak (2019) and Moratis and Cochius (2017) pointed out that this is an important aspect of social sustainability. Projects should provide employees with job security,

including work–life balance, paid leave, a certain minimum wage, and compensation for overtime. Only in this way can a project retain employees more effectively and for a longer time.

The realisation status of this indicator ranks the second. It is highlighted in bold in Table 5-12 to indicate that it requires special attention. Its realisation status needs to be improved compared to its importance. According to the Delphi participants, China's aged care projects pay relatively low remuneration to employees. The analysis of the problems encountered by institutional care employees in Appendix 1 also indicates that the direct care staff have low income with high work intensity, and few other benefits. This is also a common problem on a global scale (Bolmsjö et al., 2013; Palmer & Eveline, 2012; Wang & Chen, 2014). It leads to high staff turnover and reduced quality of care (Costello et al., 2020; Davis et al., 2016).

## (2) Health and Safety

Health and safety are important social impacts of aged care PPP projects on employees too. Research on aged care has shown that workers in institutions are exposed to a range of physical and psychosocial hazards, with a high incidence of occupational injuries and related diseases (McCaughey et al., 2015). In addition, employees faced significant psychological stress, especially during the COVID-19 pandemic (Blanco-Donoso et al., 2021; British Geriatrics Society, 2021; Martín et al., 2021; Shahar et al., 2019). Paying attention to employees' health and safety can improve their job satisfaction and reduce the turnover rate. Putting them at risk not only results in workplace accidents (Reyes, San-Jose, Cuadrado, & Sancibrian, 2014), but also reduces the quality of care (Jeon et al., 2019; Plaku-Alakbarova et al., 2018). Supporting this, the study by Oakman et al. (2022) points out that there is limited focus on employee safety in aged care institutions.

Two indicators can be used to measure this social impact.

### *Indicator 1.2.1 Healthy and safe workplace*

This indicator ranks third in importance. Participants believed that a healthy and safe workplace is an important guarantee of employees' safety. Naccarella et al. (2018) pointed out that the institutions should care about the workplace design environment, which affects the safety of employees.

The realisation status of this indicator ranks first. Participants explained that most of the current aged care projects are newly built or rebuilt, hence both the living conditions of the elderly and the working conditions of employees have improved. However, this judgment may be based on the premise that the person-centred care idea has not been thoroughly applied in China. Person-centred care requires that aged care institutions should provide a homelike atmosphere for the elderly. However, according to Oakman et al. (2022), such environments, with carpeting in corridors and communal areas, and excessive or inappropriate furniture in rooms, may pose a threat to the health and safety of employees. On the other hand, person-centred care also cares for employees' needs. A study by Guerra Santin et al. (2021) indicated that the design of aged care institutions ignored the needs of the staff, such as the absence of openable windows in the working area. It has not been long since the concept of person-centred care was first introduced into China, thus the above problems may not have occurred or been recognised yet.

### *Indicator 1.2.2 Policies and procedures conducive to health and safety*

This indicator ranks fourth in importance. According to China's Ministry of Civil Affairs (2020a), aged care institutions are required to establish safety rules and regulations and formulate working procedures. When studying the safety management system of employees in Australian aged care institutions, Oakman et al. (2022) pointed out that it is also a legal obligation to provide employees with a safe working environment through policies and procedures.

The realisation status of this indicator ranks second, behind only the previous indicator. During the COVID-19 pandemic, employees' health and safety were given high attention, and a large number of policies and procedures for epidemic prevention and control were formulated. However, a study on the mental health of aged care institution employees during the COVID-19 pandemic in Spain conducted by Martín et al. (2021) found that employees were not adequately protected at work. Of course, good realisation status is relative. As the Delphi participants expressed, the health and safety policies and procedures of aged care projects, such as working hours, physical examination and safe operation procedures, need to be improved.

### (3) Education and Training

Education and training is the third important social impact of aged care PPP projects on employees. From the perspective of social sustainability, education and training can improve employees' skills, knowledge and capability, and promote their growth and development (Institute for Sustainable Infrastructure, 2015). Most of the direct care staff in China's aged care institutions are migrant workers from the countryside with little education (Chan et al., 2013). Education and training can improve their competence and confidence (Rivett et al., 2019), and improve the quality of care (Lee & Severt, 2018).

Two indicators can be used to measure this social impact.

#### *Indicator 1.3.1 The mastering of professional skills*

This is the most important indicator. Professional skills can improve the capability and competencies of employees, broaden their horizons, and bring them opportunities for promotion or better jobs (Moratis & Cochius, 2017). The Delphi participants pointed out that employees, especially young employees, pay more attention to future career development. Employees have been regarded as the most important factor to meet the needs of the elderly in aged care institutions (Parkinson et al., 2019). Employees' mastery of professional skills can increase the elderly's sense of security and

dependability on aged care institutions and improve their quality of life (Lee & Severt, 2018; E. Miller et al., 2020).

However, the realisation status of this indicator is poor. It ranks fourth among the six indicators related to employees. Therefore, special attention needs to be paid to it. Delphi participants believed that the current education and training system is flawed. The training content lacks the guidance of upper-level standards and integrity. Therefore, the professional skills of employees need to be improved further. This is a frequently mentioned problem in the related research on China and other countries (Chan et al., 2013; Hamiduzzaman et al., 2020; Han et al., 2020).

#### *Indicator 1.3.2 Improved sustainability awareness*

This indicator ranks fifth in importance. Participants believed that the promotion of sustainability awareness could make employees more consciously carry out work that can increase well-being. Person-centred care requires employees to recognise and address the individual needs and preferences of different elderly people, and provide appropriate services for them (Meyer et al., 2018). A survey of elderly people enjoying aged care services in Beijing, China showed that 24% of them consider the “attitude” of employees as the most important concern (World Health Organization, 2015).

This indicator has the worst realisation status. The proportion of mean value of realisation status to mean value of importance of this indicator is also the lowest. Therefore, it needs to be paid special attention. The low concern for social sustainability in China’s aged care projects helps to understand this state. Participants pointed out that currently employees do not fully understand the concept of sustainability indicating lack of sustainability awareness. Existing studies have reached the same conclusion. According to Meyer et al. (2018), the training for the person-centred concept towards aged care workers is limited.



### 6.2.2 Social Impacts and Indicators Related to the Elderly and Their Relatives

The elderly and their relatives are important stakeholders for the social sustainability of aged care PPP projects. This is the collective judgment given by the experts participating in the online Delphi survey. It is consistent with the analysis results in Appendix 1 of the problems in institutional care. The results showed that in addition to employees, the elderly and their relatives are the most frequently mentioned stakeholder group. Apart from cost problems, the problems they face are all related to social sustainability. This judgment is also supported by other studies. Consumers are often identified as important stakeholders in the process of identifying and establishing social sustainability indicator frameworks for different industries and fields (Almahmoud & Doloi, 2015; Hossain et al., 2018; International Organization for Standardization, 2010; Popovic et al., 2018; United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2009). The elderly and their relatives are the end-users. Their well-being is the ultimate goal pursued by aged care projects (European Centre for Social Welfare Policy and Research, 2010). It is even a legal obligation in some countries or regions, such as the United Kingdom (UK Department of Health, 2001).

Figure 6-3 indicates the mean value of importance and realisation status of indicators related to the elderly and their relatives, with data from Table 5-12. The values are discussed in detail below.

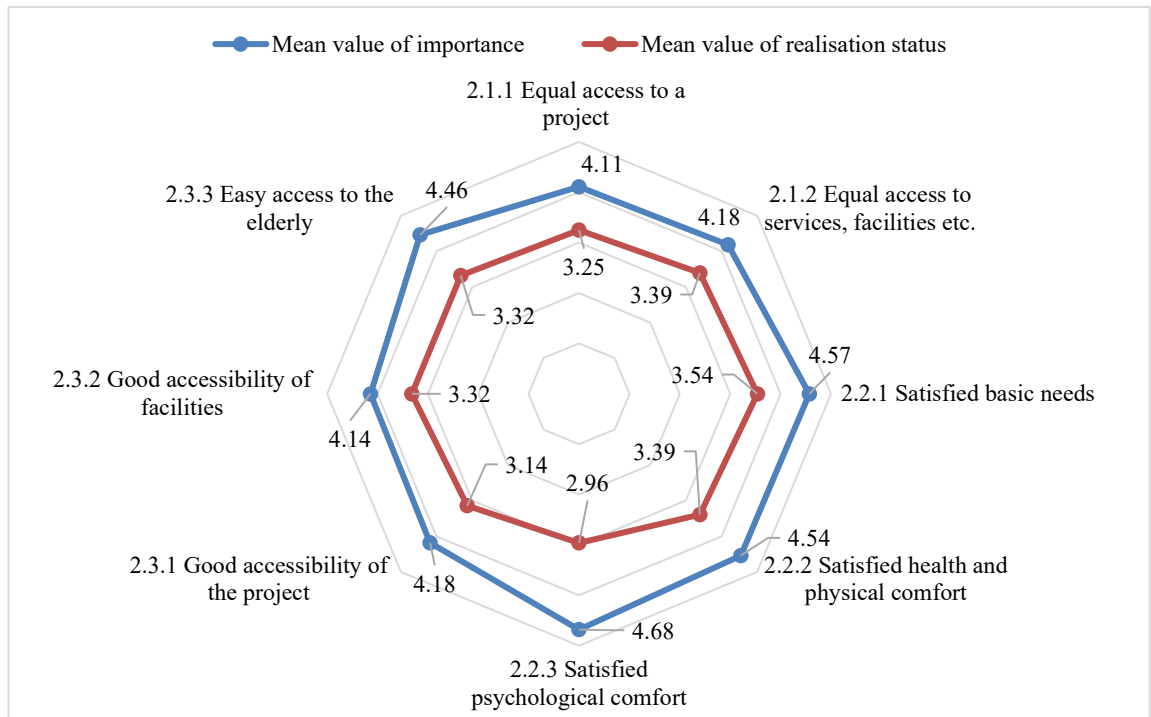


Figure 49-3 Radar chart for the elderly and their relatives' social sustainability indicators

### (1) Equity

Equity is an important social impact of aged care PPP projects on the elderly and their relatives. Studies have shown that equity is conducive to promoting the social inclusion of vulnerable groups, while inequity may have a negative impact on human health, leading to increased demand for medical care and social services, and even the unsustainable development of communities (Opp, 2017). In a survey of Australian elderly residents by Xia et al. (2021), equity for residents is one of the most important social sustainability features of a project. Equal access is at the heart of person-centred care. China's Ministry of Civil Affairs (2020a) requires that the provision of services should depend on the needs of the elderly. Services provided must meet quality standards regardless of the payer.

Two indicators can be used to measure this social impact.

### *Indicator 2.1.1 Equal access to the project*

The importance of this indicator ranks last among eight indicators related to the elderly and their relatives. This is different from the conclusions of previous studies. According to Bramley et al. (2009), access to opportunities and essential resources is an important indicator of social sustainability. The reason for this different conclusion may be that a majority of Delphi experts who participated were more familiar with traditional public or private aged care projects. There are not many experts involved in PPPs because such projects have only recently started in China. The elderly residents in the first two types of projects are homogeneous, i.e., they have the same charging standard. The elderly residents in PPPs are not homogeneous, and they are divided into the publicly-funded elderly and the self-funded elderly. Among them, the publicly-funded elderly usually have local Hukou and enjoy local government financial support. They pay less than the market price. The self-funded elderly, however, usually do not have local Hukou and are excluded from the financial support of local governments. They pay the market price, which is much higher than that of the publicly-funded elderly. When a project faces elderly applicants who pay different fees, the problem of equal access to a project becomes obvious.

The realisation status of this indicator ranks sixth, which is not ideal. However, the proportion of mean value of realisation status to mean value of importance of this indicator is not low, which is caused by its low importance. Some Delphi participants indicated that elderly with local Hukou have a better chance of entering, while those without local Hukou face obstacles. According to the Hukou system, those without local Hukou are not allowed to enter public aged care institutions. Inequality of access exists in other countries as well. A study on institutional care in Australia conducted by Yu and Byles (2020) indicated that education and geographical isolation lead to inequality of access.

*Indicator 2.1.2 Equal access to services, facilities, etc.*

The importance of this indicator ranks fifth. Participants expected that equal access to various services and facilities can promote harmony within a project and avoid privileges and corruption. The cross-sectional study of Taylor et al. (2007) showed that equal access to natural amenities, recreational opportunities and other public facilities is conducive to promoting environmental justice and health.

The realisation status of this indicator ranks second, and the proportion of mean value of realisation status to mean value of importance ranks eighth, which indicates that this indicator has been relatively well realised in reality. It should also be noted that more Delphi experts participated or studied traditional public or private aged care projects, in which the elderly residents follow the same charging standard. However, the elderly residents in PPPs pay different fees. Thus, the problem of equal access to services and facilities becomes obvious. This inequality is clearly reflected in the case study of hospital PPP projects in Australia by Wang et al. (2022).

(2) Health and Comfort

Health and comfort are another important social impact of aged care PPP projects on the elderly and their relatives. They are the basis of quality of life, without which quality of life cannot be achieved (European Centre for Social Welfare Policy and Research, 2010). According to British Geriatrics Society (2016), the elderly in institutions are usually older, weaker, more disabled and need more care, which makes them more vulnerable to unfavourable events (Datta et al., 2018; Hillen et al., 2017). There are even reports on elder abuse, neglect, serious injury and infectious disease outbreaks in the media worldwide (X. Li et al., 2018; Liu et al., 2014). In addition, the elderly often face the weakening of social ties and the devaluation of self-value, which can worsen their mental health problems.

Three indicators can be used to measure this social impact.

### *Indicator 2.2.1 Satisfied basic needs*

It is the second most important indicator. Its importance has been verified in other studies. Opp (2017) suggested that a community is socially sustainable when it systematically meets its residents' basic human needs of shelter, safety and sustenance. Aged care institutions provide various support services to the elderly, including accommodation, food, laundry and cleaning, which are very important. For example, for food service, the quality of the food, menu options and flexibility of mealtimes greatly influence elderly residents' satisfaction (Cheng et al., 2012; Yee-Melichar et al., 2014).

The realisation status of this indicator is the best. The proportion of mean value of realisation status to mean value of importance ranks fifth. It shows that the basic needs of the elderly have been relatively well met.

### *Indicator 2.2.2 Satisfied health and physical comfort*

This indicator ranks third in importance. Elderly residents tend to be older, frailer, and more disabled, requiring extensive care. The majority may also take multiple medications, and have cognitive deficits (Datta et al., 2018; Hillen et al., 2017). Whether they can get proper care and treatment will directly affect their quality of life.

Its realisation status ranks second. However, the proportion of mean value of realisation status to mean value of importance ranks third. This indicator needs to be paid special attention. Research by Hamiduzzaman et al. (2020) found that care plans for the elderly do not fully consider their individual needs and preferences. Wang et al. (2021) pointed out that in China, the combination of healthcare and aged care is still under exploration. Further, a study conducted by Han et al. (2020) showed that only 41.7% of the aged care institutions in China are equipped with basic medical rooms, and less than 20% of them have rehabilitation treatment rooms.

### *Indicator 2.2.3 Satisfied psychological comfort*

This is the most important indicator for elderly residents. Social sustainability attaches importance to the satisfaction of human psychological needs (Landorf, 2011).

Nurgalieva et al. (2019) suggested that shifting from home-based care to institution care is a stressful transition for the elderly, who need to adapt to a new environment and a new way of life. In addition, elderly residents also face many other challenges, for example dealing with interpersonal relationships (Lee & Severt, 2018), and maintaining dignity and control (Parkinson et al., 2019; Yee-Melichar et al., 2014). According to Yeung et al. (2017), a dignified environment promoting positive mental health, relationship building, and reducing loneliness and isolation is the most important factor to improve the subjective well-being of the elderly residents.

However, the realisation status of this indicator is the worst. It needs to be paid special attention. Participants indicated that current elderly care services in China focus more on the work process and ignore the psychology of the elderly. This conclusion is consistent with existing research. According to Ji and Zhang (2021), elderly people in China's aged care institutions, especially those in rural areas, report the lowest psychological satisfaction. Studies in other countries also show that aged care institutions are often seen as a place full of loss and suffering (Evonne Miller et al., 2020). More than one third of older people experience some degree of loneliness, lack of companionship or meaningful connections with others (Aged & Community Services Australia, 2015; Grenade & Boldy, 2008; Turcotte et al., 2015).

### **(3) Accessibility**

Accessibility is the third important social impact of the aged care PPP projects on the elderly and their relatives. Abed (2017) and J. A. Lucas et al. (2007) both pointed out that the accessibility to critical facilities is an important aspect of social sustainability. For aged care projects, accessibility relates to the configuration of the physical environment and amenities of a project, as well as its location and distance. High

accessibility creates conditions for the physical and psychological health of the elderly. For example, Cai et al. (2017) suggested that it is convenient for family members and friends of the elderly to visit and communicate with them. Such visits, according to the research of Hamiduzzaman et al. (2020), have a positive impact on the mobility, interaction and food intake in the elderly.

Three indicators can be used to measure this social impact.

#### *Indicator 2.3.1 Good accessibility of a project*

The importance of this indicator ranks fifth. Xia et al. (2021) pointed out that the accessibility of public transport is very important as it not only facilitates family visits, but also helps the elderly residents to leave the residence for daily activities, and to access healthcare services. This is crucial to maintain the connection between residents and the community (Xia, Zuo, et al., 2015).

Its realisation status ranks seventh. Obviously, this indicator needs to be paid special attention. Some respondents suggested that aged care institutions are generally located far away from the centre of a city. This result is verified by existing studies. For example, Cai et al. (2017)'s analysis of Wuhan China showed that the accessibility of aged care institutions is poor, especially in rural areas. Tao et al. (2014) pointed out the necessity of spatial optimisation of aged care institutions in Beijing to improve their accessibility.

#### *Indicator 2.3.2 Good accessibility of facilities*

The importance of this indicator ranks seventh. A study conducted by Xia, Zuo, et al. (2015) showed that facilities are very important for providing a sustainable community for elderly residents. Such facilities include community centres, libraries, and barbecue facilities. (Xia, Skitmore, et al., 2015). They can support the personal and social

activities of the elderly residents (Nathan et al., 2013) and improve their health condition.

Its realisation status ranks fourth, which indicates that it has been relatively well realised in reality.

#### *Indicator 2.3.3 Easy access to the elderly*

The importance of this indicator ranks fourth. Easy access to the elderly can strengthen the emotional connection between family members and the elderly and reduce anxiety on both sides, especially in emergency situations. Studies by Carman et al. (2013) and Stajduhar et al. (2013) both suggested that families need more information about the elderly in the institution who they love. Aged care institutions should provide convenience for family members to visit or greet the elderly, and provide help for the elderly to contact family members (Ministry of Civil Affairs, 2020a).

The realisation status of this indicator also ranks fourth. However, the proportion of mean value of realisation status to mean value of importance of this indicator ranks second. It means that compared with the importance, the realisation of this indicator is not ideal.

#### **6.2.3 Social Impacts and Indicators Related to Local Community and Society**

Local community and society are the third important stakeholders for aged care PPP projects. This is the collective judgment given by the experts participating in the online Delphi survey. However, this judgment is not reflected in the analysis results in Appendix 1 of the problems in institutional care. The existing research on aged care also rarely involves the local community and society. However, social sustainability studies in other industries point out that projects must contribute to the social, economic and political development of the local community and society in order to improve social well-being and quality of life (Moratis & Cochius, 2017). Aged care projects and the



communities in which they operate are part of society, sharing certain interests. Therefore, the local community and society cannot be ignored.

Figure 6-4 indicates the mean value of importance and realisation status of indicators related to the local community and society, with data from Table 5-12. The values are discussed in detail below.

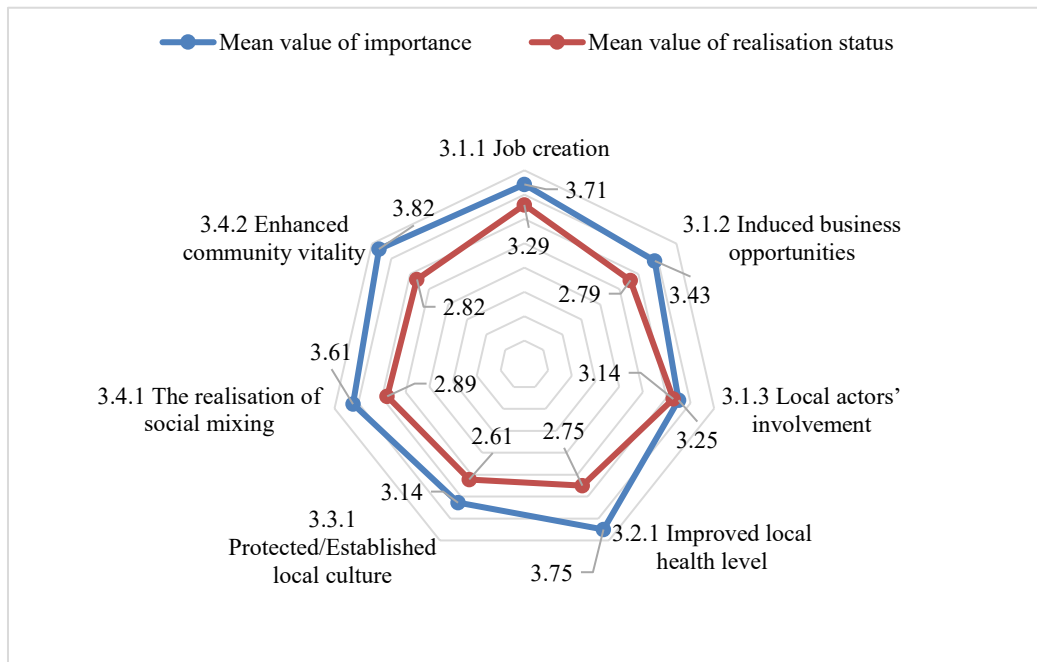


Figure 50-4 Radar chart for local community and society's social sustainability indicators

#### (1) Local economic welfare

Local economic welfare is an important social impact of aged care PPP projects on the local community and society. According to United Nations Environment Programme and Society of Environmental Toxicology and Chemistry (2013), the creation of sufficient wealth to meet basic material needs is fundamental to human well-being. The research of Almahmoud and Dolo (2015) on the social sustainability of construction projects showed that the large, continuous, and long process from project study to building demolition leads to the production of materials and equipment, employment

and investment. The economic stock, infrastructure and social interaction of the community are increased, and economic benefits are achieved.

Three indicators can be used to measure this social impact.

#### *Indicator 3.1.1 Job creation*

It ranks third in importance and existing studies verify its importance. For example, Opp (2017) believed that employment opportunities help to eradicate poverty, build social cohesion and reduce the use of social welfare benefits.

Its realisation status is the best. It is one of the two indicators that have no significant difference in the evaluation of importance and realisation status in Table 5-12. Aged care projects create many jobs in customer service, security, business, caring, healthcare, psychological counselling, and other sectors.

#### *Indicator 3.1.2 Induced business opportunities*

This indicator ranks fifth in importance and realisation status. New business opportunities contribute to the improvement of local economic well-being. However, participants pointed out that the induced effect of the projects on other business investment is not significant because of the low consumption power of the elderly and the low return on investment of the projects.

#### *Indicator 3.1.3 Local actors' involvement*

The importance of this indicator ranks sixth. Existing studies verify its importance. According to the research of Abdel-Raheem and Ramsbottom (2016) and Global Reporting Initiative (2013), encouraging the participation of local people and local companies can bring direct and indirect benefits to the community. It creates jobs for the community, along with an increase in income and taxes. Enhanced local business can also attract more capital investment. In addition, employing local people and using

local products and services can also reduce the distances travelled to and from work and decrease the inconvenience to the community.

The realisation status of this indicator is good, and it ranks second. It is one of the two indicators that have no significant difference in the evaluation of importance and realisation status in Table 5-12.

## (2) Health

Health is an important social impact of aged care PPP projects on the local community and society. Moratis and Cochiu (2017) believed that good health is a prerequisite for the economic and social development of a community or society. One indicator can be used to measure this social impact.

### *Indicator 3.2.1 Improved local health level*

This is the second important indicator. According to Moratis and Cochiu (2017), a project should promote knowledge sharing and skills development and transfer experience to peers within the community.

However, the realisation status of this indicator is poor, ranking second from the bottom. It needs to be paid special attention. On the one hand, a study conducted by Wang et al. (2021) found that the combination of healthcare and aged care in China is still under exploration. On the other hand, the closed nature of the projects leads to the low utilisation rate of health facilities in these institutions and hampers the contribution to the improvement of the community's health level. The COVID-19 pandemic has aggravated the closed nature of the projects.

### (3) Local identity

Local identity is the third important social impact of aged care PPP projects to the local community and society. Aly (2011) believed that local identity reflects all the local people's traditions, culture and aspirations. It is a historical process formed by the overlapping of different cultural layers (Topçu, 2018). Akiwumi (2014) pointed out that as a fundamental element of current and future human development, culture is crucial for safeguarding basic human rights and respecting community customs and values. It is also a strategic factor in promoting local economic development. Therefore, aged care PPP projects should regard the history and evolving cultural traditions as community assets that need to be known, recognised and promoted. One indicator can be used to measure this social impact.

#### *Indicator 3.3.1 Protected/Established local culture*

Comparatively speaking, this is the least important indicator, and its realisation status is the worst. This is consistent with the conclusions of previous studies. Research by Montalbán-Domingo et al. (2018) found that culture is the most overlooked factor in social sustainability. Aged care institutions are one of the important places for cultural inheritance. At present, they have little interaction with local society, and are mostly independent of the surrounding communities with the attitude of self-protection. This attitude is not conducive to the protection and establishment of local culture. Moreover, these projects lack measures to create and promote local culture.

### (4) Social inclusion and social cohesion

Social inclusion and social cohesion are the fourth most important social impact of aged care PPP projects on the local community and society. Research by Kahila-Tani et al. (2016) and Rashidfarokhi et al. (2018) indicated that social inclusion means to understand and respect people with different backgrounds, and all groups have fair representation and social mixing. Social cohesion refers to the degree and pattern of interaction between and within the parties involved in collective projects (United

Nations Department of Economic and Social Affairs, 2009). A cohesive community is united, harmonious, and unified. For aged care PPP projects, interaction with the community not only enables residents to establish new social connections and meaningful relationships, and offset loneliness (Hämel & Röhnsch, 2020), but also increases opportunities for creating sustainable communities (Bolt et al., 2010).

Two indicators can be used to measure this social impact.

#### *Indicator 3.4.1 The realisation of social mixing*

Its importance ranks fourth. According to the research of Joseph et al. (2007), the mixing of vulnerable groups in an urban context, including the poor and ethnic/racial minorities, with the middle class can enhance the former's access to resources and reduce social exclusion. Social segregation, however, affects the life chances of individuals (Van Kempen, 1994). Mixing can occur at different levels, including the physical level related to buildings and the social level related to people.

The realisation status of this indicator ranks third. Compared with other indicators, this status is ideal. According to the regulations, China's public aged care institutions not only accept eligible ordinary local elderly, but also special elderly, such as the "Three-Nos" and the elderly who are in economically disadvantaged families. These institutions provide opportunities for families of different economic status to mix. Private institutions offer opportunities for local and migrant families to mix.

#### *Indicator 3.4.2 Enhanced community vitality*

The importance of this indicator ranks first. According to Dekker and Van Kempen (2009), community vitality refers to the establishment of strong, active and inclusive relationships among residents, the private sector, the public sector and civil society organisations. It is one of the key components of sustainable communities (Bogdana, 2012).

The realisation status of this indicator ranks fourth, indicating that it is not well realised. It needs to be paid special attention. Participants said that in addition to community-based aged care projects, other types of projects have limited impact on community vitality and it is difficult to realise it. This may be related to the closed nature of the projects. In addition, the COVID-19 pandemic has also hampered projects' contribution to community vitality.

