Project Overview
Overview of ADB-loaned Yichang projects

Five sub-projects in total

Subproject 1 includes: 16 projects of community elderly care service centers
750 beds in central urban areas, and 849+156 beds in counties and cities

Subproject 2 includes: A nursing home for the dementia aged with 206 beds, for moderate to severe dementia nursing
Newly built, with a GFA of 11,302.96m2

Subproject 3 includes: A geriatric hospital with 500 beds, and a geriatric nursing home with 310 beds
A nursing home with 198 beds, totaling 810 medical treatment beds + 198 elderly care beds

Subproject 4 includes: An elderly care service information platform
Newly built, together with the geriatric nursing staff training base under Subproject 5

Subproject 5 includes: A geriatric nursing staff training base
Newly built, together with the elderly care service information platform under Subproject 4

An integrated medical and health care demonstration base (the former Gezhouba Tourism School)
A community elderly care complex demonstration base (the former Yichang Commercial School)
Overview of ADB-loaned Yichang projects

- Total size: 2,159 elderly care beds
- 810 medical treatment beds
Overview of ADB-loaned Yichang projects

Create a comprehensive and seamless medical and health care service system integrating medical treatment, rehabilitation nursing and other services.
Yichang project implementation progress

1. PPP demonstration projects - Integrated medical and health care demonstration base (the former Gezhouba Tourism School) - The contract negotiation for the second tendering of the construction unit has been completed.
2. PPP demonstration projects - Community elderly care complex demonstration base (the former Yichang Commercial School) - On-site work stoppage and negotiation
3. Xiling District Sanjiangyuan community elderly care service center - Indoor hard decoration under construction
4. Xiling District Beiyuanqiao elderly care service center (former Xiling District Social Welfare Center) - Cancelled, with new site to be further selected
5. Xiling District Xiaojiaxiang elderly care service center (former Xiling District Minzheng Kindergarten) - Cancelled, with new site to be further selected
6. Xiling District Children’s Park community elderly care service center - Under construction
7. Wujia District Shangheyuan elderly care service center - Cancelled, with new site to be further selected
8. Former New Century Training School community elderly care service center - The land planning permit has been obtained
9. Former Labor Business Hotel community elderly care service center - Rectification of quality problems before acceptance
10. Former Xiaoting District Civil Affairs Bureau and Xiaoting District Gaojadian Village Community Elderly Care Service Centers - The merging and new construction of the projects are under adjustment and design
11. Dianjun District Tucheng Village Community Elderly Care Service Center - The plan is revised according to the opinions of the Natural Planning Bureau of Dianjun District
12. Shantou Road community elderly care service center - Civil engineering tendering under review
13. Yiling District Civil Affairs Bureau community elderly care service center - Interior decoration is ending
14. Yiling District Military Cadre Rest Home community elderly care service center - Some 4F steel moulding is newly built
15. Zigui County community elderly care service center - Under acceptance on completion
16. Yidu City community elderly care service center - Outdoor supporting facilities under construction
17. Zhijiang City community elderly care service center - The laying of basement waterproof layer is completed
18. Yichang City nursing homes for the dementia aged - Completion of contract signing, and construction of temporary facilities on the site
19. Special nursing building of a geriatric hospital - Civil engineering under construction
20. Geriatric nursing hospital and elderly nursing home - The plan is adjusted according to the opinions of the planning department of Dianjun District
21. Elderly care service information platform project - The ICT-S02 term of reference is reissued to ADB for review after being revised according to ADB’s opinions
22. Elderly care professionals training base project - Negotiating with the winning bidder on supplying equipment

