

MIAO XIA VILLAGE

Multi-Functional Community Kitchen



PARTICIPATORY DESIGN + ACTION RESEARCH
Peter Hasdell (SD)
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1. Outline

This participatory design project in Miao Xia village is aimed at the redesign of public and collective amenities in the village to help develop cooperative social enterprises. Based on sustainable development principles seeking to balance social economic and environmental factors, the project is positioned to enable local people. The project employs the spatial and product design expertise of SD (interior, architecture, furniture and environmental design) as possible hardware within the action research framework of APSS that provides the necessary software and social services to underpin community and participatory design initiatives in such sustainable developments.

The project can also be understood as a form of socially responsible and community driven design that allows SD to engage in an alternative mode of community centred practice driven research.

Peter Hasdell
December 2015

2. Collaboration Framework

The project is a cross-disciplinary collaboration between the Department of Applied Social Sciences (APSS) conducted under the auspices of the Shangli Social Work Station; and spatial and product design research in the School of Design. The project utilised two research methodologies; Action Research and Participatory Design. Action Research providing the necessary community engagement, social organization and social enterprise skills facilitating the development of design processes and outcomes through Participatory Design.

Public consultation with the villagers helped establish their needs and develop their enterprises, while Participatory Design addressed identified design issues with stakeholders and was used to co-develop design solutions in a cyclical process. This framework allows for significant knowledge generation and transfer between APSS and SD as well as between local communities and academic communities. The synergy of the collaboration established a more balanced research project framework that has so far proven to be mutually beneficial, by allowing the design process to be embedded in a social context. Contributing to the development of alternative modes of practice based research (social design and practice based research) and expertise in SD.

3. Action Research

Action Research and social enterprise provide the overall framework actively initiating positive changes to existing social situations in the village as a way to foster social projects and to engage social design. The Action Research provides social services in Miao Xia, identifying existing tangible assets (village context, skills and material resources) and intangible assets (cultural and social structures, kinship, values and oral history 2014).

Action Research has become one of the key ways to actualize the social needs and social enterprises of the villagers, establishing new cooperative agreements for the community kitchen for instance. Participatory design processes embedded in this framework can then address key design issues and develop locally specific design solutions to design these changes together with the stakeholders concerned. Action Research also helped identify local skills, and resources in the development of new social enterprises and therefore can be understood as closely connected to sustainable development. Sharing of outcomes and knowledge through social media has helped to facilitate this process.

4. Participatory Design Process

Working with the action research framework, the Participatory Design process for the community kitchen involved a series of design cycles with the villagers, designers and social workers. This process was repeated several times for different stages of design as a way to negotiate complex issues that included: brief development; cooperative agreements; negotiations on shared responsibility and mutual benefits; site choice; leasehold negotiations; and design development and implementation.

Collective decisions in one part were used to evaluate and develop further the design in the next stage. At later stages, local skilled participants were engaged for appropriate technical and material solutions. Specific approaches adopted include using models as basis for collective understanding, simplified design languages, and commonly understood means to communicate to non-design professional participants, as well employing social media.



5. Miaoxia Village

Miao Xia is located in a rural valley near to Shangli historic town and the prefecture level town of Ya'an, 2 hours west of Chengdu in Sichuan Province. The region was affected by the Lushan earthquake (2013) that disrupted social, cultural, economic and physical structures. Additional factors affecting the village include: the impacts of recent changes to land ownership; the fragmenting of farmlands by suburbanization; the dilapidation and depopulation of traditional wooden villages; the aging of village population, and the loss of former agricultural patterns, cultural practices and skillsets. An agricultural valley area adjoining hilly and mountainous areas to the North of Chengdu, the river plains and low lying hills provide good quality subsistence farmland while forestry and related industries are found in the higher hills. This led to the predominance of wooden buildings - some over 100 years old - in the older villages and a (now declining) tradition of wood craftsmanship skills in the area. The wood buildings are a testament to their durability and earthquake resistance, whilst more recent concrete buildings are damaged.