In general, all 21 social sustainability indicators are important. Except for indicators 3.1.1 Job creation and 3.1.3 Local actors' involvement, the realisation status of the other indicators needs to be improved. Specifically, among the six indicators related to employees, three indicators need to be paid special attention: 1.3.2 Improved sustainability awareness, 1.3.1 The mastering of professional skills, and 1.1.2 Fair employment contract and rational compensation system. Compared with their importance, their realisation status is very poor. Indicators 1.2.1 Health and safety workplace and 1.2.2 Policies and procedures conducive to health and safety, which are related to education and safety, need to be further understood. Although they have been evaluated to have a better realisation status, person-centred care has higher expectations for their realisation. The importance of indicator 1.1.1 Equal employment opportunity is overshadowed by the huge professional gap in the aged care industry. Among the eight indicators related to the elderly and their relatives, four indicators need to be paid special attention: 2.2.3 Satisfied psychological comfort, 2.2.2 Satisfied health and physical comfort, 2.3.3 Easy access to the elderly, and 2.3.1 Good accessibility of the project. Indicators 2.1.1 Equal access to a project and 2.1.2 Equal access to services, facilities, etc. are related to equity and need to be further understood. The problem of inequity may be highlighted when a project introduces profit-seeking private investors and the service objects of the project include elderly residents who pay different fees. The project's external stakeholders – the local community and society – should be given

due recognition if social sustainability is to be achieved. Indicators 3.2.1 Improved local health level and 3.4.2 Enhanced community vitality need to be paid special attention.

### 6.3 Consolidated RP of Social Sustainability of Aged Care PPP Projects

A consolidated RP diagram of social sustainability of aged care PPP projects is shown in Figure 6-5 below. It is a superposition of the 21 RPs in Section 5.4.2, displaying the complete realisation process of social sustainability. The meaning of the boxes with different colours is the same as the explanation of the boxes in Figure 5-3 for RP1 in Section 5.4.2. CPs in the yellow box are shown in all the RPs. That is, they are all required for the realisation of any indicator. Compared to the diagram for a single RP, a number of Arabic numerals are added above each arrow line in Figure 6-5, ranging from 1 to 21. These numbers represent the RPs that pass through the two CPs connected by the arrow line (for example, 1 for RP1.). The more numbers there are, the more RPs that pass through the arrow line, and the more important the CPs connected at both ends of the arrow line are.

Figure 6-5 intuitively demonstrates that the socially sustainable development of aged care PPP projects is a complex process. Social sustainability is the outcome (or a state/state of being) of this process. The outcome itself is complex, including 21 social sustainability indicators. They are the direct consequences of a series of CPs (CP-27 to CP-33) adopted by the SPV in the investment, construction and operation stage of the project (i.e., stage C2), and CP-41 adopted by the SPV and implementing agency in the handover stage (i.e., stage C4). These CPs are also gradually promoted by the CPs adopted by different participants in different stages before. In other words, the realisation of the social sustainability of aged care PPP projects is a backcasting process. That is, the strategic aim of the project of social sustainability is set first, and then the participants plan and take wise approaches step by step to achieve it according to the current situation (Quist, 2007; Robèrt, 2000).

To realise social sustainability of aged care PPP projects, the preparation phase is crucial. Some CPs are particularly important in achieving social sustainability. While each CP is critical, some are more critical than others. They appear in all the RPs. There are 21 such CPs, including CP-1, CP-5 to CP-9, CP-11 to CP-16, CP-22, CP23, CP-34 to CP-39, and CP-42. Among them, ten are adopted in the preparation phase (i.e., stage A1–A7), seven are adopted during the implementation phase (i.e., stage C1–C4), and four are adopted in the procurement phase (i.e., B1–B4). This distribution is slightly different from the time distribution of CPs analysed in Section 5.3.3. On the whole, the number of CPs in the implementation phase is the largest, followed by the preparation and the procurement phases. Although the number of CPs to be adopted in the preparation phase is not as large as that in the implementation phase, they are more important. They are the basis of the CPs in the subsequent procurement and implementation phases.

Further, the behaviours and decisions of government departments play a key and decisive role in the realisation of social sustainability of the projects.

- All ten particularly important CPs in the preparation phase are adopted by government departments. Specifically, when initiating a project (stage A1), the civil affairs department needs to set social sustainability as the strategic aim of the project (CP-1); after authorisation (stage A2), the implementing agency takes the lead in establishing a project management team (CP-5), and selects appropriate advisors (CP-6); then, based on industry investigation (CP-7) and stakeholder engagement (CP-8), the implementing agency is responsible for preparing the business case that is consistent with the well-being of stakeholders (CP-9, CP-11 to CP-14). These early CPs set the tone for the realisation of social sustainability of a project, without which social sustainability is incomplete or difficult to achieve.



- Of all the four CPs of particular importance in the procurement phase, three are adopted by government departments and one is adopted jointly by government departments and private investors. Specifically, the implementing agency needs to determine the procurement process (CP-15) and set the terms of the draft contract related to social sustainability (CP-16) in the tender and draft contract preparation stage (stage B1); to select an appropriate partner according to the preset criteria (CP-22); and to sign PPP contracts committed to achieving social sustainability with it (CP-23) in the negotiation and contract award stage (stage B4). These CPs can help the implementing agency select private investors that are conducive to the realisation of the aim and sign good contracts.
- Of all the seven CPs of particular importance in the implementation phase, five are adopted by government departments and two by the SPVs. Specifically, in the performance monitoring and mid-term evaluation stage (stage C3), the implementation agency needs to work with other government departments to conduct contract implementation monitoring (CP-36), performance evaluation and mid-term evaluation (CP-37), make information public (CP-38), and pay on performance (CP-39). In the project handover and ex-post evaluation stage (stage C4), the civil affairs department should organise ex-post evaluation (CP-42). Although these CPs do not directly contribute to the social sustainability indicators of the project, they have a constraint effect on the behaviours and decisions of the SPVs, which indirectly contributes to the realisation of the aim.



## 6.4 Summary

Aged care PPP projects should focus on their social impact on their employees, and the elderly and their relatives, which are reflected in six and eight indicators for each. A total of seven indicators need to be paid special attention because their realisation status is very poor compared to their importance. The realisation status of other indicators is not ideal and also needs to be improved. In addition, the projects should focus on their social impact on the local community and society. This is also an important stakeholder group because the projects are inseparable from the local community and society in which they operate. Two indicators need to be paid special attention.

In addition, a consolidated realisation path diagram is established and discussed. It shows a complete socially sustainable development process for aged care PPP projects.

## **Chapter 7 Conclusions and Recommendations**

### **7.1 Introduction**

This chapter conducts a review of the findings and draws conclusions for the whole study. The main findings are refined. Managerial implications for the government and private investors and SPVs to promote the realisation of social sustainability are proposed. Then, the contributions of the study are summarised. Finally, the limitations are presented and future research directions are proposed.

### **7.2 Review of the Research**

The research problem of this study is the low achievement of the social sustainability in aged care PPP projects in China. The realisation of social sustainability brings a high quality of life to the stakeholders of projects. It not only improves the well-being of the stakeholders, but also enhances the projects' attractiveness to consumers (i.e., the elderly) and market competitiveness. In addition, it is also conducive to the implementation of China's national strategy to actively cope with an aging population and ensure the harmonious development of the whole society.

The research aim is to establish a socially sustainable development process for aged care PPP projects in the Chinese context. To achieve the aim, three specific research objectives were achieved.

(1) A social sustainability indicator framework of aged care PPP projects in China was established.

First, a preliminary indicator framework was established based on a literature review and the characteristics of aged care projects. Then, two focus groups with elderly residents were conducted to validate the elderly-related indicators in the framework.

Finally, two rounds of an online Delphi survey were conducted to finalise and evaluate the framework by experts who have directly participated or are participating in aged care projects and/or have in-depth research experience in aged care or sustainable development.

(2) The critical practices that should be adopted in the lifecycle of aged care PPP projects were identified.

First, the lifecycle of aged care PPP projects was divided into three phases and several stages to lay the foundation for later determination of the relative timing of each critical practice (CP). Then, three aged care PPP projects were chosen as the main cases of the multiple-case study. Meanwhile, 17 parallel reference cases were also selected. Finally, an improved critical incident technique was adopted to identify the CPs.

(3) Realisation paths for social sustainability were established and managerial implications were proposed.

Realisation paths (RPs) for each social sustainability indicator and a consolidated RP diagram were established based on the analysis of the enabling relationships between CPs. A series of managerial implications were proposed for the government and private investors to solve problems in the process of path realisation.

### 7.3 Main Findings

There are five main findings of this study.

First, an aged care project is socially sustainable when various social impacts on the stakeholders are thoroughly considered during its lifecycle, and their well-being is realised under a specific social, cultural and institutional context.

Second, the social sustainability of China's aged care PPP projects can be represented by a framework that includes three stakeholder groups, ten social impacts, and 21 social sustainability indicators. Employees, the elderly and their relatives, and the local community and society are the definitive stakeholders of the projects. Equity and fairness, health and safety, and education and training are the important social impacts of the projects on employees. Equity, health and comfort, and accessibility are the important social impacts of the projects on the elderly and their relatives. Local economic welfare, health, local identity, social inclusion and social cohesion are the important social impacts of the projects on the local community and society.

Third, for China's aged care projects, only two indicators (3.1.1 Job creation and 3.1.3 Local actors' involvement) have no significant differences between their importance and realisation status and are realised well. The realisation status of the remaining 19 indicators needs to be improved. Nine of them need to be paid special attention because their realisation status is very poor compared to their importance. These indicators are: 1.3.2 Improved sustainability awareness, 1.3.1 The mastering of professional skills, 1.1.2 Fair employment contract and rational compensation system, 2.2.3 Satisfied psychological comfort, 2.2.2 Satisfied health and physical comfort, 2.3.3 Easy access to the elderly, 2.3.1 Good accessibility of the project, 3.2.1 Improved local health level, and 3.4.2 Enhanced community vitality.

Fourth, to realise the social sustainability of aged care PPP projects, government departments, private investors and SPVs need to adopt a series of CPs at different phases and stages in the project lifecycle. A total of 42 first-level CPs are identified. Government departments are very important in the preparation phase, and all 14 CPs are adopted by them. Private investors become important in the procurement phase, and five of the nine CPs are adopted by them. SPVs are the most critical in the implementation phase, and 12 of the 19 CPs are adopted by them.

Fifth, the realisation of social sustainability of aged care PPP projects depends on socially sustainable development, which is a process. It is visually represented by a realisation path, or RP. The 21 social sustainability indicators each correspond to one of the 21 RPs. The consolidated RP diagram indicates that the preparation phase is crucial to the realisation of social sustainability. Ten of the 21 more important CPs (i.e., CPs that appear in all RPs) are adopted in this phase. In addition, the behaviours and decisions of government departments play a key and decisive role in the realisation of social sustainability, as 18 of the more important CPs are adopted by them alone.

#### 7.4 Managerial Implications

RPs demonstrate the realisation process of social sustainability. However, knowing the process does not necessarily lead to the achievement of social sustainability. The analysis in Appendix 1 showed that there are many social sustainability-related problems in China's institutional care, which also exist in aged care PPP projects. The analysis in Chapter 5 indicated that the realisation status of most indicators needs to be improved. Therefore, both the government and private investors and SPVs should take corresponding countermeasures to promote the social sustainability of aged care PPP projects.

All the managerial implications identified are consolidated in Figure 7-1. The two blue circles at the centre represent the three stakeholder groups and the social impacts of the projects on them. The two yellow circles in the middle represent the implications for the private investors and SPVs. Among them, the implications in the lighter yellow circle have direct social impacts on stakeholders. For example, the provision of a good working environment will directly affect the health and safety of employees. The implications in the deeper yellow circle do not have direct impacts but indirect ones, such as the increasing adoption of information technology. The two outermost green

circles represent the implications for the government. Among them, the implications in the lighter green circle have direct social impacts on stakeholders. For example, the positioning of the projects will directly affect the equal access of the elderly. The implications in the deeper green circle, however, do not have direct impacts but indirect ones such as creating an environment conducive to the realisation of social sustainability and promoting the transformation of social ideas.

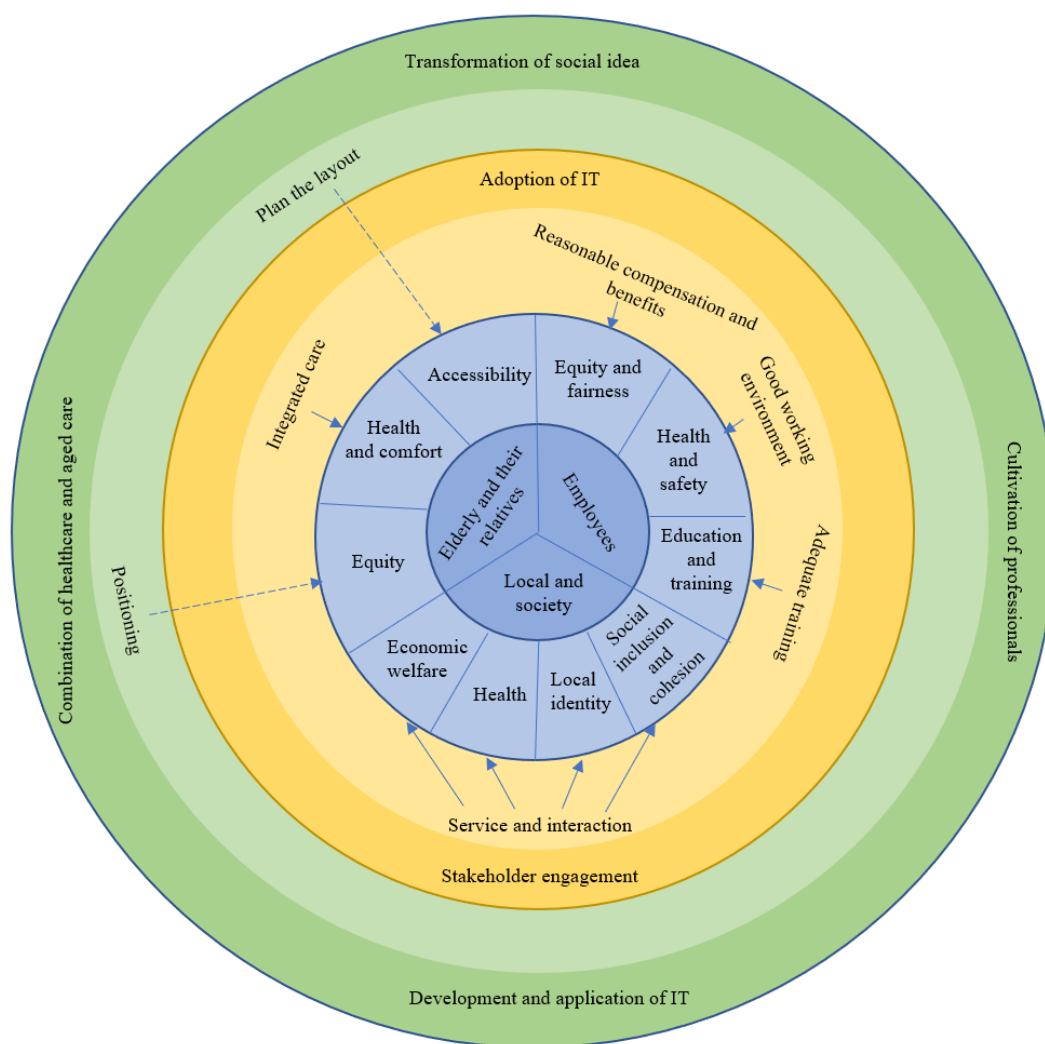


Figure 52-1 Managerial implications for the realisation of social sustainability of aged care PPP projects



#### 7.4.1 Implications for the Government

There are six main implications for the government.

(1) Clarify the positioning of aged care PPP projects as providing affordable services

Aged care PPP projects should focus on providing affordable aged care services, supplemented by personalised services. This positioning can ensure that the projects provide equal access for all elderly people and meet their health and comfort needs at all levels. Services affordable to the general public refer to affordable, convenient and accessible services, including basic aged care services (i.e., bed, care and meal), healthcare and rehabilitation. It is a public service strongly advocated by the Chinese government (Central Committee of the Communist Party of China & State Council, 2021; Ministry of Civil Affairs & National Development and Reform Commission, 2021). It is also the most important of all needs of the general public and special groups, such as the “Three-Nos” and the elderly with financial difficulties. In addition, the projects can also provide high-quality personalised services according to the needs of the elderly.

(2) Promote the transformation of social ideas

The government needs to change the elderly and their relatives’ rejection of aged care PPP projects. This is the premise for the elderly to obtain health and comfort in a project, especially the psychological aspects. To this end, the government may increase the positive publicity of such projects and disclose relevant information (for example, operation and performance evaluation results), and encourage communities to actively participate in the voluntary provision of care, to improve the public’s knowledge of such projects (Cheng et al., 2012). One idea that should be established and promoted is that the participation of private investors does not necessarily mean the decline of service quality. On the contrary, the project may provide better services due to the experience and capability of private investors and strict supervision.

### (3) Strengthen the cultivation of aged care professionals

First, the government should promote aged care degree education. Colleges and universities should be encouraged to cultivate high-level talent in aged care (Ministry of Civil Affairs & National Development and Reform Commission, 2021; State Council, 2021). For example, qualified colleges and universities should offer courses in gerontology, and geriatric psychology, sociology and nutrition, and develop undergraduate education in gerontology, and aged care service management.

Second, the government needs to develop vocational aged care education and training. It may guide vocational colleges, open universities and adult colleges to strengthen the cultivation of aged care talent (State Council, 2021) and encourage qualified aged care institutions to set up vocational colleges (Ministry of Civil Affairs & National Development and Reform Commission, 2021). Meanwhile, the government should standardise training programs and trainers (Fletcher et al., 2010) to ensure training quality (Hyer et al., 2010).

The cultivation of aged care professionals can fundamentally reverse the general context of the shortage of professionals and the low quality in aged care. In the meantime, it can provide support, guidance and reference for SPVs' training of employees.

(4) Accelerate the development and application of information technology in aged care

On the one hand, the government should support the research and development of aged care technology products. It should accelerate the in-depth application of information technology (IT) such as the internet, Big Data, and artificial intelligence in the field of aged care (State Council, 2021). On the other hand, the government needs to promote the application of aged care technology products for several reasons: a) to strengthen the promotion of products, for example, establishing demonstration projects, and compiling

a promotion catalogue of smart and health care products (State Council, 2021); b) to promote information barrier-free construction, to help the elderly use these products more simply and conveniently (Heart & Kalderon, 2011; Parker et al., 2013); and c) to encourage enterprises to continuously reduce the cost by developing new technologies to improve the affordability of such products.

The development and application of aged care information technology will both enhance the work efficiency and effectiveness of employees and improve the quality of life for the elderly by providing smart services (Productivity Commission, 2011; Song et al., 2018; Zhang et al., 2020). Meanwhile, SPVs should increase the utilisation of information technology.

#### (5) Promote the combination of healthcare and aged care

First, a communication and coordination mechanism for the combination of healthcare and aged care between health departments and civil affairs departments should be established. The purpose is to avoid problems such as multi-management, and difficulty in forming policy synergy (Wang et al., 2021).

Second, the supply of combined healthcare and aged care services needs to be increased, and service quality needs to be improved. To this end, the government should support qualified aged care institutions to apply for the establishment of rehabilitation hospitals, and traditional Chinese medicine hospitals. Meanwhile, the government should also encourage healthcare institutions to cooperate with aged care institutions and promote the former to provide a convenient access for the latter (Central Committee of the Communist Party of China & State Council, 2021; Ministry of Civil Affairs & National Development and Reform Commission, 2021). In addition, the government should improve the service quality by improving the standard system, and establishing demonstration institutions nationwide.

The promotion of the combination of healthcare and aged care is the premise for the SPVs to provide medical services for the elderly and hence integrated care in aged care PPP projects.

#### (6) Plan a rational location of aged care PPP projects

The government should plan a rational location for aged care PPP projects. Spatial optimisation enables the elderly to have equal access to aged care institutions to the maximum extent (Dadashpoor et al., 2016; Tao et al., 2014). Locating a project near places where older people live or where public transport is convenient can increase the proportion of elderly people receiving institutional aged care (Cai et al., 2017).

Reasonable planning of the location of aged care PPP projects can improve the realisation of various aspects of well-being related to the elderly and their relatives.

### 7.4.2 Implications for the Private Investors and SPVs

There are seven implications for private investors.

#### (1) Provide adequate training to employees

The SPV should provide skill and idea training. Skills are multifaceted, and different categories of employees (for example, managers, care staff, nurses, rehabilitation staff, etc.) need to master different skills (Surr et al., 2019). Person-centred care training can improve employees' responsiveness to the needs of the elderly, and improve service quality and organisational efficiency (Age Cymru, 2011; European Centre for Social Welfare Policy and Research, 2010; Lee & Severt, 2018).

The SPV should enhance the effectiveness of training. They can adopt more customised modes. Surr et al. (2019) believed that effective training is tailored for trainees,

provided face-to-face by experienced facilitators. In addition, the opinions of the elderly should be considered when planning the training content (Age Cymru, 2011). SPVs should consider the implementation of mentoring and support programs. Many organisations use mentoring to provide career and emotional support to employees. According to Coppin and Fisher (2020), this can help ensure the well-being of employees and minimise employee turnover. The success of training is inseparable from the effective and supportive leadership and commitment of the project, and training is also needed for senior managers (Kuske et al., 2009). Adequate training is directly beneficial for the employees to master professional skills (indicator 1.3.1) and improve sustainability awareness (indicator 1.3.2).

## (2) Provide reasonable compensation and benefits to employees

The SPV needs to correctly recognise the value of employees and improve their compensation and benefits. A salary distribution mechanism based on position value, capability and quality, and performance contribution of the employees should be established (Central Committee of the Communist Party of China & State Council, 2021; State Council, 2021).

Providing employees with reasonable remuneration and benefits is conducive for employees to obtain a fair employment contract and rational compensation system (indicator 1.1.2).

## (3) Provide a good working environment for employees

The SPVs should provide a good physical environment for employees. The indoor and outdoor environment design and facilities of the projects should be a focus, including dedicated and comfortable staff spaces, a homelike environment, and safe and open outdoor spaces (Naccarella et al., 2018). The SPVs should also provide a good ‘soft’ environment for employees. A supportive organisation and leadership and a positive

psychosocial environment are seen as components of a good soft environment (Brooker, 2003; McCormack & McCance, 2006; E. Miller et al., 2020). Such an atmosphere will provide psychosocial support for the employees, increasing their competence, effectiveness and sense of belonging (Jacobi, 1991). In addition, it can set the foundation for a genuine relationship between staff and the elderly residents and promote person-centred care. A good work environment is conducive to employees' access to a healthy and safe workplace (indicator 1.2.1), and policies and procedures conducive to health and safety (indicator 1.2.2).

#### (4) Provide integrated care for the elderly residents

The SPVs need to provide integrated care for the elderly according to their needs. Integrated care aims to solve the problems of care continuity, efficiency and service effectiveness (Douglas et al., 2017). It has been defined as a network of multiple professionals and organisations across the health and social care system to provide consumers with accessible and comprehensive services (Valentijn et al., 2015). It can reduce the hospitalisation demand, drug use and mortality of the elderly and improve their quality of life (Douglas et al., 2017; Su & Wang, 2019).

Specifically, the SPVs should meet the basic care and health needs of the elderly. An appropriate living environment should be provided, which includes a clean room and drinking water, sanitation, and necessary living facilities (such as a toilet in the room). A nutritious balanced diet is also important as it is essential for preventing malnutrition, maintaining a healthy weight, and keeping older people hydrated (Age Cymru, 2011). Even the dining experience is central to the socialisation of elderly residents (Yee-Melichar et al., 2014). To meet the care and health needs of the elderly, multidisciplinary support for the elderly residents should be provided, including care staff, doctors, nurses, pharmacists, rehabilitation therapists, and social workers (Age Cymru, 2011; National Institute for Health and Care Excellence, 2015). In addition, the

SPVs should conduct regular comprehensive geriatric assessments for the elderly. It is a prospective assessment and focuses on quality of life (British Geriatrics Society, 2021). To meet the psychological needs of the elderly, the SPV should encourage positive interactions and communications between employees and the elderly (Brooker, 2003; Edvardsson et al., 2008; Epp, 2003), organise various social activities, and encourage the elderly to participate in the management of their services. Providing integrated care for the elderly is conducive to the satisfaction of their basic needs (indicator 2.2.1) and physical and psychological needs (indicators 2.2.2 and 2.2.3).

(5) Increase the services for the local community and society, and improve interaction

The SPVs should use every opportunity to increase two-way interaction between the projects and the outside world: a) consider opening facilities to the outside community when healthcare facilities are set up within a project and the scale is large enough; b) provide door-to-door services for community residents, including living care, rehabilitation, and psychological counselling; c) provide training on medical and caring knowledge to community nurses, formal care staff, and family informal caregivers; and d) encourage the elderly residents to make full use of their skills, experiences and hobbies to participate in society. Increasing the contribution to the local community and society can not only improve local economic well-being (indicators 3.1.1, 3.1.2 and 3.1.3), but also improve the local health level (indicator 3.2.1), establish a culture of loving and respecting the elderly (indicator 3.3.1), and enhance social inclusion and social cohesion (indicators 3.4.1 and 3.4.2).

(6) Increase the adoption of information technology

The SPVs should harness aged care technology products to improve the care to the elderly. This includes the purchasing of required equipment and the training of staff to ensure that they have the required skills (British Geriatrics Society, 2021). The functions of the equipment include supervision and control of the status of the elderly,

mechanical support for mobility and physical tasks, information and alerts (Huang et al., 2015; Poncela et al., 2019; World Health Organization, 2019; Zhao et al., 2021). In addition, the SPVs can also use IT to improve the accessibility of project facilities such as providing clear and accurate guidance for check-in, visitors and consultants through intelligent guidance, window display and other service means; providing health information on elderly residents to their relatives through WeChat and various apps; and establishing video interactive systems for communication.

Increasing the adoption of information technology is conducive to the health and safety of employees (indicator 1.2.1), the health and comfort of the elderly (indicators 2.2.1, 2.2.2 and 2.2.3), project accessibility (indicators 2.3.2 and 2.3.3), and the health of the local community and society (indicator 3.2.1).

#### (7) Strengthen stakeholder engagement

First, the SPVs should strengthen information disclosure including providing sufficient information to potential elderly residents and their relatives and providing the opportunity to visit the institutions or meet with existing residents (Parkinson et al., 2019); providing timely information for the elderly residents, their relatives and employees at key points in care pathways or treatment stages such as the health status of the elderly, their assessment, diagnosis, treatment, etc., and the scope of services and equipment available to meet their needs (UK Department of Health, 2001); and providing information to regulators.

Second, the SPVs should strengthen communication with various stakeholders.

Communication should be two-way, not one-way. For example, the communication between employees and the elderly's relatives should not be limited to the employees sending information to the relatives, but both sides should have a detailed explanation



and discussion on the situation of the elderly (Omori et al., 2019; Reid & Chappell, 2017).

Third, the SPVs should empower the elderly, their relatives and employees.

Encouraging choice is crucial to well-being (Age Cymru, 2011). The SPVs should look for opportunities for negotiation and joint decision-making in all aspects of daily life and pay attention to what residents can and want to do. Meanwhile, relatives should be encouraged to participate fully in all aspects of care for the elderly.

Strengthening stakeholder engagement is very important for all the above countermeasures of the SPVs.

## 7.5 Contributions of the Research

### 7.5.1 Contributions to Theory

The empirical data provided by this study indicates that stakeholder theory is suitable for social sustainability research on aged care PPP projects. Only when stakeholders are identified, their social needs are understood, prioritised and realised through methods such as stakeholder engagement, can the projects' social sustainability be well achieved. Specifically:

- Stakeholder theory and the social sustainability of aged care PPP projects have similar aims. Aged care PPP projects have two key characteristics. The production and consumption of services are simultaneous. The professional knowledge and attitude of the employees and their interaction with the elderly residents largely determine the consumption experience of the latter. There are many participants in a project, including government departments, private investors, employees, the elderly and their relatives, and the local community and society. Different participants have different interests and purposes, and some even conflict with each

other. According to stakeholder theory, if a project wants to obtain contributions from stakeholders, it must create value for them, and pay attention to their benefits and well-being (Harrison et al., 2010). This is exactly the aim of aged care PPP projects' social sustainability.

- Stakeholder theory helps to identify the stakeholders of aged care PPP projects, and identify CPs that should be adopted by government departments and private investors and SPVs, which are conducive to the realisation of social sustainability. Using the stakeholder identification method proposed by Mitchell et al. (1997), the definitive stakeholders of the projects are identified as employees, the elderly and their relatives, and the local community and society. Stakeholders should be considered when identifying CPs using the content analysis method, including the analysis of the adopter of each CP, its purpose or intent, and its consequences or impacts.