Half under construction (marked in red)
Completion acceptance prepared for three projects
Cancellation of three projects (marked in blue)
Site adjustment for six projects
Re-design for two projects
Completion of construction tendering for two projects
Plan adjustment for one project
<table>
<thead>
<tr>
<th>Time</th>
<th>No.</th>
<th>Project name</th>
<th>Project progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>1</td>
<td>Former Labor Business Hotel in Wujiagang District</td>
<td>Most of the interior soft decoration has been completed, and the acceptance is scheduled in August</td>
</tr>
<tr>
<td>On the morning of</td>
<td>2</td>
<td>Xiling District Children’s Park</td>
<td>Construction has been carried out, the buildings have been demolished, and and construction waste has been removed</td>
</tr>
<tr>
<td>July 21</td>
<td></td>
<td>Xiling District Sanjiangyuan</td>
<td>More than half of the interior hard decoration has been completed, and suspended ceiling is under construction</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>PPP demonstration project of comprehensive elderly care service</td>
<td>More than half of the civil works have been completed</td>
</tr>
<tr>
<td>On the afternoon of</td>
<td>4</td>
<td>Yiling District Civil Affairs Bureau Social Welfare Center</td>
<td>More than half of the interior hard installation has been completed, and there are sample rooms.</td>
</tr>
<tr>
<td>July 21</td>
<td></td>
<td>Elderly care professionals training base</td>
<td>The design plan is under adjustment, and the Children Welfare Center is scheduled to be relocated in August</td>
</tr>
<tr>
<td>On the morning of</td>
<td>5</td>
<td>Geriatric hospital</td>
<td>Pile foundation for the special building and three floors for the special nursing building have been completed, but the construction of the outpatient building has not yet started</td>
</tr>
<tr>
<td>July 22</td>
<td></td>
<td>Zigui County community elderly care service center</td>
<td>The main building has been basically completed, waiting for acceptance</td>
</tr>
<tr>
<td>On the afternoon of</td>
<td>6</td>
<td>Sub-projects design &amp; construction symposium</td>
<td>Zhijiang projects: The tower crane installation has been completed, and the excavation of foundation pits, the reinforcement and the construction of foundation piles have started</td>
</tr>
<tr>
<td>July 22</td>
<td></td>
<td></td>
<td>Yidu projects: The civil construction of the main building has been completed, and it is at the indoor/outdoor decoration stage, with mobile furniture being purchased</td>
</tr>
</tbody>
</table>
Field work in Yichang Project
Design principles
Design principles of EC Facilities

1. User-Centered Design Principle
2. Community-based Planning and Design Principle
3. Working Efficiency Principle
4. Inclusive Design Principle
5. Non-Institutional Design Principle
6. Sustainable Design Principle
7. The following three principles must be observed:
   - Operations as the core,
   - Cost as the core,
   - Risk control front
Enable the elderly to feel happiness, autonomy, self-esteem, respect and a sense of accomplishment on the basis of physical and mental security. Everything related to the design layout, moving line, material selection, color, environment... is carried out centered at this core.

The operation management shall be centered on the front-line nursing staff, enabling them to feel the family-like love and transmit it to the elderly. The design should also consider the space of the staff.

Focus on autonomy, independence and privacy in daily life... ......A free life
Focus on professional, practical and comfort experience, while reducing costs to improve the cost performance of the project
Creating a living environment rich in leisure activities, multi-generational contacts, public spaces and natural participation in services can avoid the negative effects of social isolation.

Open and closed design: Apart from necessary closed design, an integrated open design for the surrounding communities to some extent should also be considered. It requires to strive to integrate into the local communities, serve the residents of the surrounding communities, encourage the residents of the surrounding communities to participate in activities. This can not only gain recognition from the surrounding communities, but also create social opportunities for the elderly in the institutions, and increase the profit channels of the institutions.
Working Efficiency Principle

Nursing & public areas
Residential group for the elderly
Residential group for the elderly

Centrally set a nursing & public area between the residential groups

Improving the organization of moving lines and designing loop lines as far as possible can avoid the returning of nursing staff and promote the connection between different functions.

Provide the nursing staff with an environment of psychological and physical relief from high work stress through architectural design.

Schematic diagram of adjusting the nursing groups according to different duty needs

The concept of service group represents an efficient staffing model, which is conducive to meeting the different requirements at the day and night, as well as creating a home atmosphere.

Layout of centralized specialized nursing institutions
Barrier-free design, Universal design, Design for all, Accessible design and Inclusive design have similarities, but different angles and goals.

The application of the “Inclusive design” principle of elderly care facilities can significantly improve the cost effectiveness of using such facilities, and can also create a friendly environment for the elderly from the building to the city.
The design of barrier-free ground and steps adopts the approach of transition section.

The application of supporting technologies (ICT) also falls under the category of Inclusive design.

For example: VR (virtual reality), AR (Augmented reality), MR (mixed reality) and other technologies, which are implemented through Internet devices, are used for daily communication, learning, entertainment, professional training, repair and rehabilitation.

Bathroom safety: Sitting shower, skid resistance, constant-temperature faucets, and intelligent toilets.

Continuous handrails in corridors and corners

Location of electrical appliances, sockets and switches for the elderly to avoid risks
Non-Institutional Design Principle

The layout, hardware facilities, soft furnishings and decorative colors in elderly care facilities provide a family atmosphere to make the elderly feel relaxed and family-like warmth. They can have close contact with nature, fully enjoying the sunshine, plants, water, natural ventilation, natural lighting and so on.
Sustainable Design Principle

Sustainability includes four dimensions, i.e., environment, economy, society and culture. The sustainability design of elderly care facilities involves not only the application of technical measures for environmental sustainability, but also all possible solutions for economic and social sustainability.