An agriculture community with strong kinship, cultural, social and familial ties. Issues include the aging of the village and subsequent hollowing out as younger generations no longer wish to live in the basic conditions in the village; as well the change of the agricultural practices impacting economic wellbeing as subsistence farming becomes marginalized resulting in the decline of former agricultural practices as well as their associated skillsets. The Shangli Social Work Centre researched local culture, customs, skills, and traditions to identify opportunities for engagement (actions). The region has a Tibetan influence, due to the connecting valleys linking to the Tibetan Plateau. The declining local craftsmanship skills in traditional timber framed houses is an issue. Local building masters have knowledge of traditional construction processes, details, skills and local material resources that is getting lost.



Stage I: May - Oct 2015

The project process commenced in January 2015 with a project feasibility trip (Peter Hasdell, Brian Lee and Ku Hok Bun). This was followed by fundraising (Peter Hasdell DGRF) and a follow-up visit (Li Qin) for preliminary surveying and discussions on scheduling and practical issues in April 2015. The Participatory Design process commenced in May 2015 and has been structured into the following stages to date:

- a. Participation Process cycle 1:
Brief and Concept Development
- b. Participation Process cycle 2:
Design Prototyping and Revision 1:100
- c. Participation Process cycle 3:
Design Confirmation and Revision 1:50
- d. Participation Process cycle 4:
Design Finalisation and Detailing 1:20
- e. Participation Process cycle 5:
Design Realisation and Construction 1:1
- f. Participation Process cycle 6:
Design Fit-out



Participatory Design Process Timeline

May

Participation Process cycle 1

Brief and Concept Development

- Village mapping and surveying
- Meeting with social workers, villagers
- Learning from the ancient building techniques, living habits
- Confirmation of project direction

June

Participation Process cycle 2-3

Design Prototyping and Revision

- Presentation of community kitchen design options to villagers and social workers
- Discussions on community kitchen extends and building proportions with villagers
- Iteration process and discussions on user requirements of further development
- Developed design ideas & sketching

July

Participation Process cycle 4

Design Finalisation and Detailing

- Final Presentation on community kitchen structure design
- Students involved in moving materials to village square and initiated guest house space
- Detailing Communication
- Continue on community kitchen building & guest house preparation
- Students work on guest house work

Participation Process cycle 5

Design Finalisation and Detailing

- Villager and volunteer participation involved in demolishing the existing building.
- Site layout and foundation stones
- Frame erecting & completion
- Roofing and topping out

August

Participation Process cycle 6

Design Realisation + Construction

- Workshop on walls and facade elements
- Participatory design on kitchen and layout and facade

September

Construction Process

Construction Fit-out

- Floor, facade, kitchen, stairs, upper level construction Completion

October

Completion

Completion

- Construction completion



Participation Process cycle I: Brief and Concept Development

The first cycle of the Participation Design process commenced in the middle of May. In depth survey (Kuo Jze Yi) involved the following steps:

1. **Site study and survey:**

Measured and photo survey, overview of existing building systems and techniques.

2. **Social and cultural study:**

Survey of local culture, customs and habits. Interview process with local villagers.

3. **Local building techniques:**

Learn from local building masters about traditional construction processes, details, skills and local material resources.

4. **Local living habits study:**

Staying and living with villagers to understand their living habits.

5. **Discussion and analysis:**

Of design potentials and opportunities, revise design and site parameters according to feedback and clarification of overall project concept.

6. **User requirements:**

Confirmation of villagers requirements and needs.

7. **Confirmation of project direction:**

Define and re-evaluate project direction and intention with the villagers and social workers. Confirm change of site and project direction through on going dialogue, discussion and negotiation.

PROJECT INTENTION & OBJECTIVE

1. Assist the social worker and the locals to build facilities for future development.
2. Set up a long term construction strategy for the development. ✓
3. Building belief and collaborations of the community.
4. It is very important to build something immediate that the villagers would need on a daily basis rather than something they need every month. This daily used facility should improve their life immediate and advocate the next step. It should be pragmatic and convenient facility. ✓

QUESTIONS

1. What is the key development direction?
 - Organising affairs to provide space and service?
 - Produce local crafts?
 - Tea and herb farming?
 - Through building own village, to develop skills as builder? (not as easy)
2. Is there bathroom? What are the immediate need?
3. What are the underused building and space?
4. Where is the toilet near the square? - CONCRETE RESTURANT (OUTSIDE VILLAGE)

WORK TO DO ON FIRST SITE VISIT

1. Map the existing drain.
2. Map the surrounding contour
3. Map the water source
4. Map the electrical
5. Map the existing program and uses also beyond the square
6. Collect oral history book and other information
7. Initiate material collection
8. Initiate cleaning and digging work
9. Meet all potential builders and people who is willing to engage.
10. Discuss works to start now.
11. Map construction details of existing structure.
12. Visit Liu Jia Kun

? Student participate.