#### 7.5.2 Contributions to Knowledge

This study contributes knowledge to social sustainability in aged care. Many scholars have studied different stakeholders (for example, employees and elderly residents) in aged care based on different themes (i.e., health, training, safety, etc.). Although these themes can be attributed to social sustainability, they are research for other purposes. There is no complete picture of social sustainability of aged care. Specifically, this study makes the following contributions to knowledge:

- It clearly defines the social sustainability of aged care projects. An aged care project is socially sustainable when various social impacts on the stakeholders are thoroughly considered during its lifecycle, and their well-being is realised under a specific social, cultural and institutional context.

- It establishes a social sustainability indicator framework of aged care PPP projects. This framework thoroughly considers the main social impacts of the projects on the definitive stakeholders of employees, the elderly and their relatives, and the local community and society. The 21 indicators can be used to evaluate the realisation status of the social sustainability of the projects and the aspects needing improvement.
- It establishes RPs for social sustainability of aged care PPP projects and proposes managerial implications. RPs are established based on the identification and analysis of CPs and the enabling relationship between them. A series of managerial implications are identified for the government and private investors and SPVs to overcome the obstacles in the RPs.

In addition, this study also helps improve the traditional critical incident technique. By expanding information sources by including secondary data, adding observers by introducing researchers and time variables (i.e., determining the time of CPs), CPs in the lifecycle of aged care PPP projects can be identified more adequately and systematically.

### 7.5.3 Contributions to Practice

This study is closely connected to practice, and the contributions are mainly reflected in two aspects.

- It establishes an indicator framework, which could help both public and private sectors better understand the social sustainability of aged care PPP projects. The framework has three functions: a) it is a benchmark for the social sustainability of aged care PPP projects; b) it indicates the gap between the realisation status and the importance of social sustainability, which highlights the direction of future efforts

for practitioners; and c) it could be used to evaluate the social sustainability of the projects.

- The RPs with corresponding behaviours and decisions at different project stages can enable both public and private sectors to calibrate their policies and contracting practices to deliver aged care PPP projects successfully.

## 7.6 Limitations and Future Research

The limitations of this study are mainly reflected in three aspects.

First, it regards aged care PPP projects as a whole to study social sustainability, without considering the impact of relevant variables such as the scale of a project. Dempsey et al. (2011) believed that it is necessary to define the spatial unit and the themes matching with the space when analysing the social sustainability of specific projects. The research conducted by Xia, Skitmore, et al. (2015) and Hu, Xia, Buys, et al. (2017) on retirement villages in Australia found that scale is an important factor affecting the number of facilities and services available, and would even affect the quality of care (Heras et al., 2008). This thesis study does not distinguish the scale of aged care PPP projects because such projects are usually large in scale. The minimum number of beds in the three main cases is 397, which is much higher than those of medium-sized institutions which have around 22 to 25 beds (Heras et al., 2008). However, it is difficult to say that the social impacts of aged care institutions with 400 beds are the same as those of institutions with 800 beds. Another variable worthy of attention is the service object of the project, i.e., the elderly residents. UK Department of Health (2001) pointed out that the elderly are not a uniform group and they have varied needs. For example, there are differences in the focus of social needs between the elderly with full ability and the elderly with severe disability, the elderly from facilities with good reputation and the elderly from facilities with bad reputation. In addition, the location of a project (whether in an urban or rural

area), and whether it is a project in the project databased managed by MOF may also affect its social sustainability. These variables are ignored in this study. Therefore, the conclusion of this study may be biased.

Second, only the social sustainability of aged care PPP projects in the Chinese context is studied. According to Liu et al. (2017), social sustainability has a strong contextual dependence. Different countries, especially Eastern and Western countries, have big socio-cultural and institutional differences which can lead to diverse opinions about what social sustainability is. China's traditional philosophical and collectivistic ideology, as well as its unique institutional characteristics, influence Chinese people's perception of social sustainability. For example, the Hukou system means immigrants from other parts of China are largely excluded from the welfare and opportunities available to local residents. This affects the equal access of the elderly to an aged care project. Another example is that Confucian values emphasise the affection between parents and children and advocate filial piety. This has an impact on the elderly to establish a sense of belonging in a project, and they may fall into the pain of being abandoned by their children. These social impacts are not as strong in Western countries.

Third, the implementation history of aged care PPP projects in China is relatively short. Few projects have entered the handover after contract expiration stage. Therefore, the identification of CPs in the project handover and ex-post evaluation stage is completely based on relevant documents of the cases and without the support of any first-hand data. In addition, this study is qualitative research, as there was an insufficient basis for quantitative research.

Therefore, the following aspects can be considered in future research: a) subdivide aged care PPP projects to explore social sustainability under different circumstances such as

introducing variables like scale, service object, and location; b) change the context, and explore the social sustainability of aged care projects in the Western context, and compare the results in different countries; and c) conduct supplementary research and more quantitative research when more projects enter the handover after contract expiration stage, to supplement and validate the conclusions of this study.

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## Appendices

### Appendix 1 Content Analysis of the Problems of Institutional Care in China

A content analysis of media reports has been adopted before the research problem is proposed, to comprehensively understand the problems existing in institutional care in China and preliminarily explore the relationship between these problems and quality of life. This lays the foundation for the research problem. Content analysis is used because it can provide more objective and reliable results (based on real and “mute” evidence) with less resources (Xia et al., 2013).

Sample selection is based on the determination of the data source and sample selection plan (Krippendorff, 2019). The sources of news coverage adopted in this study were China’s portal websites, which were identified by the list of ‘Top Sites in China’ released by the Alexa web ranking service providers (Alexa, 2021). Alexa lists the top websites of each country and region, along with their reliability, usefulness and acceptability (Jowkar & Didegah, 2010). In this study, eight of Alexa’s top 50 Chinese websites in 2021 were identified and adopted (see Appendix Table 1-1). The remaining 42 sites were excluded because they focus on specific services, such as internet search, social media, and forums.

Appendix Table 1-1 The eight major Chinese portal sites for content analysis

Code	Website	Rank in Alexa list (2021)
1	Qq.com	3
2	Sohu.com	4
3	Sina.com.cn	9
4	Xinhuanet.com	10
5	Huanqiu.com	17
6	17ok.com	20
7	163.com	22
8	Rednet.cn	33

Next, the news coverage related to institutional care in the eight portals was retrieved by Google, as it is the most influential and powerful search engine in the world. A careful examination of news reports revealed that different Chinese phrases are used to express institutional care, mainly including ‘institutional care (机构养老)’, ‘aged care institutions (养老机构)’, ‘care homes (养老院)’, ‘respected senior homes (敬老院)’, ‘nursing homes (养护院)’, ‘social welfare homes (福利院)’, ‘senior community (老年社区)’, ‘senior real estate (老年地产)’, ‘senior apartments (老年公寓)’, ‘elderly apartments (养老公寓)’, ‘elderly community (养老社区)’, and ‘elderly real estate (养老地产)’. Although their functions, service objects and owners are different, they all provide institutional care. In March 2021, these 12 phrases were used to search in each selected portal website. Because the research object is problems in institutional care, the term ‘problems (问题)’, ‘dilemma (困境)’, or ‘difficulty (难点)’ was added to the search. In addition, since the earliest aged care PPP project in the project database emerged in 2015, the timeframe is limited to 2015 and after to focus the search on the problems that have emerged in recent years. For example, to search the ‘qq.com’ site, enter [(“机构养老” OR “养老机构” OR “养老院” OR “敬老院” OR “养护院” OR “福利院” OR “老年社区” OR “老年地产” OR “老年公寓” OR “养老公寓” OR “养老社区” OR “养老地产”) AND (“问题” OR “困境” OR “难点”) site: qq.com after:2015] in the Google search bar. The search results are restricted to ‘Google News’. A total of 5,155 results were obtained. The headlines and contents of the 5,155 news reports were carefully screened, and the reports that reported in detail problems in institutional care in China were selected (defined as having at least one passage devoted to problem analysis). This criterion allowed the news coverage to be devoted to substantive content on the problems in institutional care rather than a brief mention (e.g., ‘The shortage of staff in aged care institutions needs concern’). Finally, a total of 99 news reports were selected for further analysis.

Full-length interviews or observational protocols are the most appropriate analysis unit (Graneheim & Lundman, 2004). In this study, the unit of analysis selected is ‘individual news coverage’ which is large enough to be considered as a whole. It helps to refine the problem correctly.

Coding and grouping can be based on predefined systems, frameworks or analysis of collected data (Graneheim & Lundman, 2004). Due to the lack of relevant systems and frameworks, this study relied on the analysis of the collected news coverage data. Through literature review and preliminary analysis of data, the problems of institutional care in China have been summarised and described, and further classified into different categories. Each category has specific attributes to differentiate it from other categories.

According to different stakeholder groups, institutional care problems were divided into three categories: problems encountered by aged care institutions, problems encountered by the employees, and problems encountered by the elderly and their relatives (end consumers). The specific results are as follows.

#### (1) Problems Encountered by Aged Care Institutions

Compared with the problems encountered by employees, the elderly and their relatives, the institutions that provide institutional care services, i.e., the organisations, encounter the most problems. Appendix Table 1-2 presents details. The frequency is the number of appearances of each problem in the selected news reports.

Appendix Table 1-2 Problems encountered by aged care institutions

No.	Category (Frequency)	Specific Problems	Frequency
1	Professionals (70)	(1) Shortage of professionals	39
		(2) Low quality of professionals	31
2	Finance (31)	(3) Low return rate	24
		(4) Difficulty in financing	7
3	Resistance (23)	(5) Resistance of the elderly and their relatives to institutional care	17
		(6) Resistance of the community to institutional care	6
4	Policies (22)	(7) Lack of preferential policies	12
		(8) Imperfect combined healthcare and aged care policies	10

### *Professional related problems*

For aged care institutions, the biggest problem is a shortage of professionals. First, there is a huge gap in the supply and demand for direct care staff. There are now about 200,000 direct care staff serving more than 2 million elderly people living in institutions in China, with each staff member serving about 10 people on average. According to the international standard of one care worker for every three disabled elderly, China's 44 million disabled and semi-disabled elderly need more than 10 million care workers. As most of the care staff are migrant workers, the gap is even wider during the Spring Festival or busy farming season when they go home for family reunions or to help with farm work. Second, the aged care institutions also face a shortage of management talent. This problem is prevalent whether in developed big cities, small and medium-sized cities, or rural areas. There are very few people in charge of aged care institutions who have a relevant professional background and understand both business and management knowledge. Most of the existing managers are from other industries such as healthcare, catering, and domestic service. They lack knowledge of aged care, are not familiar with relevant laws and regulations, and do not understand the operation mode, marketing strategy and risk control of aged care institutions. Third, there is also a serious shortage of professionals engaged in rehabilitation, healthcare, spiritual consolation, hospice care and other professional services in aged care institutions.

Another professional related problem facing aged care institutions is their low quality. Even in big cities such as Beijing, most of the direct care staff are from rural areas, aged between forty and fifty. They have low education levels, outdated caring ideas and single focus skills, and lack professional knowledge. The low quality of professionals directly leads to the low quality of care. For example, they can only provide basic living care services, lack attention to the human rights and the inner world of the elderly, and even abuse them.

### *Finance related problems*

The second big problem facing aged care institutions is about finance. First, the economic return on investment in such institutions is low. Many are in a state of low profit or loss. According to data from the Ministry of Civil Affairs in 2015, more than 50% of China's private aged care institutions could only break even, 40% are in a loss for years, and less than 9% could make a profit of which 78% have a return rate of about 5%. Second, there are few financing channels for aged care institutions. In addition to private lending, banks' loan willingness is not high, and other formal market-based financing channels are rare.

### *Resistance*

The third problem facing aged care institutions is resistance. First, the elderly and their relatives have resistance to institutional care. On the one hand, the elderly themselves are reluctant to enter aged care institutions: "Only childless people go to a care home" and "Going to a care home is like telling others that one's children are unfilial." These traditional ideas deeply dominate the choices of the elderly. On the other hand, the relatives of the elderly are also reluctant to let them go. Influenced by traditional notions



of filial piety, adult children often feel guilty when their parents move into care homes. Second, communities reject the establishment of aged care institutions. This is a common phenomenon. The root of resistance lies in the “neighbour avoidance effect”. The main opinions of community residents are that an institution would: a) occupy the community’s public resources; b) generate noise, air pollution and medical waste, and affect the living environment of the community; c) bring panic to local residents through the death of the elderly; and d) cause the decline of house prices and bring property loss.

#### *Policy related problems*

The fourth problem facing aged care institutions is related to policy. First, preferential policies for private aged care institutions are not in place, and the government’s incentives and supports are limited. China’s local Civil Affairs departments have issued a number of preferential policies to support private aged care institutions, such as preferential land prices and charges for water, electricity, gas, coal and telecommunications, temporary exemption from corporate income tax, and construction subsidies. However, some of these policies have not been effective, and some have set unrealistically high thresholds that many private institutions could not meet. Second, the combination of healthcare and aged care policy is not perfect. At present, there are mainly two modes of this combination: one is to set up a medical place in an aged care institution and provide medical services by the institution; and the other is to cooperate with external medical institutions to provide medical services. There are several difficulties: the application and acceptance checks of medical places are complex, and they are difficult to set up; and the cooperation between aged care institutions and external medical institutions is not smooth.

## (2) Problems Encountered by Employees

Appendix Table 1-3 summarises problems encountered by employees of aged care institutions. Employees in news reports usually refer to the direct care staff.

Appendix Table 1-3 Problems encountered by aged care employees

No.	Category	Specific Problems	Frequency
1	Compensation	(1) Low income with high work intensity	25
2	Status	(2) Low social status	15
3	Development	(3) Limited education and training	13
4	Pressure	(4) High psychological pressure	4

### *Compensation related problems*

News reports show that the direct care staff in aged care institutions usually work 10 to 12 hours a day, and six days a week. They often work the night shift. When the elderly have disability and/or dementia, the workload intensity is higher. However, employees' income is very low. In a major city like Beijing, the average salary of direct care staff is 4,000–5,000 CNY (about AUD 850–1,062) per month with nearly no other benefits. Wages are lower in other cities.

### *Status related problems*

Affected by traditional ideas and the nature of the aged care service, the whole of society demonstrates a contemptuous attitude towards care staff and they have low social status. Even the elderly and their relatives who enjoy care services do not necessarily respect the caregivers.

### *Development related problems*

The limitation of professional capacity development is mainly reflected in two aspects: lack of professional training, and lack of professional education. China is seriously short of professional education aimed at aged care operation and management staff. It has been reported that the highest degree in aged care in China is junior college, while developed countries offer doctorates.

### *Pressure related problems*

The pressure mainly comes from psychological issues. Care staff in aged care institutions are faced with elderly whose physical and mental condition is deteriorating. Being constantly in such an environment can depress staff. In addition, the psychological pressure of care staff might also come from several sources: the abnormal behaviour of some elderly residents, such as the elderly with Alzheimer's who often engage in behaviours that cause physical or emotional harm to caregivers; opposite sex care, as the 88% of the care staff who are women might be under pressure when providing physical care for elderly men; and the blame of the elderly and their relatives. When the elderly have any problems or their relatives are not satisfied, the care staff are the first one to bear the blame.

### **(3) Problems Encountered by the Elderly Residents and Their Relatives**

Appendix Table 1-4 summarises problems encountered by the elderly and their relatives.

Appendix Table 1-4 Problems encountered by the elderly and their relatives

No.	Category	Specific Problems	Frequency
1	Service	(1) Neglected psychological needs and monotonous life	14
		(2) Imperfect combined healthcare and aged care	12
		(3) Unguaranteed safety	5
2	Charge	(4) High charges	10
3	Admission	(5) Discrimination against some elderly	5
4	Location	(6) Remote location of the aged care institutions	2

### *Service related problems*

Low service quality is the biggest problem faced by the elderly in aged care institutions.

First, the psychological problems of the elderly have not received sufficient attention and they live a monotonous life. Reports indicate that many elderly do not adapt to changing from their familiar homes to an unfamiliar care home, resulting in insomnia, physical aches and other symptoms caused by anxiety. Even the elderly living in aged care institutions for a long time face psychological obstacles, such as loneliness, the threat of disease, and the fear of death. In short, aged care institutions care more about the satisfaction of the explicit needs of the elderly, including the basic physiological needs and the treatment of physical diseases, while ignoring the satisfaction of their internal psychological needs. The lack of spiritual care and mental counselling has brought physical and mental harm to the elderly, and even led to extreme events and death. In addition, the life of the elderly can be monotonous, and life for the elderly in most aged care institutions is boring. They have no expectations or goals. Beyond meeting their basic physiological needs for food, drink and accommodation, the diverse requirements of the elderly have not been met, making it difficult for them to establish a sense of belonging in the institutions.

Second, the combined healthcare and aged care service needs to be improved. News reports indicate that only 20% of beds in aged care institutions are nursing beds and the

elderly could access limited medical and rehabilitation services. The external medical institutions, however, are unable to provide the required services in a timely manner to the elderly residents due to the lack of staff and existing policies. For example, the existing policy does not allow medical staff to enter the institution to provide injection and medication services. They can only provide basic services such as blood pressure measurement and blood glucose measurement. When the elderly have an emergency and need treatment, it might also be delayed due to the distance from external medical institutions.

Third, the safety of the elderly is not guaranteed. Accidents such as falling and losing the elderly sometimes occur due to the lack of corresponding safety protection measures in aged care institutions. There is even violence among the elderly in some reports. In addition, the design of hardware facilities of aged care institutions lacks adequate consideration of the needs of the elderly. For example, the bathroom is separated from the bed by a transparent glass wall, and the room lacks access to emergency call equipment and first-aid facilities. The lack of an appropriate design for aging could easily lead to physical and mental injuries in the elderly.

#### *Charge related problems*

The second biggest problem facing the elderly and their relatives is the high charges. High fees relative to older people's incomes discourage them from entering institutions.

#### *Admission related problems*

The disabled elderly and the elderly with Alzheimer's are vulnerable to discrimination when accessing institutions. Some aged care institutions treat such elderly people as "hot potatoes" and exclude them through rigorous admission evaluations. Even in

economically advanced Shanghai, fewer than 20 institutions are currently willing to accept elderly people with moderate dementia.

#### *Location related problems*

Many aged care institutions are in the outer suburbs. In Beijing, for example, only 32% of public beds for the elderly are in the city's central districts, with many beds in the outer suburbs. Private institutions are even more likely to be in the outer suburbs.

## Appendix 2 China's Sixty-Five Aged Care PPP Projects

Appendix Table 2-1 China's Sixty-Five Aged Care PPP Projects

No.	Project Name	Year of contract signing	Concession Period (years)	Investment Scale (million AUD)	Province	Modalities	Payment Mechanism	Procurement Method
1	Integrated Care PPP Project in Jinpu District	2022	25	184.99	Liaoning	TOT+ROT	VGF	OT
2	Dexin Integrated Care Service Centre in Wutela	2021	20	56.29	Neimonggu	TOT+ROT	VGF	OT
3	The East District Hospital and Yiyang Centre (phase I) in High-tech District, Jinan city	2020	30	99.26	Shandong	BOT	VGF	OT
4	Integrated Care PPP Project in Chongren county	2020	20	165.13	Jiangxi	BOT	VGF	OT
5	Integrated Care/Rehabilitation Centre in Lancang Lahu autonomous county	2020	22	32.81	Yunnan	BOT	VGF	OT
6	Xiang Lake Nursing Home, Nanchang city	2019	25	121.65	Jiangxi	BOT	UP	OT
7	Nursing Home, Datong city	2019	30	14.70	Shanxi	BOT	UP	OT
8	Social Welfare Centre, Lianjiang county	2019	25	16.97	Fujian	BOT	VGF	OT
9	Dongsheng Nursing Home, Jiaxing city	2019	19	31.09	Zhejiang	BOT	VGF	OT
10	Comprehensive Aged Care PPP Project in Hubin district, Sanmenxia city	2019	20	260.61	Henan	BOO+BOT	UP	OT
11	Aged Care and Health Care Demonstration project in Guide county*	2019	30	23.81	Qinghai	BOO	VGF	CC
12	Senior Apartment, Tonglin city*	2019	22	27.47	Anhui	BOT	VGF	OT
13	Yingshanhong Health and Aged Care Industry Demonstration Zone in Tongbai*	2018	30	354.07	Henan	BOT	VGF	CC
14	Social Service Centre in Xiangzhou	2018	30	12.60	Guangxi	BOT	VGF	CC
15	Yandu Nursing Home PPP Project in Ye county, Pingdingshan city	2018	30	61.85	Henan	BOO	UP	OT
16	Ecological Aged Care Industrial Park and Supporting Facilities in Luhe county, Shanwei city	2018	15	271.09	Guangdong	BOT	VGF	OT
17	Comprehend Integrated Care Park for the Retirement, Wulumuqi city	2018	30	103.50	Xinjiang	BOO	VGF	CC
18	Rural Integrated PPP Project in Zhuixi county, Huaibei city	2018	15	75.88	Anhui	BOT	VGF	OT
19	Integrated Care PPP Project in Lanshan county, Yongzhou city	2018	12	82.61	Hunan	BOT	VGF	OT
20	Social Welfare Home in Jiaocheng county, Lvliang city*	2018	22	15.44	Shanxi	BOT	VGF	CC
21	Aged Care Service Center in Zhouping county, Binzhou city	2018	10	16.53	Shandong	BOT	VGF	OT
22	Social Welfare Center in Jinan district, Fuzhou city	2018	30	13.27	Fujian	BOT	VGF	OT
23	Comprehensive Health Service Facilities, Huaihua city*	2018	30	421.62	Hunan	BOT	VGF	OT
24	Nursing Home in Shiqian county, Tongren city	2018	15	24.66	Guizhou	ROT	VGF	OT

25	Dingshan Nursing Home, Yixing city*	2018	30	54.36	Jiangsu	BOT	VGF	OT
26	Senior Apartment, Shangluo city*	2018	30	48.08	Shanxi	BOO	UP	SSP
27	Social Welfare Home, Xinghua city	2018	20	25.05	Jiangsu	BOT	VGF	OT
28	Zhongdu Yiyangyuan Integrated Care for the Elderly Project in Wenshang county, Jining city*	2017	30	125.97	Shandong	BOO	UP	CC
29	Jingfu Nursing Home in Lintong county, Weifang city	2017	30	32.21	Shandong	BOO	UP	CC
30	Ludi Tianmu (Licheng) Hot Spring, Aged Care and Poverty Alleviation Development Project in Lucheng county, Linyi city	2017	22	69.59	Shandong	BOO	UP	CC
31	Huaiyang Ankang Hospital (Aged Care Centre) PPP project in Huaiyang county, Zhoukou city*	2017	20	73.99	Henan	BOO	VGF	CC
32	Nursing Home in Rencheng district, Jining city	2017	22	130.73	Shandong	BOT	VGF	CC
33	Aged Care Service Centre in Huating county, Pingliang city*	2017	30	27.16	Gansu	BOO	UP	CC
34	Integrated Care Service Centre, Heze*	2017	27	65.52	Shandong	BOT	VGF	CC
35	Henan Longyao Health City PPP Project in Xiangcheng county, Xuchang city*	2017	30	100.00	Henan	BOO	UP	OT
36	Hongjiang People's Hospital Tongxin Integrated Care Centre	2017	30	13.31	Hunan	ROT	UP	CC
37	Health Industry Building, Gaomi city	2017	20	58.52	Shandong	BOO	VGF	CC
38	Social Welfare Home Building Block B, Wuhan city*	2017	25	24.05	Hubei	ROT	UP	CC
39	Ningcheng County Child Welfare Home and Tianyi Town Central Nursing Home	2017	35	18.83	Neime nggu	BOT	UP	OT
40	Yancheng Tinghu District Welfare Centre*	2017	21	38.59	Jiangsu	TBOT	UP	OT
41	Changchun Comprehensive Aged Care Project*	2017	25	149.51	Jilin	BOT	VGF	CC
42	Ziyun Valley Aged Care Demonstration Project, Xiangcheng county*	2017	30	232.55	Henan	BOT+BOO	VGF	OT
43	Xinfeng Senior Apartment & Nanshan Ecological Aged Care Centre, Kezuo county*	2017	30	147.07	Liaoning	BOT	VGF	OT
44	Second Nursing Home, Hami city*	2017	18	20.83	Xinjiang	BOT	VGF	OT
45	Yikang Comprehensive Integrated Care Centre & Second Social Welfare Home, Baishan city*	2017	25	64.55	Jilin	BOO	VGF	OT
46	Nursing Home in Yintai district, Tongchuan city*	2017	30	33.83	Shanxi	BOO	UP	OT
47	Xinhe Healthy & Cultural Village in Gushi county	2017	25	96.10	Henan	BOO	UP	CC
48	Senior Apartment, Yunnan*	2017	20	20.20	Yunnan	BOT	UP	OT
49	Senior Apartment, Huludao city*	2017	30	20.71	Liaoning	BOO+BOT	VGF	SSP



50	Ecological Aged Care Project in Yanchi county, Wuzhong city	2017	30	97.49	Ning xia	BOO	VGF	OT
51	Senior Services Centre, Tongchuan city*	2016	30	28.77	Shan xi	BOO	UP	CC
52	Bailu Lake Hot Spring and Aged Care Project, Gushi county	2016	20	76.21	Henan	BOO	UP	CC
53	The Comprehensive Aged Care Industry Park in Shenqiu Nianci Hospital, Shenqiu county, Zhoukou city*	2016	20	169.47	Henan	BOO	VGF	CC
54	Smart Aged Care PPP Project, Penglai city*	2016	15	140.56	Shan dong	BOT+ BOO	VGF	CC
55	Leisure and Aged Care Project, Wushi county	2016	21	13.30	Xin jiang	BOT	VGF	CC
56	Minsheng Nursing Home, Kaifeng city*	2016	30	43.79	Henan	BOT	VGF	OT
57	Second Social Welfare Centre, Chaoyang District	2016	10	38.68	Bei jing	ROT	UP	OT
58	Fuyuan Yiyang Centre, Shouguang city, Weifang	2016	10	14.51	Shan dong	BOT	VGF	CC
59	*"Sunshine New City" Project, Huaian	2016	10	250.21	Jiang su	BOT	VGF	CC
60	Nursing Home, Baishui county	2016	22	39.69	Shan xi	BOO	UP	CC
61	Xiaofu Aged Care Centre, Chenzhou city	2016	18	147.00	Hunan	BOO	UP	CC
62	Fengyezhenghong Integrated Care for the Elderly Project in Mudan district, Heze city*	2015	30	252.85	Shan dong	BOT	UP	CC
63	Jiuding Mountain Aged Care Service and Ecological Comprehensive Treatment Project, Jiaxiang county, Jining city*	2015	30	2856.21	Shan dong	BOT	UP	CC
64	Wanjie Elderly Apartment Project in Yingzhou district, Fuyang city	2015	30	42.81	Anhui	BOO	VGF	SSP
65	Yile New Village, Yiwu city	2015	20	71.66	Zhe jiang	TOT	UP	OT

Note: \* means national PPP demonstration project; VGF refers to Viability Gap Funding; UP refers to User Pay; OT refers to Open Tender; CC refers to Competitive Consultation; SSP refers to Single Source Purchase.

## Appendix 3 The First Round Online Delphi Questionnaire

Note: this is the English translation, and original version for participants was in Mandarin.

### Participant Information Sheet for Online Delphi

*Socially Sustainable Development of China's Aged Care Public-Private Partnership  
Projects (ETH20-4838)*

#### WHO IS DOING THE RESEARCH?

I am Kun Wang, a PhD student from University of Technology Sydney, Australia under the guidance of Dr. Yongjian Ke and Professor Shankar Sankaran.

#### WHAT IS THIS RESEARCH ABOUT?

The research aims to establish a socially sustainable development process of the aged care Public-Private Partnership (PPP) projects in the Chinese context. PPP is a long-term contract between a public party and a private party, for the development and management of a public asset or service, in which the private party bears significant risk and management responsibility through the life of the contract.

#### WHY HAVE I BEEN ASKED?

You have been invited to participate in this research because you are a:

- Practitioner: have been or are participating in the aged care projects; and/or
- Researcher: authorship of publications related to social sustainability and/or aged care.

#### IF I SAY YES, WHAT WILL IT INVOLVE?

You will participate in two rounds of online survey. Each round of the survey will take about fifteen minutes.

#### ARE THERE ANY RISKS/INCONVENIENCE?

There are no significant risks. The only inconvenience is that you may feel a little tired during the process of filling out the questionnaire.

#### DO I HAVE TO SAY YES?

Participation in this research is voluntary. You are free to decide whether to participate or not.