Over the service life of the buildings, reduce the energy consumption and pollution emission. Passive energy-saving measures (layout, appearance, etc.) Green technologies meeting budget and ROI considerations (e.g., automation control technologies, solar and photovoltaic panels) Rainwater collecting and reuse systems

Green Low-carbon Energy-saving Comfortable
Operations as the core

Meticulous design——Elderly-friendly space design based on optimal nursing sight lines and nursing moving lines
Perfect details——“Safe, comfortable, convenient and easy” elderly-friendly detail design
Smart technologies——Improve user experience with cutting-edge technology, and reduce operating costs with technologies

Elderly-friendly, efficient and safe
Cost as the core

Construction and installation cost——On the premise of meeting the specification requirements, reduce the construction and installation cost of the project through design

Operation cost——Achieve low operation cost through low doctor/nurse ratio and sponge space design

Marketing cost——Achieve low marketing cost by creating attractiveness with characteristics, science and technology, cutting-edge ideas
Risk control front

Safe vision
Column-free space
+ Soft light
+ Soft ground

Materials selection
“Dimming glass + operation control”

Aided tool selection
“Invisible handrail + safe shape”
Problem assessment
Summary of Common Issues

1. At the time of formally starting project design, there were no design specifications with guiding opinions approved by third parties, which led to repeated modification and adjustment at the project design stage and a lot of futile efforts. There was also a lack of overall planning, positioning and layout for the project, and the design of each sub-project was homogeneous.

2. At the site selection stage before project reconstruction, the assessment of existing buildings was not detailed enough. In addition to the assessment of fire protection and structures, a multi-dimensional, professional and comprehensive assessment of architecture and interior design, equipment and facilities, operation services and so on was also necessary.

3. The transformation appraisal and reinforcement as well as structure and layout transformation of existing buildings were costly, even exceeding the unilateral construction cost of new projects, and were more difficult. The limitations were also larger, with some problems difficult to solve and relatively low cost performance.

4. Operations as the core is stressed, but many operators have not yet been determined, and the operational pressure is great. They need to participate in the whole process of the project as soon as possible. The actual practice experience and business philosophy of the operators are very important for the planning, design, construction and other links of the project.

5. The planning department requires one parking space per 100 square meters, causing a lot of difficulties, but it can be calculated according to the group standard of 0.2 parking space per 100 square meters. In the case of lack of expertise and experience, it is required to strengthen capacity building.
Sub-project problems 1

With guiding opinions approved by the third party

**Design specifications**

Due to lack of overall planning, positioning and layout for the project, each sub-project is

**Homogeneous in design**
Sub-project problems 2

During the actual construction, it was found that: Some projects were pressing, and the construction was very difficult. There were severe deficiencies that failed to meet fire protection requirements (e.g., no space for firefighting pools). Although it was finally overcome or solved later under the coordination of multiple parties, it did cause great trouble to the construction unit of the project at that time.

During site selection, a multi-dimensional, professional and comprehensive assessment of architecture and interior design, equipment and facilities, and operation services should be added to meet the existing design specifications.
Sub-project problems 3

The transformation appraisal and reinforcement as well as structural transformation and layout transformation of existing buildings were costly, even exceeding the unilateral construction cost of new projects, and were more difficult. The limitations were also larger, with some problems difficult to solve and relatively low cost performance.

Existing buildings were built earlier with different purposes, and now do not meet the requirements of current codes (especially the structure code and the building fire protection code). If conditions permit, new buildings should be built.
Sub-project problems 4

- Operations as the core
- Cost as the core
- Risk control front
The planning department requires one parking space per 100 square meters. Existing buildings were difficult to meet such standard and huge unnecessary waste was caused.

Name of standard:
Guidelines for parking in elderly care community-
Parking site selection and parking ratio
Standard No.: T/LXLY 2-2020
Applicable to: New elderly care communities

### Comparison Table of Elderly Care Community Size and General Motor Vehicle Parking Ratio

<table>
<thead>
<tr>
<th>Motor vehicle parking ratio</th>
<th>Total beds for elderly care community</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500 beds</td>
</tr>
<tr>
<td></td>
<td>Lower limit</td>
</tr>
<tr>
<td>Vehicles/beds</td>
<td>0.13</td>
</tr>
<tr>
<td>Vehicle/household</td>
<td>0.20</td>
</tr>
<tr>
<td>Vehicles/100m² FAR GFA</td>
<td><strong>0.20</strong></td>
</tr>
</tbody>
</table>

General motor vehicle parking ratio
Special motor vehicle parking ratio
Non-motor vehicle parking ratio
Suggestions for improvement
Suggestions for improvement

Before formal design
At the early site selection stage, the assessment of existing buildings needs to be more detailed. In addition to the consideration of fire protection and structures, it is suggested to add a multi-dimensional, professional and comprehensive assessment of design and operation and form practical and feasible design specifications approved by the third party.

Design stage
In addition to meeting the age-appropriate requirements and eliminating obstacles, it is also necessary to realize age-appropriateness, emphasize humanistic care, strengthen capacity building, and improve design quality. When the operators cannot be determined, the design experts who understand operation need to participate in the whole process of design guidance.

Construction stage
The main reasons leading to local residents’ dissatisfaction include: drainage, elevators, noise, garbage disposal, environmental pollution, the perceived resistance to “old age, sickness and death”. Prior to the commencement of construction, in-depth communication with local residents must be conducted to minimize disturbances during construction.

Operations as the core
It is suggested that the operators be determined and participate in the whole process of the project as soon as possible. It is also suggested to improve the working process and working methods, specify the responsibilities of all implementing parties, implementation standards and regular work contact lists, and attach importance to the records, meeting minutes, etc.
Different from the general architectural design, three dimensions, i.e., “operation, cost and risk”, must be embedded in the design of elderly care projects.
Different from the design of hospitals and hotels, “four elements of operational demand” must be considered in the design of elderly care facilities.

- Natural lighting & Sunshine
- Storage space & Logistical support
- Fresh air & Energy conservation
- Social space & Moving line
Inductive ascension
So far, relevant national standards have been issued:
- *Codes for Accessibility Design* (GB 50763-2012);

So far, relevant industrial standards have been issued:
- *Architectural Design Standard for Elderly Care Facilities* (JGJ 450-2018)
- *Standard for the Construction of Community Day Care Centers for the Elderly* (JB 143-2010)
- *Construction Standard for Elderly Nursing Homes* (JB 144-2010)

So far, relevant local standards have been issued:
- *Facility Design and Service Standard for Community Elderly Care Service Stations of Beijing* (Trial) (JMFF [2016] No. 392)
- *Requirements for Facilities and Services of Elderly Care Institutions in Shanghai* (DB31/T 685-2019)
- *Service Specifications for Convalescent Nursing Homes in Guangxi Zhuang Autonomous Region* (DB45/T1878-2018)
- *Construction Code for Elderly Care Facilities in Chengdu* (DB510100/T211-2016)
- *Code for Architectural Design of Nursing Homes in Sichuan Province* (DBJ51/052-2015) ……
Inductive ascension

Technical roadmap for standard research

- Screen study cases
- Determine study cases
- Search for CAD drawings
- Analyze research data
- Classify statistical forms
- Measure with CAD drawings
- Field survey and investigation
- Correct check data
- Draw conclusions
Inductive ascension

Guideline: Basis for identifying direction, and criterion for guiding actions.
Guidance: Requirement for the completing method, content or form of a task.

Drafted according to the existing standard *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents* (GB/T 1.1 - 2020), indicating the drafter, etc.
Chapter 1 Project Site Selection
   Section 1 Living environment and surrounding supporting facilities
   Section 2 Analysis of the surrounding population
   Section 3 Analysis of site selection for new projects
   Section 4 Analysis of site selection for reconstruction projects

Chapter 2 Site Planning and Layout
   Section 1 Site design
   Section 2 Architectural plane layout

Chapter 3 Living Space Design
   Section 1 Nursing group modes
   Section 2 Public living rooms
   Section 3 Nursing stations
   Section 4 Living rooms of the elderly

Chapter 4 Public Space Design
   Section 1 Hallways
   Section 2 Dining rooms and kitchens
   Section 3 Stairs and elevators
   Section 4 Public corridors
   Section 5 Public washrooms and bathrooms

Chapter 5 Outdoor Environment Design
   Section 1 Overview of outdoor environment design
   Section 2 Key points of outdoor environment design
   Section 3 Roof gardens

Key points of building assessment,
Key points related to operations,
Key points of process steps,
Elderly Care System Development Forum

A Case Study of Yichang City and International Experience Exchange

Online, 26 - 28 Sep 2022

THANK YOU