#### WHAT WILL HAPPEN IF I SAY NO?

Your refusal will not affect your relationship with the researchers or the University of Technology Sydney. You can also decide to quit without any reason at any time after the start of the research. All you need to do is informing Kun Wang (kun.wang-4@student.uts.edu.au). We will not collect additional information from you once you decide to quit. However, the information that has been collected will be retained to ensure that we can accurately record the whole process of the study.

#### WHAT ARE THE BENEFITS IF I AGREE TO PARTICIPATE?

You will be provided with the improved social sustainability indicator framework of aged care projects and the reasons for the modification, the mean value and analysis of experts' evaluation on the importance and realisation status of each indicator in the second-round questionnaire, if you agree to participate. In addition, this research has been awarded a free full data support by the BRI data (the largest data company in China's PPP market). The research results will be released on BRI data's WeChat Official Account, etc.

## CONFIDENTIALITY

By filling the questionnaire, you consent to the research team collecting and using the information provided by you. All this information will be treated confidentially by providing access only to the research staffs, encrypting all digital datasets, keeping all physical data securely locked. We will anonymise personal information. Your name will be recoded as numbers or characters. We would like to store your information for future use in research projects that are an extension of this research project. In all instances your information will be treated confidentially. We plan to publish the results on academic journals or meetings. In any publication, information will be provided in such a way that you cannot be identified.

## WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think I or my supervisors can help you with, please feel free to contact us through our emails (kun.wang-4@student.uts.edu.au; yongjian.ke@uts.edu.au; shankar.sankaran@uts.edu.au). You will be given a copy of this form to keep if necessary.

## NOTE:

This study has been approved in line with the University of Technology Sydney Human Research Ethics Committee [UTS HREC] guidelines. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au] and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome.

## Questionnaire Description

Dear experts:

The purpose of this online questionnaire is to verify the social sustainability indicator framework of aged care projects (not limited to PPP projects), and to understand the importance and current realisation status of each indicator. This indicator framework can thoroughly explain what a socially sustainable aged care project should be. Its rationality will help us to carry out the next research stage. In the next stage, we will adopt the Backcasting method to explore how to operate in the aged care projects to promote the realisation of social sustainability indicators.

Before filling in the questionnaire, please allow me to provide you with a brief introduction of the social sustainability of aged care projects and the establishment process of the preliminary indicator framework.

Social sustainability is an important part of the overall “sustainability framework”. However, there is still uncertainty about how this concept should be defined and understood. Literature review indicated that, on the one hand, social sustainability means the realisation of human well-being. On the other hand, to pay attention to the project’s social sustainability, one must pay attention to its stakeholders. Therefore, our research defined the social sustainability of aged care projects as follows: **An aged care project is socially sustainable when various social impacts on the stakeholders are thoroughly considered during its lifecycle, and their well-being is realised under a specific social, cultural, and institutional context.** Social impacts here refer to the social and cultural consequences of any public or private actions on human populations,

which will change human life, work, entertainment, relationships with others, values, norms, beliefs, and organizing to meet their needs.

The establishment of the social sustainability indicator framework of aged care projects was based on the existing literature and the characteristics of such projects. Literature review showed that there are two relatively widely used classification schemes for the measurement and evaluation of social sustainability: classification by stakeholder category and classification by social impact category. However, these two classification schemes are mutually complementary. Only by integrating the two into one framework can the impacts of projects or enterprises on social sustainability be fully reflected. Based on our research objectives and the characteristics of aged care projects, we established a preliminary indicator framework. It should be noted that employee, the elderly and their relatives, local community and society are supposed to be the most important stakeholders in the framework. The limited resources of the project make it difficult to pay attention to all the stakeholders. Therefore, it is necessary to identify and select the most important ones. According to the stakeholder identification method proposed by Mitchell et al. (1997), employee, the elderly and their relatives, local community and society have three attributes, i.e., the power to influence the firm, the legitimacy of the relationship to the firm, and the urgency of their claim. They are the definitive stakeholders, and their needs should be paid more attention to.

Our study is expected to involve two rounds of online questionnaire survey. This is the first round. The questionnaire consists of three parts: basic information of participant, the judgment of the indicators, and suggestions for improving the framework. You are required to make your own judgment on the following issues: (1) whether the three groups of stakeholders listed in the indicator framework are reasonable, whether new groups need to be added or the existing ones need to be adjusted; (2) whether the indicators in the indicator framework are reasonable and need to be adjusted; (3) the

importance of the indicators; and (4) the current realisation status of the indicators.

After the first round of survey, we will modify the indicator framework according to the suggestions of all participants and form the second-round questionnaire. The new questionnaire will include the revised framework, the reasons for the modifications, the mean value of experts' evaluation of the importance and current realisation status of each indicator, and the evaluation value given by yourself in the first round. You will be asked to consider the feedback and make independent judgment on the above questions again. Therefore, you are supposed to leave contact details in this round. This is convenient for us to contact you for the second-round survey. This personal information will be deleted after the completion of two rounds survey. Your identity will not be identified in our future data analysis and output. We are deeply sorry for this and hope to get your understanding and support.

Your opinions are welcome! Thank you!

#### References:

[1] Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *The Academy of Management Review*, 22(4), 853-886. Doi:10.2307/259247

## Part 1 Basic information of participant

1 The industry your current work unit belongs to

- ☐ Scientific research institution (university or research institution) ☐ Government  
☐ Consulting agency ☐ Real estate firm ☐ Construction firm ☐ Hospital ☐  
Health industry investment firm (including aged care service firms) ☐ Others \_\_\_\_\_

2 Your current professional title

- ☐ Intermediate ☐ Advanced ☐ Others \_\_\_\_\_

3 Years of experience in aged care industry or research

- ☐ Less than 1 ☐ 2-5 ☐ 6-10 ☐ More than 10

4 The number of aged care projects you have participated in

- ☐ 0 ☐ 1 ☐ 2-3 ☐ 4 and above

5 The number of peer-reviewed journal articles you have published as primary or secondary writer on social sustainability and/or aged care

- ☐ 0 ☐ 1 ☐ 2-3 ☐ 4 and above

6 The number of times you have been invited to speak on social sustainability and/or aged care issues at academic conferences

- ☐ 0 ☐ 1 ☐ 2-3 ☐ 4 and above

7 Have you ever joined any groups (associations, research institutes, etc.) that are recognised by the central or local governments and are related to sustainable development and/or aged care



☐ Yes      ☐ No

8 What do you think about the concern degree of social sustainability in China's aged care projects

☐ Very low ☐ Relatively low ☐ Medium ☐ Relatively high ☐ Very high

## Part 2 Judgement of social sustainability indicators of the aged care projects

9 The table below is the preliminary social sustainability indicator framework of the aged care projects. Three stakeholder groups have been considered, i.e., employee, the elderly and their relatives, local community and society. The social impacts of aged care projects on each stakeholder group are divided into several categories (for example 1.1 Equity and fairness, 1.2 Health and safety). Each category of social impact is divided into several indicators (for example 1.1.1 Equal employment opportunity, 1.1.2 Fair employment contract and rational compensation system). Please evaluate the importance of each indicator according to your own experience.

Stakeholders	Social impacts	Indicators	Completely unimportant	Not very important	Moderately important	Relatively important	Very important
1 Employees	1.1 Equity and fairness	1.1.1 Equal employment opportunity					
		1.1.2 Fair employment contract and rational compensation system					
	1.2 Health and safety	1.2.1 Healthy and safe workplace					
		1.2.2 Policies and procedures conducive to health and safety					
	1.3 Education and training	1.3.1 The mastering of professional skills					
		1.3.2 Improved sustainability awareness					
2 Elderly and their relatives	2.1 Equity	2.1.1 Equal access to the project					
		2.1.2 Equal access to services, facilities, etc.					
	2.2 Health and comfort	2.2.1 The satisfaction of basic needs					
		2.2.2 Satisfied health and physical comfort					
		2.2.3 Satisfied psychological comfort					
	2.3 Accessibility	2.3.1 Good accessibility of the project					

		2.3.2 Good accessibility of facilities					
		2.3.3 Easy access to the elderly					
3 Local community and society	3.1 Local economic welfare	3.1.1 Job creation					
		3.1.2 Induced business opportunities					
		3.1.3 Local actors' involvement					
	3.2 Health	3.2.1 Improved local health level					
	3.3 Local identity	3.3.1 Protected / Established local culture					
	3.4 Social inclusion and social cohesion	3.4.1 The realisation of social mixing					
		3.4.2 Enhanced community vitality					

10 The structure of this table is exactly the same as that of the previous one. Please evaluate the realisation status of each indicator in the aged care projects according to your own experience.

Stakeholders	Social impacts	Indicators	Completely unrealised	Slightly realised	Moderately realised	Realised well	Realised fully
1 Employees	1.1 Equity and fairness	1.1.1 Equal employment opportunity					
		1.1.2 Fair employment contract and rational compensation system					
	1.2 Health and safety	1.2.1 Healthy and safe workplace					
		1.2.2 Policies and procedures conducive to health and safety					
	1.3 Education and training	1.3.1 The mastering of professional skills					
		1.3.2 Improved sustainability awareness					
2 Elderly and their relatives	2.1 Equity	2.1.1 Equal access to the project					
		2.1.2 Equal access to services, facilities, etc.					
	2.2 Health and comfort	2.2.1 The satisfaction of basic needs					
		2.2.2 Satisfied health and physical comfort					

	2.3 Accessibil ity	2.2.3 Satisfied psychological comfort					
		2.3.1 Good accessibility of the project					
		2.3.2 Good accessibility of facilities					
		2.3.3 Easy access to the elderly					
3 Local communit y and society	3.1 Local economic welfare	3.1.1 Job creation					
		3.1.2 Induced business opportunities					
		3.1.3 Local actors' involvement					
	3.2 Health	3.2.1 Improved local health level					
	3.3 Local identity	3.3.1 Protected / Established local culture					
	3.4 Social inclusion and social cohesion	3.4.1 The realisation of social mixing					
		3.4.2 Enhanced community vitality					

### Part 3 Suggestions on improving the social sustainability indicator framework for the aged care projects

11 "Employees", "the elderly and their relatives", "local community and society" were regarded as definitive stakeholders in the whole lifecycle of aged care projects, and the realisation of their well-being has been used to represent the realisation of social sustainability of such projects. Do you think this setting is reasonable? Is it necessary to add new stakeholder groups or adjust the existing ones? If necessary, please explain how to adjust and your reasons.

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12 The framework divided the social impacts of projects on different stakeholder group into several categories and set several indicators under each category. If you assume that the social impact categories/indicators should be integrated or added, please specify and explain the reasons. In addition, please rate their importance and current realisation status.

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13 After the first round of survey, we will modify the indicator framework according to the suggestions of all participants and form the second-round questionnaire. The new questionnaire will include the revised framework of indicators, the reasons for the changes, and the mean value of experts' evaluation of the importance and realisation status of each indicator. You will be asked to consider the feedback and make independent judgments on the above questions again. Please provide your contact details so that we can contact you later.

Telephone:

Wechat number:

Email address:

## Appendix 4 The Second Round Online Delphi Questionnaire

Note: this is the English translation, and original version for participants was in Mandarin.

### Questionnaire Description

Dear experts:

Thank you very much for your participation in our first round of online Delphi survey. Many valuable opinions were provided on the rationality of the social sustainability indicator framework of aged care projects, the importance and realisation status of each indicator in the first round. Now we're going to conduct the second and final. In this round, we will invite you to evaluate the importance and realisation status of the indicators again according to the results of the first round.

Based on the literature and the results of the first round, we provide you with three tables. Table 1 listed the explanation of the indicators. Table 2 displayed the anonymous suggestions of the experts' on improving the indicator framework and our considerations. Table 3 reflected the comparison of the importance and realisation status of the indicators (see below for details). You can browse these three tables carefully before fill in the questionnaire, as they will help you to make judgment. The comparative analysis in Table 3 was based on the first-round data. After this round of questionnaire survey, we will provide you with the updated analysis for your benefit.

Thank you again for your participation and generous help, and sorry for the inconvenience. Please fill in the questionnaire and return it to

[kun.wang-4@student.uts.edu.au](mailto:kun.wang-4@student.uts.edu.au). Thank you.

Yours sincerely,

PhD Candidate    Kun Wang

University of Technology Sydney

City Campus, Haymarket, Bldg 5, Block C, Lv 3, Rm 25

+61 433865680

kun.wang-4@student.uts.edu.au

**Appendix Table 4-1 Explanation of the indicators in the social sustainability  
indicator framework**

Stakeholders	Social impacts	Indicators	Explanations
Employees	Equity and fairness	Equal employment opportunity	Being treated equally, without discrimination (for example age, gender, and Hukou) when seeking jobs.
		Fair employment contract and rational compensation system	The terms of the contract are fair. The legitimate rights of the employees will not be unreasonably deprived. Satisfied compensation and benefits, timely payment of salary, equal pays for same grades, regular assessment of salary, etc.
	Health and safety	Healthy and safe workplace	Be provided with hard infrastructure that can ensure health and safety.
		Policies and procedures conducive to health and safety	Be provided with soft infrastructure that can ensure health and safety.
	Education and training	The mastering of professional skills	The employees master and constantly improve professional skills through education and training.
		Improved sustainability awareness	The employees have sustainability awareness through education and training.
Elderly and their relatives	Equity	Equal access to a project	The access to a project is equal and there is no discriminatory recruitment, no matter the elderly are rich or poor, infirmity or health, local or non-local, etc.
		Equal access to services, facilities, etc.	The elderly in a project have equal access to services and facilities without discrimination.
	Health and comfort	Satisfied basic needs	The elderly are provided with adequate and suitable accommodation, food, clean water, and guaranteed sanitation. Their personal and property safety is guaranteed.
		Satisfied health and physical comfort	The elderly are provided with appropriate physical care. When they are ill, they can get proper treatment timely.
		Satisfied psychological comfort	The elderly don't feel abandoned by family, lonely, helpless and meaningless by establishing social network and a sense of community in a project.
	Accessibility	Good accessibility of a project	A project has good accessibility of public transportation and parking lots , which is convenient for family members to visit.
		Good accessibility of facilities	Good accessibility for entertainment, rehabilitation facility, etc., and for technological components, for example internet and payment system during the stay, check in and leave of the elderly.
		Easy access to the elderly	Easy access to the elderly for emotional



			communication, especially in emergency situations.
Local community and society	Local economic welfare	Job creation	Provision of employment opportunities
		Induced business opportunities	Inducing other business opportunities in the local area.
		Local actors' involvement	Local labour is employed, local companies are involved.
	Health	Improved local health level	A project complements the local healthcare facilities; Professional knowledge and skills accumulated in a project, for example nursing skill, are transferred to other medical institutions and individuals, which is conducive to the improvement of local health.
	Local identity	Protected/Established local culture	A project contributes to the protection/establishment of local culture, especially the culture of respect for the elderly.
	Social inclusion and social cohesion	The promotion of social mixing	A project promotes the mixing of people from all walks of life in the community.
		Enhanced community vitality	A project builds a strong, active and inclusive relationship between residents, private investors, the public sector and civil society organisations.

Note: "3. Local community and society" refers to the social impacts of the project on the local community and the whole society.

**Appendix Table 4-2 Suggestions for improving the indicator framework in the first round and our considerations**

1 Do you think it is necessary to add new stakeholder groups or adjust the existing ones?		
Number	Suggestions	frequency
A	Investors/operators should be included as a stakeholder group	7
B	Government should be included as a stakeholder group	6
C	The meaning of the stakeholder group - "local community and society" should be clarified	2
D	The “Employee” group should be subdivided	1
E	The “Elderly and their relatives” group should be subdivided	1
2. Do you think it is necessary to integrate, delete or add social impact categories/indicators?		
Number	Suggestions	frequency
F	The integration of social sustainability and economic sustainability indicators should be considered	1
G	The social interaction indicators of the elderly should be added	1
H	Indicators that can improve social wellbeing and reduce social cost should be added	1
3 Our considerations		
Suggestions A-B	Investors and government departments are important stakeholders. However, they are not the objects of projects’ social sustainability, but the important forces to realise it. In the follow-up stages of this study, the government, investors/operators and other stakeholders will be included to explore how they can take behaviours/practices to realise social sustainability.	
Suggestion on D	No matter which kind of employees, the social impacts of the project involve equality and fairness, health and safety, education and training. We will consider the segmentation of employees when we study how to realise social sustainability in the subsequent stage.	
Suggestions C, E-H	Social sustainability is a complex concept. In order to reduce the complexity of the framework, the indicators we chose are of high aggregation level. We explain the indicators in Table 1 in order to facilitate the understanding of the experts. It can demonstrate that these suggestions have been reflected in our framework.	
Conclusions: The social sustainability indicator framework of aged care projects will remain unchanged based on the above suggestions and considerations.		

**Appendix Table 4-3 The comparison of each social sustainability indicator's importance and realisation status**

Stakeholders	Indicators	Mean value of importance (Ranking from high to low)	Mean value of realisation status (Ranking from high to low)	The proportion of mean value of realisation status to mean value of importance (Ranking from low to high)	Sig.
1. Employee	<b>1.3.1 The mastering of professional skills</b>	4.70 (1)	3.03 (5)	0.645 (1)	0.000
	<b>1.3.2 Improved sustainability awareness</b>	4.27 (5)	2.86 (6)	0.669 (2)	0.000
	<b>1.1.2 Fair employment contract and rational compensation system</b>	4.57 (2)	3.43 (3)	0.751 (3)	0.000
	1.2.1 Healthy and safe workplace	4.41 (3)	3.49 (1)	0.791 (4)	0.000
	1.2.2 Policies and procedures conducive to health and safety	4.35 (4)	3.46 (2)	0.795 (5)	0.000
	1.1.1 Equal employment opportunity	4.08 (6)	3.41 (4)	0.836 (6)	0.003
2. Elderly and their relatives	<b>2.2.3 Satisfied psychological comfort</b>	4.70 (1)	3.16 (8)	0.672 (1)	0.000
	<b>2.1.1 Equal access to the project</b>	4.30 (7)	3.22 (7)	0.749 (2)	0.000
	<b>2.3.1 Good accessibility of the project</b>	4.38 (4)	3.30 (6)	0.753 (3)	0.000
	2.2.2 Satisfied health and physical comfort	4.51 (3)	3.43 (2)	0.761 (4)	0.000
	2.2.1 The satisfaction of basic needs	4.54 (2)	3.51 (1)	0.773 (5)	0.000
	2.1.2 Equal access to services, facilities etc.	4.38 (4)	3.41 (3)	0.779 (6)	0.000
	2.3.3 Easy access to the elderly	4.32 (6)	3.38 (4)	0.782 (7)	0.000
	2.3.2 Good accessibility of facilities	4.30 (7)	3.38 (4)	0.786 (8)	0.000
3. Local community and society	<b>3.4.2 Enhanced community vitality</b>	4.08 (1)	3.11 (4)	0.762 (1)	0.000
	<b>3.2.1 Improved local health level</b>	3.81 (3)	2.97 (6)	0.780 (2)	0.000
	3.4.1 The realisation of social mixing	3.78 (4)	3.14 (3)	0.831 (3)	0.002
	3.1.2 Induced business opportunities	3.57 (5)	3.00 (5)	0.840 (4)	0.003
	3.3.1 Protected / Established local culture	3.22 (7)	2.81 (7)	0.873 (5)	0.045
	3.1.1 Job creation	3.84 (2)	3.43 (1)	0.893 (6)	0.095*
	3.1.3 Local actors' involvement	3.41 (6)	3.32 (2)	0.974 (7)	0.846*

**Notes:** the researcher converted each expert's evaluation in the first round into a numerical value for calculation. For importance, 1 is completely unimportant, 2 is not very important, 3 is moderately important, 4 is relatively important, and 5 is very important. For realisation status, 1 is completely unrealised, 2 is slightly realised, 3 is moderately realised, 4 is realised well, and 5 is realised fully. The first number in the column of importance mean value and realisation status mean value in the table is the mean value calculated according to the experts' evaluation. The numbers in brackets are the intra-group ranking of the indicators (each stakeholder category is an independent group).

Nonparametric tests of two independent samples in SPSS were used to analyse the significance of differences between the evaluation of the importance and the realisation status of all indicators. The last column of Appendix Table 3-3 showed the P value of each indicator. It was found that, except for 3.1.1 Job creation and 3.1.3 Local actors' involvement, there were significant differences between the evaluation of the importance and realisation status of other indicators ( $P < 0.05$ ). Combined with the mean value of importance and realisation status, it can be inferred that except for indicators 3.1.1 and 3.1.3, other indicators' realisation status was lagging behind and needed to be improved compared with their importance.

Furthermore, the penultimate column in Table 3 was the proportion of mean value of realisation status to mean value of importance. For each group of stakeholders, the lower the proportion of an indicator, the lower the realisation level of the indicator compared with its importance. An indicator needs to be paid special attention to if its ranking of importance is high and no less than the ranking of its realisation status. This means that its realisation status is relatively backward, compared with its importance. A total of eight indicators (bold in the table) in employee group, elderly and their relatives group, local community and society group were consistent with the above

characteristics. It was found that the proportion of mean value of realisation status to mean value of importance of those indicators were very low too. Therefore, these indicators need to be given special attention.

### **Q1 Importance evaluation of the indicators in the social sustainability indicator framework of aged care projects**

The following table displayed the mean value of the first round evaluation of the importance of each indicator and the evaluation value you gave. 1 is completely unimportant, 2 is not very important, 3 is moderately important, 4 is relatively important, and 5 is very important. Please evaluate again according to the results of the first round: First, please judge whether to modify your evaluation. If you need to modify, please use the left mouse button to "Click and Modify" and re-evaluate. Second, if your final evaluation is not on the same level as the mean value of the first round, please explain your reasons briefly.

Stakeholders	Social impacts	Indicators	Mean value of the first round	Your value in the first round	Your value in the second round	Your reasons
1 Employee	1.1 Equity and fairness	1.1.1 Equal employment opportunity	4.08		Click and Modify	
		1.1.2 Fair employment contract and rational compensation system	4.57		Click and Modify	
	1.2 Health and safety	1.2.1 Healthy and safe workplace	4.41		Click and Modify	
		1.2.2 Policies and procedures conducive to health and safety	4.35		Click and Modify	
	1.3 Education and training	1.3.1 The mastering of professional skills	4.70		Click and Modify	
		1.3.2 Improved sustainability awareness	4.27		Click and Modify	
2 Elderly	2.1 Equity	2.1.1 Equal access to the	4.30		Click	

and their relatives		project			and Modify	
		2.1.2 Equal access to services, facilities, etc.	4.38		Click and Modify	
	2.2 Health and comfort	2.2.1 The satisfaction of basic needs	4.54		Click and Modify	
		2.2.2 Satisfied health and physical comfort	4.51		Click and Modify	
		2.2.3 Satisfied psychological comfort	4.70		Click and Modify	
	2.3 Accessibility	2.3.1 Good accessibility of the project	4.38		Click and Modify	
		2.3.2 Good accessibility of facilities	4.30		Click and Modify	
		2.3.3 Easy access to the elderly	4.32		Click and Modify	
3 Local community and society	3.1 Local economic welfare	3.1.1 Job creation	3.84		Click and Modify	
		3.1.2 Induced business opportunities	3.57		Click and Modify	
		3.1.3 Local actors' involvement	3.41		Click and Modify	
	3.2 Health	3.2.1 Improved local health level	3.81		Click and Modify	
	3.3 Local identity	3.3.1 Protected / Established local culture	3.22		Click and Modify	
	3.4 Social inclusion and social cohesion	3.4.1 The realisation of social mixing	3.78		Click and Modify	
		3.4.2 Enhanced community vitality	4.08		Click and Modify	

## Q2 Realisation status evaluation of the indicators in the social sustainability indicator framework of aged care projects

The following table displayed the mean value of the first-round evaluation of the realization status of each indicator and the evaluation value you gave. 1 is completely unrealised, 2 is slightly realised, 3 is moderately realised, 4 is realised well, and 5 is realised fully. Please evaluate again according to the results of the first round: First, please judge whether to modify your evaluation. If you need to modify, please use the left mouse button to "Click and Modify" and re-evaluate. Second, if your final evaluation is not on the same level as the mean value of the first round, please explain your reasons briefly.

Stakeholders	Social impacts	Indicators	Mean value of the first round	Your value in the first round	Your value in the second round	Your reasons
1 Employee	1.1 Equity and fairness	1.1.1 Equal employment opportunity	3.41		Click and Modify	
		1.1.2 Fair employment contract and rational compensation system	3.43		Click and Modify	
	1.2 Health and safety	1.2.1 Healthy and safe workplace	3.49		Click and Modify	
		1.2.2 Policies and procedures conducive to health and safety	3.46		Click and Modify	
	1.3 Education and training	1.3.1 The mastering of professional skills	3.03		Click and Modify	
		1.3.2 Improved sustainability awareness	2.86		Click and Modify	
2 Elderly and their relatives	2.1 Equity	2.1.1 Equal access to the project	3.22		Click and Modify	
		2.1.2 Equal access to services, facilities, etc.	3.41		Click and Modify	
	2.2 Health and comfort	2.2.1 The satisfaction of basic needs	3.51		Click and Modify	
		2.2.2 Satisfied health and	3.43		Click	

		physical comfort			and Modify	
		2.2.3 Satisfied psychological comfort	3.16		Click and Modify	
	2.3 Accessibility	2.3.1 Good accessibility of the project	3.30		Click and Modify	
		2.3.2 Good accessibility of facilities	3.38		Click and Modify	
		2.3.3 Easy access to the elderly	3.38		Click and Modify	
3 Local community and society	3.1 Local economic welfare	3.1.1 Job creation	3.43		Click and Modify	
		3.1.2 Induced business opportunities	3.00		Click and Modify	
		3.1.3 Local actors' involvement	3.32		Click and Modify	
	3.2 Health	3.2.1 Improved local health level	2.97		Click and Modify	
	3.3 Local identity	3.3.1 Protected / Established local culture	2.81		Click and Modify	
	3.4 Social inclusion and social cohesion	3.4.1 The realisation of social mixing	3.14		Click and Modify	
		3.4.2 Enhanced community vitality	3.11		Click and Modify	



## Appendix 5 Protocol for One-to-One Interview

Note: this is the English translation, and original version for participants was in Mandarin.

### **PARTICIPANT INFORMATION SHEET**

#### ***Socially Sustainable Development of China's Aged Care Public-Private Partnership Projects (ETH20-4838)***

##### **WHO IS DOING THE RESEARCH?**

I am Kun Wang, a PhD student from University of Technology Sydney, Australia under the guidance of Dr. Yongjian Ke and Professor Shankar Sankaran.

##### **WHAT IS THIS RESEARCH ABOUT?**

The research aims to establish a socially sustainable development process for the aged care Public-Private Partnership (PPP) projects in the Chinese context, to realise social sustainability. PPP is a long-term contract between a public party and a private party, for the development and management of a public asset or service, in which the private party bears significant risk and management responsibility through the life of the contract.

##### **WHY HAVE I BEEN ASKED?**

You have been invited to participate in this study because you meet both of the following conditions:

- Have been or are participating in aged care PPP projects.
- Hold a senior position in the projects.
- Recognise and have some consideration of social sustainability.

- Will to share time to participate.

#### IF I SAY YES, WHAT WILL IT INVOLVE?

You will participate in one-to-one/face-to-face interview. The interview will take about two hours.

#### ARE THERE ANY RISKS/INCONVENIENCE?

There is no significant risk in participating in this study. The only inconvenience is that you may feel a little tired during the process of interview.

#### DO I HAVE TO SAY YES?

Participation in this study is voluntary. It is completely up to you whether you decide to take part.

#### WHAT WILL HAPPEN IF I SAY NO?

If you decide not to participate, it will not affect your relationship with the researchers or the University of Technology Sydney. If you wish to withdraw from the study once it has started, you can do so at any time without having to give a reason, by notifying Kun Wang. If you decide to leave the research project, we will not collect additional information from you. However, the information that has been collected will be retained to ensure that we can accurately record the whole process of the study.

#### WHAT ARE THE BENEFITS IF I SAY YES?

If decide to participate, you will get all the critical practices that are conducive to the social sustainability of the aged care PPP projects at the end of our case study. In addition, this research obtains data support from BRI Data Technology Co. Ltd., and the relevant results will be released on the official account of BRI Data.

## CONFIDENTIALITY

By participating the interview, you consent to the research team collecting and using the information provided by you. All this information will be treated confidentially by providing access only to the research staffs, encrypting all digital datasets, keeping all physical data securely locked. We will anonymise personal/organisational information. Your name and the project's name will be recoded as numbers or characters. We would like to store your information for future use in research projects that are an extension of this research project. In all instances the information will be treated confidentially. We plan to publish the results on academic journals or meetings. In any publication, information will be provided in such a way that you cannot be identified.

## WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think I or my supervisors can help you with, please feel free to contact us through our emails (kun.wang-4@student.uts.edu.au; yongjian.ke@uts.edu.au; shankar.sankaran@uts.edu.au).

You will be given a copy of this form to keep is necessary.

## NOTE:

This study has been approved in line with the University of Technology Sydney Human Research Ethics Committee [UTS HREC] guidelines. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au] and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome.

## Interview Description

Dear experts,

The purpose of the one-to-one semi-structured interview is to identify critical practices conducive to the realisation of social sustainability of aged care PPP projects. This job is part of our ongoing multiple case study. In the multiple case study, we have chosen some aged care PPP projects that have entered the implementation phase and been operated successfully, to identify the critical practices. The results will help us to carry out the next research phase. In the next phase, we will establish realisation paths for the project and countermeasures for the government and private investors according to the critical practices, to guide the socially sustainable development of aged care PPP projects and realise social sustainability.

Before the interview, please allow me to briefly introduce the social sustainability and its indicators of aged care projects. **An aged care project is socially sustainable when various social impacts on the stakeholders are thoroughly considered during its lifecycle, and their well-being is realised under a specific social, cultural, and institutional context.** In the previous research, we have established the indicator framework of social sustainability of aged care projects according to the literature and project characteristics, focus group and online Delphi methods have been adopted to verify. Table 1 shows the validated indicator framework. It demonstrates what a socially sustainable aged care project should be.

Based on your memory, we will collect the critical practices conducive to the social sustainability of aged care PPP projects via one-to-one interview. Any practices caused by the government or private investors/SPVs at a certain stage in the lifecycle of aged

care PPP projects, which is expected to have a direct or indirect significant impact on the social sustainability (its indicators in Table 1) in the short/long term should be included. You are supposed to judge whether a practice is critical based on your own experience. The criteria are: (1) The practice makes a significant positive or negative contribution to the social sustainability of a project (its indicators); (2) The practice leads to success or failure in accomplishing a main task in the project lifecycle; and (3) The practice has a positive or negative effect on your personal job and/or overall job performance in the project.

After the interview with all experts, we may contact you again to supplement if there is any missing information. Your personal information and the involved project information will be anonymised. In our future data analysis and output, those data will not be identified.

Your opinions are welcome. Thank you!

Appendix Table 5-1 The social sustainability indicator framework and its explanation

Stakeholders	Social impacts	Indicators	Explanations
Employees	Equity and fairness	Equal employment opportunity	Being treated equally, without discrimination (for example age, gender, and Hukou) when seeking jobs.
		Fair employment contract and rational compensation system	The terms of the contract are fair. The legitimate rights of the employees will not be unreasonably deprived. Satisfied compensation and benefits, timely payment of salary, equal pays for same grades, regular assessment of salary, etc.
	Health and safety	Healthy and safe workplace	Be provided with hard infrastructure that can ensure health and safety.
		Policies and procedures conducive to health and safety	Be provided with soft infrastructure that can ensure health and safety.
	Education and training	The mastering of professional skills	The employees master and constantly improve professional skills through education and training.
		Improved sustainability awareness	The employees have sustainability awareness through education and training.
Elderly and their relatives	Equity	Equal access to a project	The access to a project is equal and there is no discriminatory recruitment, no matter the elderly are rich or poor, infirmity or health, local or non-local, etc.
		Equal access to services, facilities, etc.	The elderly in a project have equal access to services and facilities without discrimination.
	Health and comfort	Satisfied basic needs	The elderly are provided with adequate and suitable accommodation, food, clean water, and guaranteed sanitation. Their personal and property safety is guaranteed.
		Satisfied health and physical comfort	The elderly are provided with appropriate physical care. When they are ill, they can get proper treatment timely.
		Satisfied psychological comfort	The elderly don't feel abandoned by family, lonely, helpless and meaningless by establishing social network and a sense of community in a project.
	Accessibility	Good accessibility of a project	A project has good accessibility of public transportation and parking lots, which is convenient for family members to visit.
		Good accessibility of facilities	Good accessibility for physical environment, entertainment, rehabilitation facility, etc., and for technological components, for example internet and payment system during the stay, check in and leave of the elderly.
		Easy access to the elderly	Easy access to the elderly for emotional communication, especially in emergency situations.
Local community and society	Local economic welfare	Job creation	Provision of employment opportunities
		Induced business opportunities	Inducing other business opportunities in the local area.
			Local labour is employed, local companies are involved.

	Health	Improved local health level	A project complements the local healthcare facilities; Professional knowledge and skills accumulated in a project, for example nursing skill, are transferred to other medical institutions and individuals, which is conducive to the improvement of local health.
	Local identity	Protected/Established local culture	A project contributes to the protection/establishment of local culture, especially the culture of respect for the elderly.
	Social inclusion and social cohesion	The promotion of social mixing	A project promotes the mixing of people from all walks of life in the community.
		Enhanced community vitality	A project builds a strong, active and inclusive relationship between residents, private investors, the public sector and civil society organisations.

Note: “3. Local community and society” refers to the social impacts of the project on the local community and the whole society.

## Basic information of participant

1 The industry your current work unit belongs to

- ☐ Private investor    ☐ Consulting agency    ☐ Government

2 Your position in the work unit

\_\_\_\_\_

3 Years of experience in aged care industry

- ☐ Less than 1    ☐ 2-5    ☐ 6-10    ☐ More than 10

4 The number of aged care projects you have participated in

- ☐ 0    ☐ 1    ☐ 2-3    ☐ 4 and above

5 The number of aged care PPP projects you have participated in

- ☐ 0    ☐ 1    ☐ 2-3    ☐ 4 and above

6 Your familiarity with social sustainability

- ☐ Know nothing    ☐ Know little    ☐ Know something    ☐ Know well    ☐ Know a lot

7 What do you think about the concern degree of social sustainability in China's aged care PPP projects

- ☐ Very low    ☐ Relatively low    ☐ Medium    ☐ Relatively high    ☐ Very high



## **The CPs Conducive to Social Sustainability of Aged Care PPP Projects**

### **1 Project Preparation**

#### **1.1 Project Initiation**

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these practices and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### **1.2 Implementing Agency Authorisation**

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### **1.3 Business Case Preparation**

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### **1.4 Market Sounding**

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### 1.5 Value-for-Money Analysis

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### 1.6 Fiscal Affordability Assessment

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### 1.7 Project Approval

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

Is stakeholder engagement considered during project preparation phase? How?

## **2 Project Procurement**

### **2.1 Tender and Draft Contract Preparation**

Interview questions for implementing agencies: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

### **2.2 Prequalification**

Interview questions for implementing agencies/SPV: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

### **2.3 Response Documents Preparation and Evaluation**

Interview questions for implementing agencies/SPV: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

### **2.4 Negotiation and Contract Award**

Interview questions for implementing agencies/SPV: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these

activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

Is stakeholder engagement considered during this phase? How?

### **3 Project Implementation**

#### **3.1 SPV Establishment**

Interview questions for implementing agencies/SPV: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### **3.2 Investment, Construction and Operation**

Interview questions for implementing agencies/SPV: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

#### **3.3 Performance Monitoring and Mid-term Evaluation**

Interview questions for implementing agencies/SPV: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

### 3.4 Project Handover and Ex-post Evaluation

Interview questions for implementing agencies/SPV: (1) What practices happened at this stage, i.e., what activities and/or decisions have been made? (2) What causes these activities and decisions? (3) What is the purpose of these activities and decisions? (4) What are the outcomes? (5) Which practices are critical? Why?

Is stakeholder engagement considered during this phase? How?

#### **Open question**

What do you think can be improved for the project to better achieve social sustainability?

## Appendix 6 Letter of Ethics Approval

HREC Approval Granted - ETH20-4838

1



Research.Ethics@uts.edu.au

Mon 5/18/2020 9:52 AM

To: Research Ethics; Yongjian Ke; Kun Wang



Ethics Application.pdf  
327 KB



Dear Applicant

**Re: ETH20-4838 - "Socially Sustainable Development of China's Aged Care Public-Private Partnership Projects"**

Thank you for your response to the Committee's comments for your project. The Committee agreed that this application now meets the requirements of the National Statement on Ethical Conduct in Human Research (2007) and has been approved on that basis. You are therefore authorised to commence activities as outlined in your application.

You are reminded that this letter constitutes ethics approval only. This research project must also be undertaken in accordance with all [UTS policies and guidelines](#) including the Research Management Policy.

Your approval number is UTS HREC REF NO. ETH20-4838.

Approval will be for a period of five (5) years from the date of this correspondence subject to the submission of annual progress reports.

The following standard conditions apply to your approval:

- Your approval number must be included in all participant material and advertisements. Any advertisements on Staff Connect without an approval number will be removed.
- The Principal Investigator will immediately report anything that might warrant review of ethical approval of the project to the Ethics Secretariat ([Research.Ethics@uts.edu.au](mailto:Research.Ethics@uts.edu.au)).
- The Principal Investigator will notify the UTS HREC of any event that requires a modification to the protocol or other project documents, and submit any required amendments prior to implementation. Instructions on how to submit an amendment application can be found [here](#).
- The Principal Investigator will promptly report adverse events to the Ethics Secretariat. An adverse event is any event (anticipated or otherwise) that has a negative impact on participants, researchers or the reputation of the University. Adverse events can also include privacy breaches, loss of data and damage to property.
- The Principal Investigator will report to the UTS HREC annually and notify the HREC when the project is completed at all sites. The Principal Investigator will notify the UTS HREC of any plan to extend the duration of the project past the approval period listed above through the progress report.
- The Principal Investigator will obtain any additional approvals or authorisations as required (e.g. from other ethics committees, collaborating institutions, supporting organisations).
- The Principal Investigator will notify the UTS HREC of his or her inability to continue as Principal Investigator including the name of and contact information for a replacement.

This research must be undertaken in compliance with the Australian Code for the Responsible Conduct of Research and National Statement on Ethical Conduct in Human Research.

You should consider this your official letter of approval. If you require a hardcopy please contact the Ethics Secretariat.

If you have any queries about your ethics approval, or require any amendments to your research in the future, please don't hesitate to contact the Ethics Secretariat and quote the ethics application number (e.g. ETH20-xxxx) in all correspondence.

Yours sincerely,

A/Prof Beata Bajorek

Chairperson

UTS Human Research Ethics Committee

C/- Research Office University of Technology Sydney

E: [Research.Ethics@uts.edu.au](mailto:Research.Ethics@uts.edu.au)

## Appendix 7 The Identification of CPs

The results of the content analysis indicate that a total of 42 first-level and 85 second-level CPs are identified finally. Each CP has five components: a) title; b) the observers, either the interviewees or the researcher; c) adopted or not, i.e., whether a CP is adopted in a main case or not; d) purpose or intent; and e) consequences or effects. These correspond to the three judgment criteria of the CPs set in Section 4.5.2: a) making significant, direct positive or negative contributions to the social sustainability of a project; b) leading to success or failure in accomplishing a main task in the project lifecycle; and c) having positive or negative effects on practitioners' personal job performance and/or overall job performance in a project.

The details of all CPs are shown below.

**CP-1: The Civil Affairs Department defines social sustainability as the strategic aim of a project**

Observers: the interviewees.

Adopted or not: No. “The government should focus on social sustainability. It is the biggest beneficiary and the biggest promoter. The government should play the role of facilitator and consider developing a policy system for the social sustainability of aged care PPP projects. This is valuable and meaningful. However, there isn’t much consideration towards this right now.” (Interviewee A1).

Purpose or intent: To promote the realisation of China’s major national strategy – “actively coping with aging”. The general government/industry/sector strategies constitute the background of project initiation, and the strategic aim of a project must be consistent with them. According to Sodangi (2019), considering social sustainability in the lifecycle of a project could improve the quality of life of people who are involved. It is in line with the national strategy to improve human capital and build a high-quality aged care service system.

Consequences or effects: It corresponds to judgment criteria c). Once social sustainability is set as a strategic aim of the project, all participants will consider how to realise it (Robèrt, 2000). They will plan and take wise approaches step by step (Quist, 2007).



**CP-2: The Civil Affairs Department makes preliminary consideration of the employees' well-being**

Observers: the researcher.

Adopted or not: Yes. The feasibility study reports of the three main cases include this CP. It is also reflected in the feasibility study reports of the other 17 parallel reference cases. See CP2-1, CP2-2 and CP2-3 for details.

Purpose or intent: To analyse preliminarily whether a project could improve employees' well-being. Employees are important stakeholders of aged care PPP projects. To achieve social sustainability, their well-being must be paid attention to (Hossain et al., 2018; International Organization for Standardization, 2010). Meanwhile, the well-being of employees is also one of the core objectives of person-centred care in the aged care industry (World Alzheimer Report, 2013).

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, it is conducive to prepare a reasonable feasibility study report and promote the following decision making. On the other hand, it provides direction for subsequent industry investigation.

*CP-2-1: To consider employees' equity and fairness*

Observers: the researcher.

Adopted or not: Yes. The feasibility study report of the three main cases includes this CP, but it is not adequately considered. The reports mainly address the signing of new contracts with existing employees. The SPVs are required to accept all the existing employees when taking over and sign contracts with them in accordance with *Labour Contract Law*. A corresponding position is matched according to each employee's skills, and the salary is not lower than before. The other 17 parallel reference cases considered this CP less. Only one case (Project No. 43) points out that the employees'

salary is a factor that may cause social risks and needs to be paid attention to when conducting social risk analysis.

Purpose or intent: Equity and fairness can provide job opportunities and reasonable compensation and benefits to more job seekers, which is the basis for realising employees' well-being (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2013).

Consequences or effects: It is the same as that of CP-2.

*CP-2-2: To consider employees' health and safety*

Observers: the researcher.

Adopted or not: Yes. The feasibility study reports of the three main cases include this CP, but it is not adequately considered. They all point out that the SPVs should assume the safety responsibility of the projects and formulate various safety management policies and safety operation procedures. The projects are required to set staffing ratios in accordance with provincial regulations. This is validated in the parallel reference cases. The staffing ratio in four cases (Project No. 31, 35, 42, 54) is set up according to relevant regulations. The number of employees is calculated accordingly. The staffing ratio in seven cases (Project No. 28, 41, 45, 46, 51, 56, 63) is not set up, but the total number of employees is considered. The remaining six cases did not mention this CP (Project No. 20, 33, 43, 44, 48, 62).

Purpose or intent: Health and safety are related to the realisation of employees' well-being and the quality of care (Jeon et al., 2019; Plaku-Alakbarova et al., 2018).

Consequences or effects: It is the same as that of CP-2.

*CP-2-3: To consider employees' education and training*

Observers: the researcher.

Adopted or not: Yes. It has received much consideration in reality. The feasibility study reports of the three main cases point out that the projects should establish education and training systems and programs for all categories of employees, including the management staff, doctors and nurses, direct care staff, cooks, etc. It is validated in the parallel reference cases. Nine projects (Project No. 31, 35, 41, 42, 45, 46, 51, 54, 56) carry out detailed assumptions on staff training. Two projects (Project No. 28, 63) briefly mention this. Six projects (Project No. 20, 33, 43, 44, 48, 62) do not mention it at all. From the perspective of training objects, all kinds of employees should be trained, including management staff, professionals, direct care staff, etc. Training content mainly includes service consciousness, professional theory, operation procedures, practical skills. Lectures, short-term training and continuing education are the main training methods.

Purpose or intent: Education and training are related to the realisation of employees' well-being (Institute for Sustainable Infrastructure, 2015; Rivett et al., 2019) and the quality of care (Lee & Severt, 2018).

Consequences or effects: It is the same as that of CP-2.

**CP-3: The Civil Affairs Department makes preliminary consideration of the elderly and their relatives' well-being**

Observers: the researcher.

Adopted or not: Yes. The feasibility study reports of the three main cases include this CP. It is also reflected in the feasibility study reports of the other 17 parallel reference cases. See CP-3-1, CP-3-2 and CP-3-3 for details.

Purpose or intent: To analyse preliminarily whether a project could improve the well-being of the elderly and their relatives. They are important stakeholders of aged care PPP projects. To achieve social sustainability, their well-being must be paid attention to (Almahmoud & Dolo, 2015; Hossain et al., 2018). Meanwhile, the well-being of the elderly and their relatives is the ultimate goal pursued by aged care projects (European Centre for Social Welfare Policy and Research, 2010).

Consequences or effects: It is the same as that of CP-2.

*CP-3-1: To consider the elderly's equity*

Observers: the researcher.

Before analysing this CP, it is necessary to understand the elderly. They can be grouped based on different perspectives in the Chinese context.

- Group the elderly according to their abilities. Ability refers to the subjective conditions necessary for the elderly to successfully complete an activity as an individual, for example daily living activities, cognitive function, social involvement, etc. The elderly can be divided into four groups: the elderly with intact ability, the elderly with mild disability, the elderly with moderate disability, and the elderly with severe disability (Ministry of Civil Affairs, 2013).
- Group the elderly according to their Hukou. The elderly can be divided into two groups: local elderly and non-local elderly. Local elderly refers to the elderly whose Hukou is registered in the district or city where the project is located.

- Group the elderly according to whether they enjoy the financial support of the local government when being admitted to aged care PPP projects. This grouping perspective is a continuation of the previous one. The elderly can be divided into two groups: publicly-funded elderly and self-funded elderly. The publicly-funded elderly usually have local Hukou and enjoy local government's financial support. They pay less than the market price. The self-funded elderly, however, usually do not have local Hukou and are excluded from the financial support of local governments. They pay the market price, which is much higher than that paid by the publicly-funded elderly.
- Group the elderly according to their economic status. They can be divided into three groups: low-income elderly, middle-income elderly and high-income elderly.

Adopted or not: Yes. It has received much consideration in reality. The feasibility study reports of the three main cases all point out that the projects should admit all groups of the elderly and provide equal access to the facilities and services in the project for all. It is validated in the parallel reference cases. All focus on the equity issue.

Purpose or intent: Equity is related to the realisation of the elderly's well-being (Xia et al., 2021). It is also the core of person-centred care (UK Department of Health, 2001).

Consequences or effects: It is the same as that of CP-2.

*CP-3-2: To consider the elderly's health and comfort*

Observers: the researcher.

Adopted or not: Yes. It has received much consideration in practice. The feasibility study reports of the three main cases all point out that the projects should provide diversified services for the elderly to meet their needs. It is validated in the parallel reference cases. Personal assistance, healthcare, rehabilitation are the most frequently mentioned care services. In addition, support services, such as leisure, cultural and educational services, are mentioned too.

Purpose or intent: Health and comfort are the basis of the quality of life of the elderly, without which quality of life cannot be achieved (European Centre for Social Welfare Policy and Research, 2010).

Consequences or effects: It is the same as that of CP-2.

*CP-3-3: To consider the accessibility of a project*

Observers: the researcher.

Adopted or not: Yes. It is involved in practice without thorough consideration. In all the three main cases, the principle of “person-centred” planning and design is mentioned in the feasibility study report, requiring the project to be in a location with convenient transport and developed infrastructure. It is validated in all the parallel reference cases.

Purpose or intent: Accessibility is conducive to the physical and mental health of the elderly (Cai et al., 2017; Hamiduzzaman et al., 2020).

Consequences or effects: It is the same as that of CP-2.

**CP-4: The Civil Affairs Department makes preliminary consideration of local community and society's well-being**

Observers: the researcher.

Adopted or not: Yes. The feasibility study reports of the three main cases include this CP. It is also reflected in the feasibility study report of the other 17 parallel reference cases. See CP-4-1, CP-4-2, CP-4-3 and CP-4-4 for details.

Purpose or intent: To analyse preliminarily whether a project could improve the local community and society's well-being. They are important stakeholders of aged care PPP projects. To achieve social sustainability, their well-being must be paid attention to (Moratis & Cochius, 2017).

Consequences or effects: It is the same as that of CP-2.

*CP-4-1: To consider local economy*

Observers: the researcher.

Adopted or not: Yes. It has received much consideration in practice. The feasibility study reports of all the three main cases deal with considerations of job creation, business opportunity induction, and local actors' involvement. It is validated in the parallel reference cases. Fifteen projects (Project No. 20, 28, 31, 33, 35, 41, 42, 43, 45, 46, 51, 54, 56, 62, 63) indicate that the projects would provide jobs. Thirteen mention the opportunity for other investment opportunities (Project No. 28, 31, 33, 35, 42, 43, 45, 46, 51, 54, 56, 62, 63). Fifteen projects mention the employment of local personnel and the involvement of local companies (Project No. 20, 28, 31, 33, 35, 41, 42, 43, 44, 45, 46, 51, 54, 56, 63).

Purpose or intent: Local economic development can create wealth and meet basic material needs, which is the basis of human well-being (United Nations Environment Programme & Society of Environmental Toxicology and Chemistry, 2013).

Consequences or effects: It is the same as that of CP-2.

*CP-4-2: To consider local health*

Observers: the researcher.

Adopted or not: Yes. It has received much consideration in practice. The feasibility study reports of all the three main cases include the idea of SPVs providing training to local caring staff, and home-based care services for the elderly in the community. It is validated in the parallel reference cases. Twelve indicate that they would provide healthcare and rehabilitation services, organise health lectures, and disseminate advanced ideas for the elderly outside the project (Project No. 20, 28, 31, 35, 42, 43, 45, 46, 48, 54, 62, 63). Seven cases would provide both community and home-based aged care services (Project No. 35, 41, 42, 43, 44, 54, 63). In addition, there are also three cases that would carry out training on aged care (Project No. 43, 46, 48).

Purpose or intent: Good health is a prerequisite for the economic and social development of a community or society (Moratis & Cochius, 2017).

Consequences or effects: It is the same as that of CP-2.

*CP-4-3: To consider local identity*

Observers: the researcher.

Adopted or not: Yes. It is considered in practice. The feasibility study reports of the three main cases all mention the promotion of filial piety culture, but it is very brief. Of the parallel reference cases, ten mention this CP, also very briefly (Project No. 20, 28, 31, 33, 42, 43, 45, 46, 56, 63).

Purpose or intent: The establishment of local identity helps to promote local economic development.

Consequences or effects: It is the same as that of CP-2.



*CP-4-4: To consider social inclusion and social cohesion*

Observers: the researcher.

Adopted or not: No. It is not considered in reality but is an indirect result of other practices. Take, for example, the acceptance of the elderly of different economic status in the three main cases. This practice takes into account the equity of the elderly and unconsciously promotes social inclusion. Similarly, the parallel reference cases do not consider social inclusion and social cohesion.

Purpose or intent: Promoting social inclusion and social cohesion is conducive to promoting equity (Kahila-Tani et al., 2016; Rashidfarokhi et al., 2018) and building relationships (Hämel & Röhnsch, 2020).

Consequences or effects: It is the same as that of CP-2.

**CP-5: The implementing agency takes the lead in establishing a project management team dedicated to achieving social sustainability**

Observers: the researcher and the interviewees.

Adopted or not: No. It has not been mentioned in any of the first interviews. However, according to European PPP Expertise Centre (2011) and World Bank (2021), it is a common way to implement effective governance by establishing a special PPP management team at the government level. This practice is confirmed in the second supplementary interviews. The interviewees indicated that when the local governments have insufficient PPP knowledge and weak administrative capacity, the establishment of a project management team can be considered. “This practice is common in counties, economically underdeveloped areas or places with few PPP projects. We don’t have it here. The government has made detailed provisions on the whole process and the responsibilities of various departments. The quality of government employees is very high. So, there is no need for such an institution.” (Interviewee A1). This CP is validated in the parallel reference cases. Twelve cases’ materials clearly indicate the establishment of the team (Project No. 20, 31, 41, 42, 43, 46, 48, 51, 54, 56, 62, 63).

Purpose or intent: The complexity and scale of PPP projects requires a team-based management approach. Only a team can have all the required skills (European PPP Expertise Centre, 2011). The management team solves problems in the process through regular and temporary meetings to ensure the achievement of social sustainability.

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, it is conducive to the completion of the follow-up major tasks which require the cooperation of multiple government departments. On the other hand, with the guidance of the strategic aim of social sustainability, a project management team is responsible for the organisation, coordination, and monitoring of the project, which can greatly promote the personal job performance of the interviewees and improve the overall job performance.

**CP-6: The implementing agency selects appropriate advisors to assist in achieving social sustainability**

Observers: the interviewees.

Adopted or not: Yes. The interviewees in the three main cases believe that the advisors' expertise, their understanding of the project, and their willingness to provide advice should be considered when selecting appropriate advisors. The project management team should select the advisors who care about both the PPP process and aged care scheme. "The winner made great efforts in the technical bidding and in-depth research on the aged care scheme of the project. By contrast, other consulting firms were more focused on the PPP process." (Interviewee C2). This CP could not be validated in the parallel reference cases because the PPP project database does not provide documents relevant to the advisors' selection.

Purpose or intent: It is one of the successful practices to engage advisors in the early stages of a PPP project (U.S. Department of Transportation, 2019). A strong adviser group contributes to the realisation of social sustainability.

Consequences or effects: It corresponds to judgment criteria b). The advisor team is the main force for the industry investigation and analysis, which is the basis of many follow-up tasks, for example the preparation of business case and procurement documents.

**CP-7: The implementing agency assists the advisors in conducting industry investigation to provide a reference for the preparation of a business case conducive to social sustainability**

Observers: the interviewees.

Adopted or not: Yes. This practice is adopted in all three main cases. The purpose of the investigation is to understand the current situation and existing problems of other aged care institutions. Investigation on the project itself is also important. “We conducted detailed investigation towards the project to sort out the categories, methods and standards of existing services. The business cases were developed to ensure that these services were maintained, and the quality was not compromised.” (Interviewee A1). “We surveyed existing employees in the project to protect their employment opportunities and employment stability.” (Interviewee B1). This CP is validated in the parallel reference cases. Five cases indicate that an investigation has been carried out before the preparation of business case (Project No. 20, 35, 45, 51, 56). In fact, the business case of all cases involves the supply and demand analysis of the local aged care market, which is inevitably completed on the basis of industry investigation.

Purpose or intent: Industry investigation can provide a reference for determining project outputs, to prepare output specifications that meet local needs. Studies have shown that for PPP projects, output specifications are formed in the discussion between the project team and various stakeholders (Javed et al., 2013). It enables stakeholders to feel ownership of the scheme (Arshad Ali et al., 2013).

Consequences or effects: It corresponds to judgment criteria b). Industry investigation provides a reference for the preparation of a business case.

**CP-8: The implementing agency involves stakeholder engagement to understand their social needs and jointly determine the project outputs**

Observers: the interviewees.

Adopted or not: Yes. The interviewees in all the three main cases mentioned it. See CP-8-1 and CP-8-2 for details.

Purpose or intent: Involving stakeholder engagement in the preparation of the business case is conducive to collecting information (for example, their social needs), and using that information to guide the design of the PPP (Infrastructure and Projects Authority, 2020; World Bank, 2019). Stakeholder engagement will bring knowledge sharing, promote more equitable and sustainable social development (Accountability, 2015) and improve the benefits and sustainability of the project (African Development Bank, 2001; Keeys & Huemann, 2017).

Consequences or effects: It corresponds to judgment criteria b). Stakeholder engagement provides a reference for the preparation of output specifications.

*CP-8-1: To deliver reform information to stakeholders (exclusive to existing projects)*

Observers: the interviewees.

Adopted or not: Yes. This practice is adopted in all three main cases. They even provide opportunities for the elderly residents and existing employees to visit other PPP projects. “We want the elderly to see for themselves that PPP is a good thing, the quality of service is improved while the price remains unchanged.” (Interviewee A2). “We organise staff representatives to visit other PPP projects. They understand that such projects are operated by big, experienced private investors, who could provide more training opportunities and more development space for them.” (Interviewee B1). This CP cannot be validated in the parallel reference cases because they are all newly built.

Purpose or intent: The transmission of information enables stakeholders to exert their right to know and understand what would happen and how their interests might be

affected. This helps to decrease their resistance to the reform. According to the European Centre for Social Welfare Policy and Research (2010), decent information is important to support the choices and expectations of stakeholders. Information sharing improves transparency (Hussain et al., 2018), while the lack of information would limit the elderly's decision-making abilities (Cheng et al., 2012).

Consequences or effects: It is the same as that of CP-8.

#### *CP-8-2: To establish communication channels*

Observers: the interviewees.

Adopted or not: Yes. This practice is adopted in all three main cases. For example, Case C held a hearing and invited the representatives of government departments, aged care, and residents to participate in the discussion of the output specification and business case and made adjustments according to their opinions. Case A and Case B also had their own channels. "When preparing the business case, we collected the opinions of the elderly, for example recruiting nutritionists in the project, keeping the quality of diet, retaining the original massage physiotherapy and other services, etc. All these opinions have been reflected in the business case and become part of the project output specification." (Interviewee A1). Information on this practice is not available in the parallel reference cases.

Purpose or intent: To achieve social sustainability, communication channels among stakeholders must be established. Communication can promote information exchange, deepen the understanding of stakeholders' needs, win trust and promote internal and external cooperation (Fawcett et al., 2008; International Organization for Standardization, 2010). Poor communication is a barrier to social sustainability (Hussain et al., 2018; Khan et al., 2018).

Consequences or effects: It is the same as that of CP-8.

**CP-9: The implementing agency prepares output specifications that are in line with stakeholders' well-being**

Observers: the interviewees.

Adopted or not: Yes. The interviewees in all the three main cases mentioned it. It is also reflected in the parallel reference cases. See CP-9-1, CP-9-2 and CP-9-3 for details.

Purpose or intent: The formulation of an output specification that is in line with stakeholders' well-being is conducive to the success of aged care PPP projects. The requirements of PPP projects are defined in terms of outputs rather than inputs (European PPP Expertise Centre, 2011). Both the government and private investors should be very clear from the outset about the outputs required. The lack of a clear definition will cause losses in the future (Farquharson et al., 2011; Lam & Javed, 2015).

Consequences or effects: It corresponds to judgment criteria b). The output specification is a basis for the preparation of the other components of the business case and a core component of the procurement documents (Global Infrastructure Hub Ltd, 2019).

*CP-9-1: To determine the outputs – To build aged care facilities and provide diversified services for all groups of the elderly*

Observers: the interviewees.

Adopted or not: Yes. This practice is adopted in all three main cases. Outputs (i.e., project scope) refer to the infrastructure assets, public goods and services that meet the project requirements. The outputs of aged care PPP projects can be determined from two aspects: service facilities and the services provided. (1) As existing projects, the three main cases clearly define the infrastructure and service facilities such as the floorage and allocation of different functional areas, the number of beds, and the facilities in a room (air conditioning, television, hot water, etc.). (2) Based on the infrastructure and service facilities, the three main cases further set the content of diversified services that the SPVs should provide to all groups of elderly people.

- To provide aged care services to all groups of elderly. That is, the elderly have the right to access a project whenever needed regardless of their ability, Hukou, enjoying financial support or not, and economic status. In practice, the SPV has a preference for potential customers for cost control and revenue considerations. For example, it is more likely to admit the disabled elderly because they pay more and are easier to manage. “The main demand of the disabled elderly is to provide body care services, with few other needs. The elderly with good ability pay less, but have more requirements. The management cost is high for them.” (Interviewee C1). In addition, compared with the publicly-funded elderly, the SPV is more inclined to admit the self-funded elderly. They are the source of the SPV’s cost recovery and profit. In addition, the SPV has no special preference towards the Hukou of the elderly.
- To provide diversified services to the elderly, including care services and support services.
- To provide accessibility services.
- To provide home-based care services for the elderly living in the community and training for community care workers. “From the government's point of view, aged care institutions should contribute to the community” (Interviewee B1).

This CP is validated in all the parallel reference cases.

Purpose or intent: It is the same as that of CP-9.

Consequences or effects: It is the same as that of CP-9.

*CP-9-2: To determine the performance requirements of the outputs*

Observers: the interviewees.

Adopted or not: Yes. This practice is adopted in all three main cases. They set the following two categories of requirements: (1) regulations and standards to be followed by the projects, with all the SPVs required to operate and manage in accordance with



the five-star standard according to *Measures for star rating of aged care institutions* issued by provincial departments of civil affairs; and (2) special requirements of the implementing agencies, which include:

- The minimum procurement expenses for food material of the SPVs should not be less than 800 CNY/month (nearly 160 AUD/month). “The elderly and their relatives are very concerned about the quality of food. It is very important to set the minimum procurement expenses for food materials. If the cost of the whole canteen is specified, it will involve uncontrollable factors such as water and electricity, gas and labour costs, so the fees spent on food purchasing is difficult to control.” (Interviewee B1).
- Care services and catering services should not be subcontracted. The implementing agencies believe that these two services are the basic and core services of a project. The purpose of not subcontracting is to ensure service quality. Healthcare is also a core service, but subcontracting is allowed: “In the beginning, we also considered forbidding subcontracting of healthcare services. However, the private investors might not be able to provide medical services professionally, and it might be better to cooperate with external healthcare institutions. Hence, we didn’t put medical services within the scope of non-subcontracting.” (Interviewee A1).

This CP is validated in the parallel reference cases. Eight of them clearly put forward the standards and requirements that should be followed in the construction and operation of the projects (Project No.: 20, 31, 33, 35, 41, 44, 54, 62).

Purpose or intent: Clarifying the performance requirements of the outputs guides the construction and operation of the project and ensures that the SPV delivers outputs that meet the requirements. They are the quality bottom line of aged care projects (European Centre for Social Welfare Policy and Research, 2010).

Consequences or effects: It is the same as that of CP-9.

*CP-9-3: To require the SPV to provide equal services for the publicly-funded and self-funded elderly*

Observers: the interviewees.

Adopted or not: Yes. All the three main cases require the SPVs to provide equal services for the publicly-funded and self-funded elderly. As mentioned above, the charges for the self-funded elderly are much higher than those for the publicly-funded elderly. To attract more self-funded elderly, the SPVs may treat the two groups differently in terms of spaces and rooms (orientation, lighting, ventilation, etc.), service categories and quality. “This situation should be resolutely avoided.” (Interviewee C1). Only one parallel reference case mentions this CP (Project No. 46).

Purpose or intent: Providing equal access for different groups of the elderly in a project is an important component of equity among elderly residents. Otherwise, it will not achieve social sustainability (Wang et al., 2022).

Consequences or effects: It is the same as that of CP-9.

**CP-10: The implementing agency identifies risks associated with social sustainability and develops response plans**

Observers: the researcher.

Adopted or not: Yes. The business case for all three main cases takes this CP into account. It is also considered in the parallel reference cases. For details, see CP-10-1 and CP-10-2.

Purpose or intent: (1) The identification and allocation of social sustainability risks is one of the preconditions of payment mechanism design, which can restrict the SPVs to deliver the outputs agreed (Infrastructure and Projects Authority, 2020; Robinson & Scott, 2009). (2) The appropriate transfer of social sustainability risk will encourage the private investors to provide more innovative solutions (Flanagan & Nicholls, 2007), which is conducive to the realisation of social sustainability.

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, it is a basis for the preparation of the other components of the business case and the procurement documents. On the other hand, appropriate risk allocation and transfer is conducive to the implementing agencies and private investors to consider the resources required and actively deal with them (Infrastructure and Projects Authority, 2020), which is conducive to the improvement of overall job performance.

*CP-10-1: To identify and allocate high-level risks associated with social sustainability*

Observers: the researcher.

Adopted or not: Yes. All the three main cases identify and allocate high-level risks associated with social sustainability. It is validated in the parallel reference cases. (1) Improper design risk is mentioned by 15 cases (Project No. 20, 28, 31, 35, 41, 42, 43, 44, 45, 46, 51, 54, 56, 62, 63). Improper design without fully considering the needs of the elderly (for example lighting, noise, accessibility, etc.) will lead to unreasonable building layout, unable to meet the expected service functions, and even lead to operation interruption. (2) Construction quality risk is mentioned in 16 cases (Project No. 20, 28, 31, 33, 35, 41, 42, 44, 45, 46, 48, 51, 54, 56, 62, 63). Projects with physical

quality defects cannot meet the elderly's basic needs, i.e., the requirements for comfortable and safe accommodation. (3) Product/service quality risk is mentioned in 14 cases (Project No. 20, 28, 31, 33, 35, 41, 42, 43, 44, 45, 46, 51, 54, 56). This risk will result in the SPV's operation failing to meet the expected standards and the needs of various stakeholders. The above risks are borne by the SPVs in accordance with the principle of "optimal risk allocation" and "risk-return equivalence".

Purpose or intent: It is the same as that of CP-10.

Consequences or effects: It is the same as that of CP-10.

*CP-10-2: To develop response plans for social sustainability risks*

Observers: the researcher.

Adopted or not: Yes. Risk response plans are developed in all the three main cases. (1) Response to design/construction quality risk – the quality risk control of aged care projects is stricter than that of general projects, due to the particularity of the residents. For example, the SPVs formulate a sound bidding scheme, entrust reliable companies to design and construct, and strengthen the supervision and management of the project during the construction process, etc. (2) Response to product/service quality risk – for example, the implementing agency selects private investors with rich operation experience and good management ability, regularly evaluates the performance of the project and links it with payment, stipulates breach clauses in the contract, etc. Of the parallel reference cases 14 develop risk response plans (Project No. 20, 28, 33, 35, 42, 43, 44, 45, 46, 48, 51, 54, 56, 62).

Purpose or intent: It is the same as that of CP-10.

Consequences or effects: It is the same as that of CP-10.

**CP-11: The implementing agency determines the main source of profit, and outlines an initial payment mechanism**

Observers: the interviewees and the researcher.

Adopted or not: Yes. The business cases for all three main cases take this CP into account. It is also considered in the parallel reference cases. For details, see CP-11-1 and CP-11-2.

Purpose or intent: Determining the main profit source and outlining an appropriate payment mechanism can guide the SPV to provide appropriate services for the elderly. The payers may be the elderly and their relatives, or the authorities. The elderly can constrain the quality of outputs by “voting with one’s feet”. The authorities, however, can consider setting an appropriate payment mechanism to incentivise the SPVs to provide Value for Money continuously (Flanagan & Nicholls, 2007).

Consequences or effects: It corresponds to judgment criteria b). It is the basis for the preparation of initial contractual arrangements in the business case and procurement documents.

*CP-11-1: To determine the main source of profit – basic aged care services*

Observers: the interviewees.

Adopted or not: Yes. The basic aged care service fees are identified as the main profit source in the three main cases. According to government regulations, the fees charged by aged care institutions include basic aged care service fees, meal fees, healthcare and rehabilitation fees, and personalised service fees. The basic aged care service fees include bed fees and caring fees (Development and Reform Commission of Shenzhen & Civil Affairs Bureau of Shenzhen, 2017). “A main idea of the government in determining the outputs is that the sources of profits gained by the private investors should be clear. We want them to set reasonable prices for accommodation and care and provide proper care for the elderly. We don’t want them to attract older people by lowering accommodation fees and then making profits through healthcare/rehabilitation services and other personalised services. In that case, there should be

induced/compulsory consumption, which will make the elderly feel like ‘being kidnapped’ and reduce their living experience.” (Interviewee A1). The parallel reference cases do not mention this CP.

Purpose or intent: Determining the main profit source of the project can enable the SPVs to focus on providing basic aged care services and make the elderly feel at ease.

Consequences or effects: It is the same as that of CP-11.

*CP-11-2: To outline payment mechanism related to outputs, performance and risk allocation*

Observers: the researcher.

Adopted or not: Yes. The business cases of the three main cases indicate that they establish a User Pay mechanism. During the implementation phase, the implementing agency evaluates the service performance provided by the SPVs through annual and temporary evaluation and links the evaluation results with the withdrawal of performance guarantee. In addition, the SPVs can also obtain corresponding grants or rewards if the performance evaluation score is high. Except for two cases (Project No. 28 and 51) that do not consider the payment mechanism, the other 15 parallel reference cases link the payment mechanism to performance evaluation results.

Purpose or intent: The outline of an appropriate payment mechanism can encourage the SPVs to provide outputs in strict accordance with performance standards.

Consequences or effects: It is the same as that of CP-11.

**CP-12: The implementing agency makes initial consideration of contractual arrangements relating to social sustainability**

Observers: the interviewees and the researcher.

Adopted or not: Yes. The business cases for the three main cases take this CP into account. It is also considered in the parallel reference cases. For details, see CP-12-1 to CP-12-6.

Purpose or intent: The project contract is one of the preparation contents of the business case, and social sustainability needs to be realised through the performance of contract terms. Some terms have a direct impact on the wellbeing of stakeholders, while others have an indirect impact through the regulation and restriction of SPVs' behaviours.

Consequences or effects: It corresponds to judgment criteria b). It is the basis for the establishment of the preliminary monitoring framework, the determination of procurement strategy in the business case, and the preparation of procurement documents.

According to the Ministry of Finance et al. (2015), the key issues in a PPP contract include: Scope and duration; Financing; Project land; Construction of the project; Operation of the project; Project maintenance; Restrictions on shareholding arrangement change; Payment mechanism; Performance guarantee; Government commitments; Insurance; Change of law; Force majeure; Government supervision and step-in; Breach of contract, early termination and post termination disposal mechanism; Project handover; Applicable law and dispute resolution, etc. Among them, the scope, construction, operation and maintenance and payment mechanism have been considered in CI-9, CI-10 and CI-11. The remaining issues related to social sustainability include performance guarantee, restrictions on shareholding arrangement change, government step-in, initial project handover and project handover upon contract expiration.

Therefore, the implementing agency will mainly consider these aspects when considering contractual arrangements.

*CP-12-1: To require the SPV to provide a performance guarantee to urge it to deliver the outputs as agreed in the contract*

Observers: the researcher.

Adopted or not: Yes. The implementing agencies in all the three main cases require the SPVs to provide an Operation and Maintenance Guarantee and Handover and Maintenance Guarantee. They have the right to withdraw the corresponding guarantee when SPVs violate the agreements. This CP is validated in the parallel reference cases. Except for four cases (Project No. 33, 45, 46, 51), the business cases of the other 13 cases all require the guarantees.

Purpose or intent: Requiring the SPV to provide performance guarantees helps to ensure that they deliver outputs as contracted.

Consequences or effects: It is the same as that of CP-12.

*CP-12-2: To require the SPV to prepare contingency planning to reduce the negative impacts of emergencies on the project and stakeholders*

Observers: the researcher.

Adopted or not: Yes. The business cases of all the three main cases require the SPVs to prepare contingency planning. That is, the SPVs should formulate contingency planning towards various possible accidents and dangerous sources, for example medical and nursing accidents, fire, natural disasters, environmental hazards and man-made destruction, etc. The business cases of 11 parallel reference cases (Project No. 20, 35, 41, 42, 43, 44, 45, 48, 54, 56, 63) put forward requirements for the preparation of contingency planning.



Purpose or intent: The preparation of contingency planning enables the SPV to take precautions against various emergencies and reduce their adverse impacts on the project and stakeholders. It is one of the most important steps in PPP contract management (APMG-International, 2016). It is also the primary requirement for service safety management of aged care institutions. According to the *Basic specification of service safety for aged care institution* (China's first mandatory national standard for the service industry), which is officially implemented on 1 January 2022, aged care institutions should formulate contingency planning for choking, bedsores, falling, scalds, etc. In addition, aged care institutions should also formulate contingency planning for emergencies such as natural disasters, accidents, public health events and social security events (Ministry of Civil Affairs, 2020a).

Consequences or effects: It is the same as that of CP-12.

*CP-12-3: To restrict shareholding arrangement changes in the SPV to ensure smooth operation*

Observers: the researcher.

Adopted or not: Yes. The business cases of two main cases (Case B and Case C) stipulate that SPV shareholders can transfer all or part of their stake after two years of project operation, subject to written consent from the government department. In addition, the transferee should meet the requirements in technical capability, operation capability, financial credit, management and maintenance experience agreed in the project contract. Another case (Case A) does not mention this CP. Only five parallel reference cases do not mention this CP (Project No. 28, 31, 35, 45, 56).

Purpose or intent: Restrictions on shareholding arrangement changes make private investors pay attention not only to the construction in the short term, but also to whether the operation and performance of the project meet the agreement in the long term. The transfer of equity to inappropriate new shareholders must be avoided. Therefore, the

implementing agency needs to have the right to approve the change. To this end, it can be required that a period of time must elapse before any disposal is allowed (APMG-International, 2016). In the meantime, the qualifications of new transferees shall be stipulated.

Consequences or effects: It is the same as that of CP-12.

*CP-12-4: To define the scope and standards for initial project handover (exclusive to existing projects)*

Observers: the interviewees.

Adopted or not: Yes. For existing projects, initial handover includes the handover of assets, archival documents and personnel. (1) The three main cases stipulate the handover scope and procedures of assets and archival materials, such as buildings, equipment and facilities, and archives of the elderly residents. The SPVs should repair and transform assets found to be defective or not in accordance with required standards at the time of handover to ensure the quality of service for the elderly. (2) The implementing agencies make preliminary arrangements for personnel handover. The SPVs are required to admit all the existing elderly residents, and ensure the original charges and service quality remain unchanged. In addition, the SPVs are required to admit all the existing employees and ensure the salary is not lower than before. “The government paid a big price in resettling the existing employees. We paid compensation and asked the private investors to accept these employees as they are.” (Interviewee C1). The parallel reference cases do not mention this CP because they are newly-built projects.

Purpose or intent: Defining the scope and standards for initial project handover is conducive to ensuring that the well-being of the elderly residents, their relatives, and existing employees are not affected, and reduces the probability of public opposition.

Consequences or effects: It is the same as that of CP-12.

*CP-12-5: To define the scope and standards for project handover upon contract expiration*

Observers: the interviewees.

Adopted or not: Yes. The three main cases and all parallel reference cases mention this CP.

Purpose or intent: It is the same as that of CP-12-4.

Consequences or effects: It is the same as that of CP-12.

*CP-12-6: To define the situations of government step-in due to the SPVs' non socially sustainable behaviours*

Observers: the researcher.

Adopted or not: Yes. The business cases of the three main cases stipulate that when the SPV takes any behaviour that infringes the well-being of the stakeholders, the government will step into the project according to the severity of the breach, including temporary takeover or even early termination. This CP is also mentioned in all parallel reference cases.

Purpose or intent: Pre-defining the situations that lead to government step-in helps to constrain SPVs' behaviours and provides security for stakeholders. That is, the government will not turn its back on the project at the last minute (European Centre for Social Welfare Policy and Research, 2010).

Consequences or effects: It is the same as that of CP-12.

**CP-13: The implementing agency establishes a preliminary monitoring framework to constrain the SPVs' behaviours**

Observers: the researcher.

Adopted or not: Yes. The three main cases and all parallel reference cases mention this CP. See CP-13-1, CP-13-2 and CP-13-3 for details.

Purpose or intent: The establishment of the monitoring framework and the monitoring can constrain the SPVs' behaviours, which helps to ensure that the SPV provides outputs in line with the contract. It can also assess whether the performance meets the specified standards and the quality of care (Allan & Vadean, 2021).

Consequences or effects: It corresponds to judgment criteria b). It is the basis for the preparation of draft contracts.

*CP-13-1: The implementing agency is responsible for monitoring the implementation of the contract*

Observers: the researcher.

Adopted or not: Yes. The business cases of the three main cases consider the contract implementation supervision. That is, the implementing agency monitors the SPV to fulfill agreed commitments and obligations according to the contract. All parallel reference cases consider the monitoring of contract implementation in the business case.

Purpose or intent: It is the same as that of CP-13.

Consequences or effects: It is the same as that of CP-13.

*CP-13-2: Different administrative departments are responsible for the corresponding administrative monitoring*

Observers: the researcher.

Adopted or not: Yes. The business cases of the three main cases consider the administrative monitoring. It requires that all departments, including civil affairs, development and reform, finance, and health, monitor the construction and operation of the project according to their respective responsibilities. All parallel reference cases consider this CP in the business case.

Purpose or intent: It is the same as that of CP-13.

Consequences or effects: It is the same as that of CP-13.

*CP-13-3: The public is responsible for public monitoring*

Observers: the researcher.

Adopted or not: Yes. The three main cases and all parallel reference cases stipulate public monitoring in the business case.

Purpose or intent: It is the same as that of CP-13.

Consequences or effects: It is the same as that of CP-13.

**CP-14: The implementing agency determines the procurement strategy to best procure the required outputs**

Observers: the researcher.

Adopted or not: Yes. The three main cases and all parallel reference cases mention this CP. See CP-14-1 and CP-14-2 for details.

Purpose or intent: Appropriate procurement strategies can help the implementing agency select the best solution for the project and the most capable private partner to implement the solution (Flanagan & Nicholls, 2007; World Bank, 2021).

Consequences or effects: It corresponds to judgment criteria b). The determination of procurement strategy is the basis of the determination of the procurement process.

*CP-14-1: To determine a competitive procurement methodology to make a choice in an open market*

Observers: the researcher.

Adopted or not: Yes. Two of the three cases adopted open tender (Case A and Case C) and one adopts competitive consultation (Case B). Nine parallel reference cases adopted open tender (Project No. 33, 35, 42, 44, 45, 46, 48, 51, 56) and the other eight adopted competitive consultation (Project No. 20, 28, 31, 41, 43, 54, 62, 63).

Purpose or intent: Competitive procurement methodology helps the implementing agencies to select partners who can best meet their needs in an open market. The outputs of the aged care PPP projects are clear, and the market competition is sufficient.

Therefore, competitive methodology should be used to select partners as far as possible.

Consequences or effects: It is the same as that of CP-14.

*CP-14-2: To determine the high-level evaluation criteria to choose the most appropriate partner*

Observers: the researcher.

Adopted or not: Yes. Main Case C considers the evaluation criteria in the procurement in its business case. At this time, the consideration was high-level, which reminds the potential private investors of the aspects that the implementing agency would consider in the selection of bidders, including their comprehensive capacity, construction and operation scheme, financial scheme, etc. Scores for each aspect are also provided. Among them, the construction and operation scheme have the highest score. Eight parallel reference cases specify that the tender proposal would be evaluated from several aspects using a comprehensive scoring method (Project No. 20, 28, 33, 35, 41, 44, 46, 56).

Purpose or intent: The right partner should have sufficient experience, capability and enthusiasm for the construction and operation of the project. The determination of evaluation criteria facilitates the selection of such a partner.

Consequences or effects: It is the same as that of CP-14.

**CP-15: The implementing agency determines the procurement process to select the partners and solutions that best serve the realisation of social sustainability**

Observers: the interviewees.

Adopted or not: Yes. The three main cases and parallel reference cases adopt this CP.

See CP-15-1 and CP-15-2 for details.

Purpose or intent: A competitive, efficient and transparent procurement process can help implementing agencies select a competent private investor, and identify the most effective solution for project aims (World Bank, 2017).

Consequences or effects: It corresponds to judgment criteria b) and c). A detailed consideration of the procurement process is conducive to the smooth completion of the procurement task. Further, the right partner and most effective solution can promote the improvement of overall follow-up job performance.

*CP-15-1: To set pre-qualification criteria potential bidders are required to have experience in construction, operation and maintenance of similar projects*

Observers: the interviewees.

Adopted or not: No. No main case adopts this CP. The low requirement stems from the early stage of China's aged care industry. "The government hopes to attract more suppliers to bid. So, the requirements are simple." (Interviewee C1). "On the one hand, the government wants capable private investors to participate, but on the other hand, it couldn't set the requirements so high that many private investors will be swept away, or even a monopoly will be formed." (Interviewee A1). However, the interviewees consider it important to clarify in procurement documents the requirements for the competence and experience of the private investors. "First, they are expected to have sufficient capital. There are both publicly-funded beds and self-funded beds in aged care PPP projects. The project cannot be profitable at the beginning. Second, they should have the experience and capability to build and operate projects well, provide



development space for employees and appropriate care for the elderly.” (Interviewee B1). In the parallel reference cases, five (Project No. 28, 35, 43, 48, 56) require applicants to have experience in aged care and healthcare projects.

Purpose or intent: Setting prequalification criteria ensures that the successful bidder has the ability to successfully implement a project. World Bank (2021) points out that a PPP is a long-term contract involving a large number of public resources, so it is very important to select the most appropriate partner. Bidders should be required to have relevant technical ability or experience in multiple aspects, including construction, operation and maintenance experience (APMG-International, 2016).

Consequences or effects: It corresponds to judgment criteria b) and c). It facilitates the implementing agency in selecting the most appropriate private partner for the successful completion of procurement tasks. It can also help to eliminate the unqualified bidders, reduce the workload of bid evaluation, and speed up the whole progress.

*CP-15-2: To set the evaluation criteria and weight – the construction/ operation/ maintenance scheme and similar project experience of a potential bidder shall be set as evaluation criteria and given a big weight*

Observers: the interviewees.

Adopted or not: Yes. A comprehensive scoring method is used in all three main cases. The bidding documents include three components: bidding quotation, technical scheme and commercial scheme. Bidding quotation accounts for 10% of the total score. The government does not want to encourage the private investors to win at a low price. Technical and commercial schemes are equally weighted. The technical scheme includes SPV establishment scheme, financial scheme, operation and maintenance scheme (the largest weight in the technical scheme) and handover scheme, etc. The commercial scheme includes aged care service experience (the largest weight in the commercial scheme), existing performance scale, etc. “The core is to ensure the selected

private investors are capable to operate the project. Whoever has the best capability will score the highest.” (Interviewee A1). This CP is validated in the parallel reference cases. Except for two cases that do not provide procurement documents (Project No. 42, 51), 13 cases assign maximum weight (weight range: 40%–60%) to the technical schemes provided by bidders (Project No. 20, 31, 33, 35, 41, 43, 44, 45, 46, 48, 56, 62, 63), especially the construction, operation and maintenance scheme. In addition, the track record of previous similar projects has often been given the greatest weight when considering a bidder’s commercial scheme.

Purpose or intent: Setting evaluation criteria and weight is a key decision in PPP procurement, which can determine the awarding criteria of a PPP contract based on the characteristics of a project, to achieve its strategic aim (European PPP Expertise Centre, 2011).

Consequences or effects: It is the same as that of CP-15.

**CP-16: The implementing agency sets the terms of the draft contract relating to social sustainability**

Observers: the interviewees and the researcher.

Adopted or not: Yes. This CP is adopted in the three main cases and parallel reference cases. See CP-16-1 to CP-16-12 for details.

Purpose or intent: Social sustainability needs to be achieved through the setting and implementation of relevant contract terms. According to European PPP Expertise Centre (2011), a good PPP contract is a prerequisite for effective project implementation.

Consequences or effects: It corresponds to judgment criteria b). It is the basis for private investors to formulate tender documents and sign PPP contracts with the implementing agency.

*CP-16-1: To further define the performance requirements to be followed by project outputs*

Observers: the researcher.

Adopted or not: Yes. The project outputs and corresponding performance requirements have already been preliminarily defined in the business case. The standards and requirements that should be followed by each output should be further clarified in the draft contract. Performance requirements are quality standards that private investors must satisfy, which are usually defined by the “target service level” based on a performance indicators regime (APMG-International, 2016). Case A and Case C adopt the ROT modality, involving the renovation of projects. They are required to comply with the *Construction standard of aged care institutions* (construction standard 144-2010), the *Guidelines for the construction and operation of public aged care institutions* issued by the municipal government where the project is located, and the *Interim measures for the construction and operation of aged care centres* issued by the

local civil affairs bureau. In terms of operation and maintenance, Case B and Case C are required to operate in accordance with the five-star standard according to *Measures for star rating of aged care institutions* issued by the provincial department of civil affairs. Case A is required to refer to the *Regulations on the administration of private social welfare institutions*. Since the three cases are all existing projects, it is required that the service quality provided after the PPP shall not be lower than before. This CP is validated in the parallel reference cases.

Purpose or intent: Performance requirements are the basis for the SPV for design, construction, operation and maintenance, the premise of the payment mechanism design, and the basis for performance evaluation (European PPP Expertise Centre, 2011).

Consequences or effects: It is the same as that of CP-16.

*CP-16-2: To initially determine the performance evaluation plan, set performance indicators related to social sustainability and assign a big weight*

Observers: the interviewees and the researcher.

Adopted or not: Yes. It is not enough to define the performance requirements from which outputs should follow. Specific performance indicators and their weights must also be determined. Take the operation performance evaluation as an example. In the three main cases, about 60% of the total score of performance evaluation is assigned to the appraisal of the aged care services provided by the SPVs. The assessment content includes care services, medical services, catering services, activity organisation, etc. Among them, the weight of care service is the highest, followed by catering service and medical service. Of course, the evaluation also includes the assessment of employee education and training. "Performance evaluation should fully consider the indicators related to social sustainability, including those related to the development of the employees, the elderly and the contribution of the project to the community. At present,

there are some problems in the setting of performance evaluation indicators and weights. We pay too much attention to the property. But now it seems that we should pay more attention to the services.” (Interviewee B1) . This CP is validated in the parallel reference cases.

Purpose or intent: A clear performance evaluation plan, clear social sustainability performance indicators and weights will help the SPVs have a clearer understanding of the focus of project planning, design, construction, operation and maintenance, and focus on the realisation of indicators with large weights.

Consequences or effects: It is the same as that of CP-16.

*CP-16-3: To further improve payment mechanisms related to outputs, performance and risk apportionment*

Observers: the researcher.

Adopted or not: Yes. A preliminary payment mechanism is established in the business case, such as the performance payment mechanism. The main payment standards are also determined. However, there are still some details that need to be determined or improved. For example, Case C develops an incentive mechanism. That is, if the project operation performance evaluation score is high, the implementing agency may reward the SPV. This CP is validated in the parallel reference cases. Eleven cases adopt availability payment and performance payment mechanisms (Project No. 20, 31, 41, 42, 43, 44, 45, 51, 54, 56, 63). The implementing agencies have the right to take measures such as withdrawing the corresponding amount of the performance bond, charging penalty, or even deducting from the availability payment to restrain the behaviours of the SPVs. They can also provide incentives. For the other six cases (Project No. 28, 33, 35, 46, 48, 62) that adopt User Pay modality, the implementing agencies provide policy subsidies. The amount is tied to performance evaluation results.

Purpose or intent: It is the same as that of CP-11-2.

Consequences or effects: It is the same as that of CP-16.

*CP-16-4: To further clarify the details of the performance guarantee*

Observers: the researcher.

Adopted or not: Yes. On the basis of the business case, the contract drafts of the three main cases further clarify the specific format, terms, amount and other details of the performance guarantee. The implementing agency will withdraw the guarantee if the SPV fails to fully perform the contract. In addition, the performance evaluation has been associated with the guarantee. When the performance evaluation score is lower than a given score, the implementing agency will withdraw the guarantee according to an established formula as a penalty. This CP is validated in all the parallel reference cases.

Purpose or intent: It is the same as that of CP-12-1.

Consequences or effects: It is the same as that of CP-16.

*CP-16-5: To determine initially the content of the SPV's quality management system*

Observers: the researcher.

Adopted or not: Yes. In all three main cases, the SPVs are required to develop a maintenance manual for the project facilities prior to the commencement of operation, as well as contingency planning for emergencies. They are also required to keep operation and maintenance records and submit reports on a regular basis. Meanwhile, they are required to develop a general operation plan and annual operation plan for the project. In addition, according to the requirements of performance evaluation, all three cases required the SPVs to establish complaint channels and conduct satisfaction surveys. The personnel and the profile of the project service team, job responsibilities, service items and content, and other contents must be publicised in an eye-catching position in the operation site. This CP is validated in the parallel reference cases.

Purpose or intent: The establishment of a Quality Management System can help the SPV identify, measure, control and improve various core business processes, and finally improve its business performance (APMG-International, 2016). After determining the project outputs and requirements, the SPV should: (1) identify the important processes and their performance expectations, and prepare project design, construction, operation and maintenance plans and contingency plans according to these; (2) prepare training arrangements to ensure the employees receive applicable training; and (3) generate records or evidence that the requirements have been met, establish performance/customer satisfaction evaluation methods and frequency, establish procedures for handling user complaints, and publicly disclose relevant information (Jarvis & Palmes, 2015; Li & Pang, 2018).

Consequences or effects: It is the same as that of CP-16.

*CP-16-6: To further clarify the restrictions on shareholding arrangement changes in the SPV*

Observers: the researcher.

Adopted or not: Yes. The contract drafts of the three main cases further limit the lock-in period of equity transfer and the qualification of the transferee, including Case A, which does not consider this matter in the business case. This CP is validated in the parallel reference cases. All the cases that do not specify the shareholding arrangement changes in the business case set the equity lock-in period in the contract drafts (Project No. 28, 31, 35, 45, 56).

Purpose or intent: It is the same as that of CP-12-3.

Consequences or effects: It is the same as that of CP-16.

*CP-16-7: To further refine the scope and standards for initial project handover (exclusive to existing projects)*

Observers: the interviewees.

Adopted or not: Yes. As described in CP-12-4, for existing projects, the initial handover includes two aspects: the handover of assets and archival documents, and personnel. First, the implementing agency needs to refine the scope and standard of handover of assets and archival materials. Second, the implementing agency shall make detailed arrangements for the handover of personnel, including the elderly residents and the employees. This CP is not validated in the parallel reference cases because all are newly-built projects.

Purpose or intent: It is the same as that of CP-12-4.

Consequences or effects: It is the same as that of CP-16.

*CP-16-8: To further refine the scope and standards for project handover upon contract expiration*

Observers: the interviewees.

Adopted or not: Yes. In the business case, the implementing agency has basically defined the scope, standards and procedures of project handover upon contract expiration. Further refinement is needed at this time. For example, the implementing agencies in the three main cases set the minimum standards that should be met when the assets are handed over. In addition, the arrangement of the existing staff and the personnel training of the new successor are also considered. For example, the contract stipulates that “the project equipment and facilities shall meet the technical, safety and environmental protection standards determined by the Handover Committee and be in good operation condition” and “Three months before the end of the project cooperation period, the SPV shall submit a list of employees at that time, including the details of each employee’s qualification, position and income. The SPV shall formulate the personnel resettlement plan too.” This CP is validated in the parallel reference cases.

Purpose or intent: It is the same as that of CP-12-5.



Consequences or effects: It is the same as that of CP-16.

*CP-16-9: To stipulate breach clauses and penalty system for behaviours that hinder the realisation of social sustainability*

Observers: the researcher.

Adopted or not: Yes. The draft contracts of the three main cases stipulate a general breach and a serious breach of the contract. When the SPV does not comply with the agreement, it constitutes a general breach. General breaches related to social sustainability include the failure of project performance evaluation, the outsourcing of aged care and catering services, and the failure to meet the dietary procurement standards required by the agreement. At this time, the implementing agency has the right to issue a written notice to require the SPV to make corrections within a time limit, impose a penalty, and withdraw the guarantee until the SPV corrects the breach. A serious breach of contract related to social sustainability includes insulting, maltreating or abandoning the elderly, an annual performance evaluation score that is lower than the prescribed score for two consecutive times during the contract term, and abnormal death of elderly residents in the project. A serious breach will result in the implementing agency withdrawing the performance bond, reducing the subsidy, requiring the SPV to assume liability for compensation, taking over the project temporarily, or even terminating the contract. This CP is validated in the parallel reference cases.

Purpose or intent: The breach clause and penalty system in the contract are the incentive and protection of project performance. It provides incentives for the SPV to deliver the agreed outputs. The draft contract should clearly specify the consequences of the SPV's failure to meet the minimum standards. The principle should be that the way and degree of penalties should correspond to the non-performance of the SPV (APMG-International, 2016).

Consequences or effects: It is the same as that of CP-16.

*CP-16-10: To further clarify the situations of government step-in due to the SPV's non-socially sustainable behaviours*

Observers: the researcher.

Adopted or not: Yes. Serious breach of the contract will lead to temporary takeover or early termination of the project. In the three main cases, the government department has the right to temporarily take over or terminate the project in case of serious breach (as described in CP-16-9). In case of temporary takeover, the implementing agency has the right to decide: (1) to transfer to the SPV after the relevant impact disappears; and (2) to send a written notice of termination to the SPV within a certain period after the takeover.

Purpose or intent: It is the same as that of CP-12-6.

Consequences or effects: It is the same as that of CP-16.

*CP-16-11: To further refine the monitoring measures for the project*

Observers: the researcher.

Adopted or not: Yes. A preliminary monitoring framework has been established in the business case, and relevant monitoring measures need to be further refined here. In the three main cases, the regulatory measures include: (1) contract implementation monitoring, where in addition to reviewing the materials provided by the SPV described in CP-16-5, the implementing agencies and other government departments should also conduct on-site inspection on the construction and operation of the project; and (2) performance monitoring and mid-term evaluation. All cases require the implementing agencies to evaluate the performance of the facilities and services provided by the SPVs according to the construction and operation performance evaluation standards, and conduct mid-term evaluation of the project every three to four years. This CP is validated in the parallel reference cases.

Purpose or intent: It is the same as that of CP-16.

Consequences or effects: It is the same as that of CP-16.

*CP-16-12: To develop ex-post evaluation plan to promote the dissemination of lessons learned from social sustainability*

Observers: the researcher.

Adopted or not: No. This CP is not mentioned in the draft contracts of the three main cases and all the parallel reference cases. The reason may be that it occurs after the contract expiration, which is too far away to care about.

Purpose or intent: Ex-post evaluation can draw lessons from the implemented projects, to improve the contract design in the future, better prepare, purchase and implement the projects, and better realise social sustainability. Many PPP guidelines developed by international institutions include this CP (European PPP Expertise Centre, 2011).

Consequences or effects: It is the same as that of CP-16.

**CP-17: The private investors set the goal of participating in a project – mainly to achieve social benefits and market exploration, supplemented by gaining economic benefits**

Observers: the interviewees.

Adopted or not: Yes. The goal of the private investors to participate in the project includes making profits, exploring new markets, and fulfilling social responsibilities. According to China's current situation, the latter two are more important. "Profitability is secondary. The aged care industry is not very profitable. So, our positioning of this project is more inclined to realise social benefits." (Interviewee A3). "We are currently in the exploratory stage. Aged care is one of the nurturing businesses of our parent company. We want to establish a good reputation, obtain the recognition of the government, the elderly and employees, and improve service quality." (Interviewee B2). "We want to look for more development opportunities in the aged care market and establish our own management model." (Interviewee C3). The parallel reference case materials do not provide relevant information.

Purpose or intent: Goal setting can guide the private investors to make socially sustainable behaviours and decisions. The investment preference and corporate strategy of private investors will affect their choice of projects (APMG-International, 2016). It is unrealistic to obtain high returns when the aged care market is immature, and projects are in the early stage of development. The private investors should have long-term arrangements.

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, it sets the tone for private investors' market investigation and the preparation of tender documents. On the other hand, the pursuit of social benefits makes the goal of the private investors match the strategic aims of the public sector, which is conducive to the improvement of overall job performance.

Only two of the 17 parallel reference cases provide the response documents of the winning bidder (Project No. 42, 62). Therefore, these two are referred to in the subsequent identification of CPs in this stage.

**CP-18: The private investors conduct detailed market investigation to understand market supply and the social needs of stakeholders**

Observers: the interviewees.

Adopted or not: Yes. Market investigation is conducted in all three main cases, including competitive product investigation and consumer information investigation. “There are two main aspects of our elderly investigation. One is their care preference, that is, whether they prefer to stay at home or in an institution. The other is a survey of the needs if they are in aged care institutions, for example room preference, catering, culture/entertainment, etc.” (Interviewee C2). The parallel reference case materials do not provide relevant information.

Purpose or intent: A detailed market investigation can provide a basis for the private investors to formulate competitive response documents that meet the social needs of stakeholders.

Consequences or effects: It corresponds to judgment criteria b). A detailed market investigation helps the private investors prepare competitive response documents and win the bid.

**CP-19: The private investors establish person-centred planning, design and construction/renovation schemes**

Observers: the interviewees.

Adopted or not: Yes. None of the three main cases involve new construction, but two involve the renovation of existing buildings (Case A and Case C). To this end, the private investors have proposed reconstruction, aging renovation and characteristic renovation schemes to meet the needs of stakeholders. This CP is validated in the parallel reference cases. They are newly built projects. The “person-centred” principle is required in the response documents. A reasonable design according to the physical and mental characteristics of the elderly would be carried out.

Purpose or intent: Person-centred planning, design and construction/renovation schemes contribute to the well-being of the employees and the elderly and enhance the competitiveness of private investors’ response documents. The “person-centred” principle requires the institution to be more like a “home” rather than an “institution” (Koren, 2010; UK Department of Health, 2001). Studies have shown that environmental factors, such as indoor environments, can affect older people (Hu, Xia, Skitmore, Buys, & Zuo, 2017; Leung et al., 2020).

Consequences or effects: It corresponds to judgment criteria b), which helps the private investors develop competitive response documents and win bids.

## **CP-20: The private investors establish person-centred overall operation schemes**

Observers: the interviewees.

Adopted or not: Yes. All the three main cases and the parallel reference cases adopt this CP. See CP-20-1 to CP-20-4 for details.

Purpose or intent: Person-centred operation schemes contribute to the well-being of the employees and the elderly and enhance the competitiveness of response documents.

Person-centred care treats older people in a dignified manner (UK Department of Health, 2001). Meanwhile, the employees are treated in a dignified manner too, rather than as a tool to provide care (Kadri et al., 2018).

Consequences or effects: It is the same as that of CP-19.

*CP-20-1: To determine the characteristics of a project based on the core social needs of the elderly*

Observers: the interviewees.

Adopted or not: Yes. All the three main cases adopt this CP. The core social needs here refer to the social needs with urgent demand and insufficient market supply. The characteristics of a project need to be identified first in the preparation of the operation schemes. “We take the project as the base, provide aged care services for the community and the elderly living at home. Another character is smart care.”

(Interviewee B2). “We plan to be the only project in our province with a specialised Alzheimer care building. At the same time, we plan to introduce advanced hospice care techniques.” (Interviewee C3). The two parallel reference cases emphasise their own characteristics – the combination of healthcare and aged care.

Purpose or intent: A project’s characteristics determined from the most urgent core social needs of the elderly are conducive to meeting the needs and improving the competitiveness of the response documents.

Consequences or effects: It is the same as that of CP-19.



*CP-20-2: To define the specific content and requirements of the services to be provided*

Observers: the interviewees.

Adopted or not: Yes. The specific content and requirements of the services provided are specified in the operation schemes of the three main cases. They are based on the characteristics of the project and the requirements in procurement documents. This CP is adopted in the parallel reference cases.

Purpose or intent: It is conducive to the realisation of the elderly, their relatives, and the local community's well-being, and can improve the competitiveness of the response documents.

Consequences or effects: It is the same as that of CP-19.

*CP-20-3: To plan human resource management based on the core social needs of the employees*

Observers: the interviewees.

Adopted or not: Yes. This CP is adopted in the three main cases, including recruitment system, compensation and welfare management, labour protection, training, etc.

"Employees are the core resource. The welfare and quality of our employees are higher than the industry average." (Interviewee A3). "The salary we provide is at the upper middle level in the industry. The training system for employees is perfect." (Interviewee B2). "Our company attaches great importance to the stability of employees. We reduce employee turnover by providing them with reasonable compensation and benefits, humanised management and smooth competition channels." (Interviewee C3). This CP is adopted in the parallel reference cases.

Purpose or intent: Good human resource management can meet the core social needs of employees and contribute to the realisation of their well-being (European Centre for Social Welfare Policy and Research, 2010). Good human resource management can also

improve the quality of life of the elderly residents (Antwi & Bowblis, 2018; British Geriatrics Society, 2021; European Centre for Social Welfare Policy and Research, 2010; Huang & Bowblis, 2019).

Consequences or effects: It is the same as that of CP-19.

*CP-20-4: To plan safety management to ensure the safety of stakeholders*

Observers: the interviewees.

Adopted or not: Yes. The three main cases envisage the safety management, including the establishment of a safety management system, the formulation of contingency planning for emergencies, safety training, etc. “Our employees receive occupational safety training every six months.” (Interviewee B3). “Most of the elderly in our project are difficult to move, and the consequences of emergencies are very serious. Therefore, the formulation of a safety system, safety supervision, and the configuration of facilities and equipment are very important. We have a dedicated security supervisor.”

(Interviewee C2). This CP is adopted in the parallel reference cases.

Purpose or intent: Paying attention to safety management is conducive to the SPV’s prevention, investigation and rectification of potential safety hazards in the operation of aged care institutions, to ensure the safety of the employees and the elderly. According to the regulations, the SPVs need to establish a safety management system, be able to deal with emergencies, set up safety management personnel in the project and carry out safety training (Social Welfare Center of the Ministry of Civil Affairs & Social Welfare Service, 2019).

Consequences or effects: It is the same as that of CP-19.

**CP-21: The private investors establish facility maintenance scheme to ensure that the facilities are serviced in optimum conditions**

Observers: the interviewees.

Adopted or not: Yes. The frequency of use of various facilities and equipment in the cases is very high, and the requirements for maintenance and renewal are also very high. “The facilities and equipment related to firefighting, water, electricity and articles for the elderly in our project are inspected regularly. In addition to our own inspection, we also invite a third party to inspect regularly.” (Interviewee C2). The parallel reference cases do not provide related information.

Purpose or intent: A good facility maintenance scheme can ensure the safety of the operators, make them serve the elderly in the best condition and improve the elderly’s quality of life.

Consequences or effects: It is the same as that of CP-19.

## **CP-22: The implementing agency selects appropriate partner**

Observers: the interviewees.

Adopted or not: Yes. “The competition of the project is very fierce. The bid winner is a central enterprise. It has strong financial capability, strong sense of social responsibility, and rich aged care service experience.” (Interviewee C1). “First, the winning bidder’s overall capability is very strong, which means that after taking over the project, it has the capability to invest in human, material and financial resources as agreed. Second, it has a very good industry reputation. Third, its operation scheme is very attractive.” (Interviewee B1). The parallel reference cases do not provide related information.

Purpose or intent: An appropriate partner has the capability to achieve social sustainability by implementing the most effective solutions. China’s aged care industry has just begun. The experience, philosophy and capability of the operator can determine the future of an aged care institution to a great extent.

Consequences or effects: It corresponds to judgment criteria b) and c). Choosing the right private partner means the successful completion of a project procurement task. Further, an appropriate partner and the most effective solution can promote the improvement of the follow-up overall job performance.

**CP-23: The implementing agency signs PPP contracts committed to achieving social sustainability with the winning private investor**

Observers: the interviewees and the researcher.

Adopted or not: Yes. As the contract terms have been specifically described in CP-16, they are not detailed here. See CP-23-1 to CP-23-12 for details.

Purpose or intent: It is the same as that of CP-16.

Consequences or effects: It corresponds to judgment criteria b). The contract will guide the SPV to set up a project vision, establish a quality management system and conduct self-management. Meanwhile, it will also guide government departments to conduct external monitoring, performance evaluation and mid-term evaluation, disclose information and pay on performance.

*CP-23-1: To determine project outputs and performance requirements*

Observers: the researcher.

Adopted or not: Yes. The PPP contracts of the three main cases further clarify the outputs and corresponding performance requirements of the projects based on the draft contracts.

Purpose or intent: It is the same as that of CP-16-1.

Consequences or effects: It is the same as that of CP-23.

*CP-23-2: To determine the performance evaluation indicators and plan*

Observers: the interviewees and the researcher.

Adopted or not: Yes. The PPP contracts of the three main cases determine the performance evaluation indicators and evaluation plans.

Purpose or intent: It is the same as that of CP-16-2.

Consequences or effects: It is the same as that of CP-23.

*CP-23-3: To develop payment mechanisms related to outputs, performance and risk apportionment*

Observers: the researcher.

Adopted or not: Yes. The three main cases further improve and determine the payment mechanism based on the draft contracts.

Purpose or intent: It is the same as that of CP-16-3.

Consequences or effects: It is the same as that of CP-23.

*CP-23-4: To require the SPV to provide performance guarantee*

Observers: the researcher.

Adopted or not: Yes. In the three main cases, the performance guarantee clauses are determined based on the draft contracts.

Purpose or intent: It is the same as that of CP-16-4.

Consequences or effects: It is the same as that of CP-23.

*CP-23-5: To require the SPV to establish a quality management system*

Observers: the researcher.

Adopted or not: Yes. The three main cases determine the contents that should be included in the quality management system documents based on the draft contracts.

Purpose or intent: It is the same as that of CP-16-5.

Consequences or effects: It is the same as that of CP-23.

*CP-23-6: To set up clauses to restrict shareholding arrangement changes in the SPV*

Observers: the researcher.

Adopted or not: Yes. All three main cases stipulate the shareholding transfer of the SPVs in the contracts.

Purpose or intent: It is the same as that of CP-16-6.

Consequences or effects: It is the same as that of CP-23.

*CP-23-7: To determine the scope and standards for initial project handover (exclusive to existing projects)*

Observers: the interviewees and the researcher.

Adopted or not: Yes. The contracts of the three main cases finalise the scope and standards of initial handover of the projects.

Purpose or intent: It is the same as that of CP-16-7.

Consequences or effects: It is the same as that of CP-23.

*CP-23-8: To determine the scope and standards for project handover upon contract expiration*

Observers: the interviewees and the researcher.

Adopted or not: Yes. The contracts of the three main cases finalise the scope and standards of handover upon contract expiration.

Purpose or intent: It is the same as that of CP-16-8.

Consequences or effects: It is the same as that of CP-23

*CP-23-9: To set up breach clauses and penalty system for behaviours that hinder the realisation of social sustainability*

Observers: the researcher.

Adopted or not: Yes. The contracts of the three main cases finally determine the breach clauses and penalty system based on the draft contracts.

Purpose or intent: It is the same as that of CP-16-9.

Consequences or effects: It is the same as that of CP-23.

*CP-23-10: To set up clauses for government step-in due to SPVs' non-social sustainability behaviours*

Observers: the researcher.

Adopted or not: Yes. The contracts of the three main cases finally determine the situation of government step-in based on the draft contracts.

Purpose or intent: It is the same as that of CP-16-10.

Consequences or effects: It is the same as that of CP-23.

*CP-23-11: To set up clauses for monitoring*

Observers: the researcher.

Adopted or not: Yes. The contracts of the three main cases finally set up the clauses for monitoring based on the draft contracts.

Purpose or intent: It is the same as that of CP-16-11.

Consequences or effects: It is the same as that of CP-23.

*CP-23-12: To set up clauses for ex-post evaluation*

Observers: the researcher.

Adopted or not: No. As before, this CP is not adopted in the cases.

Purpose or intent: It is the same as that of CP-16-12.

Consequences or effects: It is the same as that of CP-23.



**CP-24: The SPV Defines Its Vision or Mission as Providing High Standards of Care and Improving the Quality of Life for the Elderly**

Observers: the interviewees.

Adopted or not: Yes. All the three main cases define their visions or missions. For example, “To create a place without walls and provide dignified, quality service for the elderly” (Case A), “To build a multi-level aged care service supply system with one base and several communities, and comprehensively improve the quality of care” (Case B), and “To be the benchmark of national five-star aged care institution affordable to the general public” (Case C).

Purpose or intent: Vision or mission indicates the goal of a SPV, which is the call to action. A strong vision will provide a common focus for the SPV’s various activities (Jarvis & Palmes, 2015).

Consequences or effects: It corresponds to judgment criteria b) and c). A clear vision or mission is the reason for a SPV to carry out various activities, which will have a direct impact on the establishment of the quality management system. In addition, the vision is matched with the strategic aim of the project, which is conducive to the improvement of overall job performance.

**CP-25: The SPV drafts related documents for quality management system**

Observers: the interviewees.

Adopted or not: Yes. See CP-25-1 to CP-25-4 for details.

Purpose or intent: It is the same as that of CI-16-5.

Consequences or effects: It corresponds to judgment criteria b). A series of subsequent work by the SPV is based on the development of a quality management system, including the planning, design, construction/renovation, initial takeover, provision of services, management of employees, contribution to the community, contingency response and facility maintenance.

*CP-25-1: To prepare person-centred planning, design, construction/renovation schemes*

Observers: the interviewees.

Adopted or not: Yes. The SPV needs to prepare specific schemes before the start of the project according to the contract. Take Case A as an example. It is an existing project which contains two buildings – Building A and Building B. After taking over, the SPV plans to transform the original official and auxiliary area of Building A into a residential area to enhance its aged care service function. Meanwhile, part of Building B is used to provide space for cultural and recreational activities. “When we took over, the project had been in operation for 20 years and is facing the need for renovation. Considering that there are already more than 100 elderly residents, our renovation scheme is completed in two phases to minimise the adverse impact on them.” (Interviewee A3).

Purpose or intent: It is the same as that of CP-19.

Consequences or effects: It corresponds to judgment criteria b), which provides a basis for the planning, design, and construction/renovation of the project.

*CP-25-2: To prepare person-centred annual operation schemes*

Observers: the interviewees.

Adopted or not: Yes. In response to the bidding documents, the private investors have already formulated the overall operation schemes. The annual operation scheme is more detailed. “Our annual operation scheme covers specific contents such as how to provide services, how to train the employees and how to provide services to the community this year.” (Interviewee B2), and “we are very concerned about safety issue” (Interviewee C2). Taking human resource management as an example, the SPV needs to develop a employee compensation and benefit management system. Employees are provided with labour security. For example, the SPV sets up labour protection measures, provides psychological support and organises medical examinations. In addition, the SPV also needs to establish a staff training system. Another example is safety management. At this time, in addition to the establishment of specific safety management systems (including safety responsibility system, safety education system, safety training system, safety operation specifications, safety inspection system, accident handling and reporting system, etc.), the SPV should also consider the allocation of safety management personnel, safety training, fire management, special equipment management, a video surveillance system, building safety management and other aspects. The formulation of contingency planning and regular exercises should not be ignored.

Purpose or intent: It is the same as that of CP-20.

Consequences or effects: It corresponds to judgment criteria b), which provides the basis for the operation of the project.

### *CP-25-3: To prepare facility maintenance manuals*

Observers: the interviewees.

Adopted or not: Yes. Prior to the project operational day, the SPV should prepare project facility maintenance manuals according to the project facility maintenance

schemes set at the time of tendering. The contents of the manual include the list of the facilities, routine maintenance requirements, regular or annual inspection, overhaul and maintenance plan, upgrade plan, emergency repair and rescue plan.

Purpose or intent: It is the same as that of CP-21.

Consequences or effects: It corresponds to judgment criteria b), which provides the basis for the maintenance of project facilities.

*CP-25-4: To develop a complaint management and satisfaction evaluation system*

Observers: the interviewees.

Adopted or not: Yes. A complaint management system and satisfaction evaluation system are established in the three main cases. “The elderly can complain to our social workers, nurses and managers. They can also call the civil affairs bureau, the government complaint platform, etc.” (Interviewee B2), and “Our company conducts satisfaction surveys every quarter. There are also assessments from third parties.” (Interviewee C3).

Purpose or intent: This CP can provide the SPV with experience information from different stakeholders to help it identify and understand existing problems, and take measures to solve them (European Centre for Social Welfare Policy and Research, 2010; State Administration for Market Regulation & Standardisation Administration, 2018).

Consequences or effects: It corresponds to judgment criteria b), which provides a basis for complaint handling and satisfaction evaluation.

**CP-26: The SPV involves stakeholder engagement to further understand their social needs and opinions and to improve services**

Observers: the interviewees.

Adopted or not: Yes. See CP-26-1 to CP-26-4 for details.

Purpose or intent: The introduction of stakeholder engagement in the implementation phase can convey information, and understand stakeholders' opinions, views, interests and concerns (Infrastructure and Projects Authority, 2020), and empower stakeholders to improve service quality.

Consequences or effects: It corresponds to judgment criteria b), which helps stakeholders to understand, monitor and support the project, to facilitate projects' planning, design, construction/renovation, and operation.

*CP-26-1: To disclose information through multiple channels*

Observers: the interviewees.

Adopted or not: Yes. There are two main types of information receivers:, the elderly residents and the public; and the implementing agency. In addition to the publicity of relevant information at the operation site, some more flexible and direct methods are also adopted such as holding canteen open day activities (Case A and Case C); developing a WeChat mini program "Three days of anti-epidemic record" in response to the closure of institutions caused by the COVID-19 pandemic (Case A); and short video broadcasting (Case B). The SPVs in the three main cases regularly submit written reports to the implementing agencies.

Purpose or intent: Access to instant information is considered a positive event that can improve the quality of life of the elderly (European Centre for Social Welfare Policy and Research, 2010). Moratis and Cochius (2017) believe that organisations have the responsibility to provide information, so that consumers can make more informed decisions and exercise their rights and responsibilities. In addition, the active disclosure

of performance-related information can improve transparency, which is conducive to the performance monitoring and evaluation of PPP projects (APMG-International, 2016).

Consequences or effects: It is the same as that of CP-26.

*CP-26-2: To establish diversified communication channels*

Observers: the interviewees.

Adopted or not: Yes. In all the three main cases, the SPVs establish different communication channels. The channel with the implementing agency is a management committee. As the decision-making body for major issues of a project, the management committee is composed of members from the implementing agency, the private investor and social elites. “We meet quarterly. The implementing agency listens to the SPV’s report on the operation and reviews its operation schemes.” (Interviewee B2). The channel with the elderly is a senior meeting. Case B, for example, holds quarterly “Better Life Sharing meetings” where the SPV introduces the overall operation to all the residents. Meanwhile, a number of consultation sites are established to facilitate the dialogue and communication between management personnel and the elderly. The channel with the employees is a staff meeting. In addition, there are also informal communication channels. For example, Case B launched the activity “Let’s have dinner together” which provides an opportunity for the employees and managers to have one-to-one and face-to-face communication. There are also formal channels for complaints and handling.

Purpose or intent: It is the same as that of CP-8-2.

Consequences or effects: It is the same as that of CP-26.

*CP-26-3: To form autonomous organisations*

Observers: the interviewees.

Adopted or not: Yes. All the three main cases establish democratic management committees and catering committees. These organisations are a form of democratic supervision and self-management for the elderly residents. Take Case A as an example. Its democratic management committee has 11 members, including six representatives of the elderly elected by democratic elections, four representatives from the management appointed by the SPV, and one representative from the government. “We hold a democratic management committee meeting once a month, where the senior representatives gather suggestions from all and discuss solutions with the SPV leaders.” (Interviewee A3).

Purpose or intent: Autonomous organisations enable the elderly to better participate in the management of their own lives and enhance their sense of control over life and belonging to the projects. This is crucial to quality of life (Age Cymru, 2011).

Consequences or effects: It is the same as that of CP-26.

#### *CP-26-4: To conduct satisfaction evaluation*

Observers: the interviewees.

Adopted or not: Yes. The SPV conducts regular satisfaction evaluation for the elderly and employees. For example, Case B investigates the elderly’s satisfaction with aspects of caring, medical treatment, catering, recreational activities, etc. It also investigates employee satisfaction from the aspects of compensation, personal development, and fairness.

Purpose or intent: The results of the satisfaction survey can reflect whether the services provided by a SPV meet the agreed standards, which can help the SPV rectify its weaknesses and improve service quality.

Consequences or effects: It is the same as that of CP-26.

**CP-27: The SPV conducts person-centred planning, design, and construction/renovation**

Observers: the interviewees.

Adopted or not: Yes. It is adopted in Case A and Case C. Their reconstruction follows the person-centred principle. Take Case A as an example. After the reconstruction, Building A is mainly for the elderly to live in, receive healthcare and do rehabilitation. Building B contains a painting and calligraphy room, handicraft workshop, reading room, etc., for the leisure and entertainment of the elderly. The decoration and furnishings of the room are carefully designed according to the needs of the elderly, and provide a homelike atmosphere. “We invested 20 million yuan in the aging reconstruction. The elderly feel the improvement of the environment easily.” (Interviewee A3).

Purpose or intent: Person-centred planning, design, and construction/renovation contribute to the well-being of the elderly and employees.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it contributes to the realisation of social sustainability indicators 1.2.1, 2.2.1, 2.2.2, 2.3.1, 2.3.2 and 2.3.3. On the other hand, a person-centred environment can improve the satisfaction of stakeholders and establish a harmonious relationship between them and the SPV, to promote the smooth operation of the project.



**CP-28: The SPV takes over the project as agreed at the beginning (exclusive to existing projects)**

Observers: the interviewees.

Adopted or not: Yes. The implementing agency and the private investor have agreed on the scope and standards of the initial handover in the contract. At this time, the SPV is required to perform accordingly. See CP-28-1 and CP-28-2 for details.

Purpose or intent: Initial handover is an important step for a SPV to take over a project. It is necessary to ensure that the well-being of the existing employees and the elderly would not be affected, eliminate any concerns about the private investors and reduce the probability of public opposition.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it contributes to the realisation of social sustainability indicators 1.1.1, 1.1.2, 2.1.1, 2.1.2, 2.2.1, 2.2.2 and 2.2.3. On the other hand, it can improve the satisfaction of stakeholders and establish a harmonious relationship between them and the SPV, to promote the smooth operation of the project.

*CP-28-1: The SPV contracts with existing employees and the elderly residents  
(exclusive to existing projects)*

Observers: the interviewees.

Adopted or not: Yes. The SPVs sign new contracts with existing employees. “To protect the employment opportunities and employment stability of the existing employees, we require the government departments to terminate the former contract with the employees in advance and compensate them. Then we require the SPV to sign labour contracts with all the existing employees for more than three years and ensure their salary and benefits.” (Interviewee A1). “The implementing agency requires us to sign contracts with all the existing employees. We strictly follow this requirement, which reflects fairness.” (Interviewee C2). The SPVs sign new contracts with the elderly

residents. “It’s very difficult for the elderly to sign a new contract. When we take over, there are more than 100 elderly, and it take us three months to complete the task. There is a gradual change in the mind of the elderly. At first, they don’t understand the reform and are resistant to it. They worry that the government will throw them away as a burden and refuse to sign the new contracts. We make a lot of effort to explain one by one.” (Interviewee C3).

Purpose or intent: Ending the old contract between government agencies and the existing employees/the elderly residents and signing a new contract with the SPV means the comprehensive transfer of rights, responsibilities and interests. It is a prerequisite for a SPV to take over a project.

Consequences or effects: It is the same as that of CP-28.

*CP-28-2: The implementing agency prepares project assets and archival materials in advance (exclusive to existing projects)*

Observers: the interviewees.

Adopted or not: Yes. The interviewees of Case A and Case B emphasised this CP. The process of taking over will be affected if not prepared in advance. First is the transfer of fixed assets and equipment. There are fixed procedures to follow for the purchase, management and “write-off” of government assets. The SPV needs to check them first. Those that are not in good state shall be obsoleted. “The obsoleting process is very long. The government needs to wait for assets to accumulate to a certain amount before starting the process. Moreover, the obsoleted assets must be auctioned on the government’s platform. Then, we have to wait for the buyer to move them away. The times last for several quarters or even years. Our space is limited. This situation increases the difficulty of on-site management.” (Interviewee A3). Second is the transfer of archival materials. “We have taken over the project for two years, and the medical security deposit and guarantee deposit for the elderly have not been handed

over yet. The transfer of archival materials for the elderly also lags behind.”

(Interviewee B3).

Purpose or intent: Preparing project assets and archival materials in advance can reduce the waiting time and difficulties in the handover process and reduce the adverse impact on the existing employees and the elderly.

Consequences or effects: It is the same as that of CP-28.

**CP-29: The SPV provides diversified services for all groups of the elderly as agreed**

Observers: the researcher.

Adopted or not: Yes. This CP is adopted in the three main cases. See CP-29-1 to CP-29-5 for details.

Purpose or intent: Providing diversified services for all groups of the elderly will realise the person-centred care requirements and improve the quality of life of the elderly.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.2.3, 2.3.2, 2.3.3, 3.2.1, 3.3.1, 3.4.1 and 3.4.2. On the other hand, it helps to reduce the probability of the managers and employees in the SPVs dealing with the conflicts between the elderly and the institutions and is conducive to the progress of their personal job.

*CP-29-1: To provide equal access to all groups of the elderly*

Observers: the researcher.

Adopted or not: Yes. All groups of eligible elderly, regardless of their health, economic or Hukou status, can become residents. “We specially renovated an entire building for the care of the elderly with Alzheimer.” (Interviewee C3). “We have no special preference for them. The elderly with intact ability can activate our community’s atmosphere, while the main needs of the disabled ones are cared for. There are no other additional needs, and the fee is high.” (Interviewee B3). “It’s easy for non-local elderly to be admitted without any threshold as long as we have enough space.” (Interviewee C2). The community and home-based elderly can enjoy the services. “We wish to establish a three-level aged care system. We will take the institution as the base and provide services for the community and the elderly living at home.” (Interviewee C2).

“In the first half of 2021, two projects are agreed, but they have not been implemented due to the COVID-19 epidemic.” (Interviewee B2).

Purpose or intent: Equal access for all groups of the elderly is the core of person-centred care and can improve the quality of life of the elderly.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 2.1.1, 3.2.1, 3.3.1 and 3.4.1. On the other hand, it helps to reduce the probability of the respondents dealing with the conflicts between the elderly and the SPV and is conducive to the progress of their personal job.

*CP-29-2: To provide diversified services for the elderly*

Observers: the interviewees.

Adopted or not: Yes. The interviewees highlighted two types of services: quality healthcare services, and high quality catering service. Case A cooperated with a nearby hospital to provide medical care for the elderly. Case B and Case C established healthcare facilities and provide services by themselves. In high quality catering service, Case A won the title of the city’s first A-grade canteen for the elderly in 2019. Meals provided in the canteen are integrated with the medical and care needs of the elderly. The flavours and dishes are adjusted based on feedback from the residents. “Our canteen has 20–25 kinds of food per week, to ensure each elderly person eats nutritiously.” (Interviewee A3). Other services include meticulous care, a variety of social services, and education services. “In 2020, we established seven clubs, conducted 352 activities, an average of two activities per day, and provided about 6,000 sessions of rehabilitation therapy.” (Interviewee B3).

Purpose or intent: It is the same as that of CP-29.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 2.2.1, 2.2.2, 2.2.3 and

3.4.2. On the other hand, it helps to reduce the probability of the respondents dealing with the conflicts between the elderly and the SPV and is conducive to the progress of their personal job.

*CP-29-3: To provide equal services for publicly-funded elderly residents and self-funded elderly residents*

Observers: the interviewees.

Adopted or not: Yes. The SPV determines the services provided to an elderly person according to his/her assessment grade, to ensure the equal access to services and facilities. “We don’t deliberately distinguish between the publicly-funded elderly and the self-funded elderly. No matter how much money they pay, we provide services that really meet their needs.” (Interviewee C2). “We are very cautious and hire a lawyer to publicise the rules of room selection and distribution.” (Interviewee A3). “For us, the publicly-funded elderly and the self-funded elderly are the same and are classified according to their assessment grade. Our floors are divided according to the caring level, including self-care level, semi self-care level, full care level, special care level, etc.” (Interviewee B2).

Purpose or intent: It is the same as that of CP-9-3.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicator 2.1.2. On the other hand, it helps to reduce the probability of the managers and employees in the SPVs dealing with conflicts between the elderly and the institutions and is conducive to the progress of their personal job.

*CP-29-4: To provide accessibility services for the elderly’s relatives*

Observers: the interviewees.

Adopted or not: Yes. The three main cases establish platforms and channels to provide accessibility services. For example, Cases A builds an internet plus intelligence platform to help relatives understand and query elderly people's information synchronously. Under the influence of COVID-19, three cases adopted closure measures. Some relatives and the elderly have not met for a long time, resulting in anxiety. To this end, the cases launched a "cloud visit" service where the staff act as the liaison between the elderly and their families and use a mobile video function to enhance the interaction.

Purpose or intent: High accessibility provides convenience and time saving for family members when handling various procedures for the elderly in the project. Meanwhile, it can also strengthen the emotional connection between family members and the elderly and reduce the anxiety of both sides, especially in emergencies.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 2.3.2 and 2.3.3. On the other hand, it helps to reduce the probability of the managers and employees in the SPVs dealing with the conflicts between the elderly and the institutions and is conducive to the progress of their personal job.

*CP-29-5: To introduce smart care for the elderly*

Observers: the interviewees.

Adopted or not: Yes. The three main cases introduced smart care to a certain extent. For example, Case A established a virtual aged care centre. Case C established a smart aged care cloud service platform, an anti-loss monitoring system and an emergency call system, and is also equipped with intelligent robots to provide safe, convenient and considerate intelligent services.

Purpose or intent: Smart care can use scientific and technological means to improve the services provided for the elderly and improve their quality of life. Studies have shown that smart aged care products and services can help the elderly improve autonomy, comfort, safety and self-sufficiency (Cabrera et al., 2004). Meanwhile, it can also increase the quality and quantity of information exchange between employees and the elderly's relatives, which is conducive to reducing the workload of employees and improving the sense of trust and control by the relatives (Nurgalieva et al., 2019; Productivity Commission, 2011).

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 2.2.1, 2.2.2, 2.2.3, 2.3.2 and 2.3.3. On the other hand, it helps to reduce the probability of the respondents dealing with conflicts between the elderly and the SPV and is conducive to the progress of their personal job.



**CP-30: The SPV provides good human resource management for the employees as agreed**

Observers: the interviewees.

Adopted or not: Yes. See CP-30-1 to CP-30-3 for details.

Purpose or intent: It is the same as that of CP-20-3.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 1.1.1, 1.1.2, 1.2.2, 1.3.1, 1.3.2, 3.1.1 and 3.1.3. On the other hand, it helps to reduce the probability of the respondents dealing with conflicts between employees, the elderly and the SPV, which is conducive to the progress of their personal job.

*CP-30-1: To provide equal employment opportunity, satisfactory salary and benefits for the employees*

Observers: the interviewees.

Adopted or not: Yes. In the three main cases all existing employees are accepted by the SPVs unless the employees themselves resign. “When the previous service provider left, some employees wanted to stay, and we lowered our standard to let them stay.” (Interviewee B3). In terms of salary and welfare, incentive mechanisms are established to implement competitive employment and equal pay for equal work and encourage the employees to work more.

Purpose or intent: Equal employment opportunity, and satisfactory salary and benefits can reduce the turnover rate of employees, promote a stronger and higher quality labour force and improve the service quality (Allan & Vadean, 2021).

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 1.1.1, 1.1.2, 3.1.1 and 3.1.3. On the other hand, it helps to reduce the probability of the respondents dealing

with conflicts between employees, the elderly and the SPV, which is conducive to the progress of their personal job.

*CP-30-2: To provide labour security for the employees*

Observers: the interviewee.

Adopted or not: Yes. The three main cases formulate labour protection measures, organise regular physical examination and provide psychological support for their employees.

Purpose or intent: The provision of labour security helps avoid or reduce the physical and/or psychological risks and pressure faced by the employees, which is conducive to their health and safety.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicator 1.2.2. On the other hand, it helps to reduce the probability of the respondents dealing with conflicts between employees, the elderly and the SPV, which is conducive to the progress of their personal job.

*CP-30-3: To provide education and training for the employees*

Observers: the interviewees.

Adopted or not: Yes. All the three main cases attach great importance to training. The SPV provides induction training for new employees. It also provides ongoing training for existing employees, such as monthly training for employees which involves basic caring skills and various special training. The purpose of administrative training is to improve management staff's office and administrative efficiency. Meanwhile, the SPV also holds various skill competitions and employee star certification programs within the projects. "Our star certification program opens up a two-way development channel of management and technology for our employees and encourages them to take the

initiative to learn and realise themselves.” (Interviewee A3). “Employees’ performance salary is linked to their training participation and the corresponding examination results.” (Interviewee C3).

Purpose or intent: Providing education and training for employees can improve their comprehensive quality and service quality, strengthen their sense of professional honour and improve their career development path. Education and practical guidance and support in transferring knowledge are essential to ensure ideal staff practices (European Centre for Social Welfare Policy and Research, 2010).

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 1.3.1 and 1.3.2. On the other hand, it helps to reduce the probability of the respondents dealing with conflicts between the employees, the elderly and the SPV, which is conducive to the progress of their personal job.

### **CP-31: The SPV contributes to the local community and society**

Observers: the interviewees.

Adopted or not: Yes. See CP-31-1 to CP-31-3 for details.

Purpose or intent: It is the same as that of CP-4.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 3.1.2, 3.2.1, 3.3.1, 3.4.1 and 3.4.2. On the other hand, it helps to reduce the probability of the respondents dealing with conflicts between the community and the project, which is conducive to the progress of their personal job.

#### *CP-31-1: To provide business opportunities*

Observers: the interviewees.

Adopted or not: Yes. The three main cases provide many business opportunities for the local community, such as the maintenance of large and medium-sized facilities and equipment in the projects, and the supply of food and other materials.

Purpose or intent: By providing business opportunities, the aged care PPP project can provide important income opportunities and promote economic development locally, which is the basis of human well-being.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicator 3.1.2. On the other hand, it helps to reduce the probability of the respondents dealing with conflicts between the community and the project, which is conducive to the progress of their personal job.

#### *CP-31-2: To provide training in care knowledge*

Observers: the interviewees.

Adopted or not: Yes. All the three main cases carry out this practice. The training provided to the community is based on the project and extends to other aged care institutions and caregivers in the area. The training covers topics such as interpretation of aged care policies, elderly assessment, health management, hospice care, dementia care, etc. “We have signed home-based care training agreements with other streets in the region to train home caregivers.” (Interviewee B2). “Based on the project, we provide personnel and places for safety production and training of aged care institutions in the region.” (Interviewee A3).

Purpose or intent: Providing care knowledge training for formal and informal carers in the community can impart medical, nursing and care knowledge and improve care quality. Improving the quality of community care can improve the health status of the whole community, which is a prerequisite for a community’s social and economic development (Moratis & Cochius, 2017).

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicator 3.2.1. On the other hand, it helps to reduce the probability of the respondents dealing with the conflicts between the community and the project, which is conducive to the progress of their personal job.

### *CP-31-3: To promote social participation of the elderly residents*

Observers: the interviewees.

Adopted or not: Yes. All the three main cases adopt this CP. For example, Case A introduces a teacher incubation base of a senior university, promoting the concept of “dedication is the best aged care”. It encourages the elderly to transform the knowledge and skills learned in the classroom into serving society. Case B launched an interview program for the elderly, which aims to share the life experience and views of the

elderly. However, it recognises that most of the elderly in aged care institutions need the care of others and are no longer able to participate in society due to their physical and mental status.

Purpose or intent: Interaction with the community can not only enable the elderly residents to establish new social connections and meaningful relationships (Hämel & Röhnsch, 2020) and offset loneliness (Cho et al., 2017), but can also increase the opportunities to create sustainable communities (Bolt et al., 2010).

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 3.3.1. 3.4.1 and 3.4.2. On the other hand, the social participation of the elderly can enhance the understanding and respect of the outside world for the elderly and give more support to the project, to promote the smooth operation of the project.

**CP-32: The SPV provides contingency response for emergencies that affect the safety of the stakeholders**

Observers: the interviewees.

Adopted or not: Yes. Take the outbreak of COVID-19 as an example. After the emergence of the outbreak, Case B's SPV immediately set up a working team to formulate an epidemic prevention and control plan and activated the contingency plan. These plans have been continuously adjusted and improved over time according to the instructions of the government and the actual situation. Case A and Case C took similar measures.

Purpose or intent: A proper contingency response can reduce the adverse impact on the health and safety of stakeholders from the occurrence of emergencies (British Geriatrics Society, 2021).

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 1.2.1, 1.2.2, 2.2.1, 2.2.2 and 2.2.3. On the other hand, a contingency response to emergencies can reduce the adverse impact on the project and stakeholders, which is conducive to the personal job performance of the interviewees.

**CP-33: The SPV performs facility maintenance as agreed**

Observers: the interviewees.

Adopted or not: Yes. After the official operation date of the projects, the SPVs of the three main cases maintain the facilities according to the project facility maintenance manual prepared in advance.

Purpose or intent: It is the same as that of CP-21.

Consequences or effects: It corresponds to the judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 1.2.1, 2.2.1, 2.2.2, 2.3.2, 2.3.3 and 3.2.1. On the other hand, good facility maintenance is conducive to the interviewees' personal job performance.



### **CP-34: The SPV implements quality management system certification**

Observers: the interviewees.

Adopted or not: Yes. Case A and Case C passed ISO9001 international quality system certification in 2010 and 2013 respectively. They formulate service standards, establish a strict inspection and evaluation system, and establish a quality management system covering accommodation, daily care, medical rehabilitation, meal arrangement and service operation.

Purpose or intent: Quality management system certification enables the SPV to pay attention to various core business processes, respond in a timely manner to identified quality problems and improve service quality (APMG-International, 2016; Jarvis & Palmes, 2015).

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, a good quality management system can ensure the effective operation of a project (APMG-International, 2016). On the other hand, quality management is the premise of performance monitoring and can improve the overall operation efficiency of the project (European Centre for Social Welfare Policy and Research, 2010).

**CP-35: The SPV self-monitors the outputs to ensure compliance with the standards agreed in the contract**

Observers: the interviewees.

Adopted or not: Yes. Take Case C as an example. Its monitoring is divided into two aspects: the monitoring of employees and the monitoring of service quality. For the employees, KPIs are formulated every year and assigned to each department and each person. It is linked to the monthly performance appraisal of employees. In addition, the SPV has specially set up an operation management department to monitor the service quality.

Purpose or intent: Self-monitoring helps to ensure that the SPV delivers outputs in accordance with contractual standards (APMG-International, 2016; Public Private Partnerships Programme, 2007).

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, it helps to ensure that the SPV provides outputs according to the standards agreed in the contract and promotes the smooth operation of the project. On the other hand, monitoring helps to promote the overall performance of the project.

**CP-36: The implementing agency and other government departments conduct contract implementation monitoring**

Observers: the interviewees.

Adopted or not: Yes. In addition to reviewing the documents provided by the SPV in CP-25, the implementing agency and other government departments also conduct on-site monitoring and inspection on the construction and operation of the project.

“During the epidemic, the civil affairs bureau hired a third party, and there is a safety inspection every month.” (Interviewee C2). “All government departments are very concerned about PPPs and conduct research and investigation from different aspects every year.” (Interviewee A3). “At present, the finance bureau in our district is monitoring the project, mainly involving the supervision of whether the SPV performs the contract.” (Interviewee B3).

Purpose or intent: Contract implementation monitoring helps to ensure that the SPV provides outputs according to the standards agreed in the contract. According to World Bank (2021), it is a good practice of contract management for the implementing agency to regulate the construction and operation of PPP projects.

Consequences or effects: It is the same as that of CP-35.

**CP-37: The implementing agency conducts performance evaluation and mid-term evaluation**

Observers: the interviewees.

Adopted or not: Yes. The implementing agency evaluates the performance of the facilities and services provided by the SPV according to the contract and the construction/operation performance evaluation criteria and conducts a mid-term evaluation every three to four years. Case A has experienced several performance evaluations, and the evaluation results are excellent.

Purpose or intent: Performance evaluation and mid-term evaluation are effective means to ensure that the project achieves its objectives (for example, social sustainability) and are important sources of information to provide lessons learned (Farquharson et al., 2011).

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, it helps to supervise the SPV to provide outputs according to the contract and promote the smooth operation of the project. On the other hand, the experience and lessons learned from the evaluation can provide a reference for all the participants and improve their job performance in the future.

### **CP-38: The implementing agency makes information public**

Observers: the interviewees.

Adopted or not: Yes. The implementing agencies of the three main cases publicly disclose the business case, procurement information, PPP contracts, etc. However, information related to performance evaluation and mid-term evaluation is not provided.

Purpose or intent: The disclosure of construction and operation information, performance evaluation and other information of the aged care PPP project can improve the transparency and efficiency of the project and ensure the realisation of the best socio-economic results (Farquharson et al., 2011). According to World Bank (2021), it is a good practice of contract management for the implementing agency to disclose the construction and operation information of PPP projects online.

Consequences or effects: It corresponds to judgment criteria b) and c). On the one hand, it helps the public to supervise the project, enhances public confidence, reduces the risk of corruption, and ensures that the SPV is consistent with the public interest, to ensure the smooth operation of the project. On the other hand, it helps to improve the transparency and efficiency of the project.

**CP-39: The implementing agency pays the SPV on a performance basis**

Observers: the interviewees.

Adopted or not: Yes. “The performance evaluation is linked to rewards. The results of the evaluation are divided into four levels: excellent, good, medium and poor. If the result is excellent, there will be a subsidy of 500,000 Yuan for three consecutive years. If the result is poor, the project must be rectified. If the result is poor for two consecutive times, then the government has the right to let the private investor withdraw. We already receive government subsidies for three consecutive years.”

(Interviewee A3).

Purpose or intent: It is the same as that of CP-16-3.

Consequences or effects: It corresponds to judgment criteria b). Linking the payment mechanism with the availability and performance of a project will make the SPV pay more attention to the outputs and performance, which is conducive to the successful construction and operation of the project.

**CP-40: The government examines its options after contract expiration to reduce the adverse impacts on the stakeholders**

Observers: the researcher.

Adopted or not: No. The three main cases do not have this CP.

Purpose or intent: Early consideration of the options can provide the government and the SPV with sufficient time to comprehensively consider arrangements for the elderly and the employees, to reduce the negative impact caused by the contract expiration of the contract. In addition, the consideration will be based on the social needs of the stakeholders, the actual cooperation situation between the public and private parties and the realisation status of the strategic aim of a project. The new option will be more conducive to ensuring the realisation of the strategic aim.

Consequences or effects: It corresponds to judgment criteria b). It is conducive to the smooth completion of project handover and reduces the adverse impact on stakeholders.

**CP-41: The implementing agency and the SPV conduct handover upon contract expiration as agreed**

Observers: the researcher.

Adopted or not: Yes. See CP-41-1 to CP-41-4 for details.

Purpose or intent: It is the same as that of CP-12-4.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it contributes to the realisation of social sustainability indicators 1.1.1, 1.1.2, 1.2.1, 1.3.1, 1.3.2, 2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.2.3, 2.3.2 and 2.3.3. On the other hand, it helps to eliminate the concerns of the elderly, their relatives and employees about the new operators and accelerates the progress of handover.

*CP-41-1: The SPV prepares all assets and archives to be handed over in advance*

Observers: the researcher.

Adopted or not: Yes. The PPP contracts of the three main cases stipulate the scope of assets and materials to be transferred at the end of the period.

Purpose or intent: It is the same as that of CP-12-4.

Consequences or effects: It corresponds to judgment criteria c). The smooth handover of assets and archives helps to reduce the impact of the handover on employees and the elderly, reduces their resistance to the handover, and helps the smooth progress of the handover.

*CP-41-2: The SPV repairs substandard assets*

Observers: the researcher.

Adopted or not: Yes. The contracts of the three main cases agree on the status indicators that the assets must be in when they expire (e.g., expected useful life left for each type of asset, ability to meet certain performance tests). If it is found that the assets cannot meet the standard after evaluation, the SPV is responsible for repairing the assets.



Purpose or intent: The SPV should ensure that assets are “handed back” to the authority in good condition (European PPP Expertise Centre, 2011). The private investor is motivated to reduce its maintenance effort in the later years of the contract, as the saved money will improve the return on its investment. To prevent this from occurring, the implementing agency should hire a third party to inspect the assets within a period of time before the contract expiration, and the SPV should take corresponding remedial measures.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 1.2.1, 2.2.1, 2.2.2, 2.3.2 and 2.3.3. On the other hand, the repair of substandard assets is conducive to the smooth progress of the handover.

*CP-41-3: The SPV trains the new employees after the handover*

Observers: the researcher.

Adopted or not: Yes. Take Case C as an example. The contract stipulates that “the implementing agency shall provide the SPV with the list of personnel to be dispatched three months before the handover date. The SPV is responsible for providing training for the above personnel free of charge to make them meet the requirements of skilled operation and management.”

Purpose or intent: The training of employees can quickly improve their care and management skills and reduce the adverse impact of handover on them and the elderly residents.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it is conducive to the realisation of social sustainability indicators 1.3.1 and 1.3.2. On the other hand, the training of employees can ensure that the new organisation can take over the project and operate and maintain the project independently.

*CP-41-4: The SPV places existing elderly and the employees*

Observers: the researcher.

Adopted or not: Yes. Take Case C as an example. The project contract stipulates that “three months before the contract expiration, the SPV shall submit a list of employees, including the details of each employee’s qualification, position and income. Meanwhile, the SPV shall formulate a placement program for them.”

Purpose or intent: It is the same as that of CP-12-4.

Consequences or effects: It corresponds to judgment criteria a) and c). On the one hand, it contributes to the realisation of social sustainability indicators 1.1.1, 1.1.2, 2.1.1, 2.1.2, 2.2.1, 2.2.2 and 2.2.3. On the other hand, it helps to eliminate the concerns of the elderly, their relatives and employees about the new operators and accelerate the progress of handover.

**CP-42: The civil affairs department conducts ex-post evaluation**

Observers: the researcher.

Adopted or not: No. It is not adopted in the three main cases.

Purpose or intent: It is the same as that of CP-23-12.

Consequences or effects: It corresponds to judgment criteria c). Summarising the experience and lessons of social sustainability will help to improve the overall performance of future projects.