- Map the division & land use and ownership



Participation Process cycle 2: Design Prototyping and Revision

The second cycle during the end of May (Kuo Jze Yi) involved the following steps:

1. Preliminary design ideas:

Development of initial design options presented in simple models and drawings (initiating 'straw man concept') of two concepts:

- 1a. **Living Museum:** craft and skill focused centre highlighting villagers expertise.
- 1b. **Community Kitchen:** multifunctional space with community kitchen as cultural and social enterprise

2. Presentation to villagers: 1:100 models

Use initial design ideas to start participatory design process and public engagement process with stakeholders (villagers and social workers). Discussion of options, collective selection of Community Kitchen option based on issues of flexibility, adaptability to existing habits and patterns and enterprise potentials.

3. Iteration Process and Presentation: sketches

Analyse feedback from villagers and review design and adjust on site, discuss further to incorporate ideas as part of the design process cycle.

4. User requirements:

Further development of brief for Community Kitchen, local surveys of kitchen spaces, confirmation of villagers requirements and needs.

5. Confirmation of project direction:

Discussion of project direction and intention with APSS (Ku Hok Bun) for Community Kitchen.



Living Museum
01. Overall Massing
02. Two Pavilions form
03. View under
04. View under



Model package
01. Model
02. Model Case
03. Closed



Community Kitchen
01. View from South
02. Top view
03. East view
04. North view (from temple)

6. Cycle 2 completion and evaluation:

This stage confirmed the broad focus and working brief of the project as a Multi-function Community Kitchen that aims to do the following:

- 6a. Provide multi-functional spaces adaptable and flexible for the villagers.
- 6b. Provide a community kitchen allowing for social enterprise and income generation such as cooking for festivals or banquets by opening onto village square.
- 6c. This space can also be used by villagers to provide day to day well lit, comfortable space for drinking tea, chatting, meeting and playing cards (and can be heated in the winter).
- 6d. Upper floor space provides a small meeting room or public balcony.
- 6e. Design that engages but is also harmonious with existing wood buildings and context.



01. Participatory Design Meeting 1 and 2
02. Meeting with Social Workers

Participation Process cycle 3: Design Confirmation + Revision

The third cycle in the middle of June (Kuo Jze Yi) involved the following steps:

1. **Developed design ideas: 1:50**

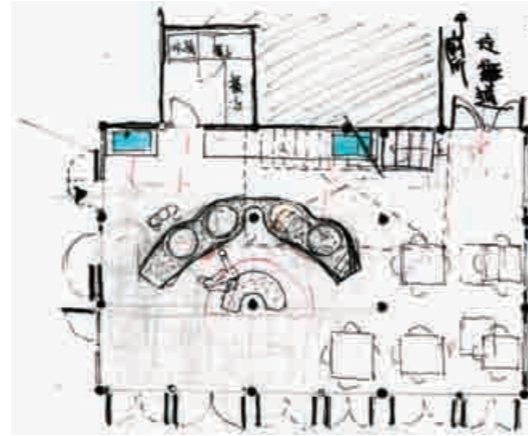
Development of community kitchen from cycle 2 into schematic design options presented in simple 1:50 models and sketch drawings. The options present three different layouts and spatial organisations that:

- Engage the public square and tree (possible future organic garden or outdoor meeting area) in different ways.
- Proposal of three different roofs explored ways the building develops its spatial language from the existing village context.
- Different internal layouts to show the ways the space can be organised to suit the villagers needs, for example the stove is used for communal cooking but can be used for heating and a social gathering space in cold months.

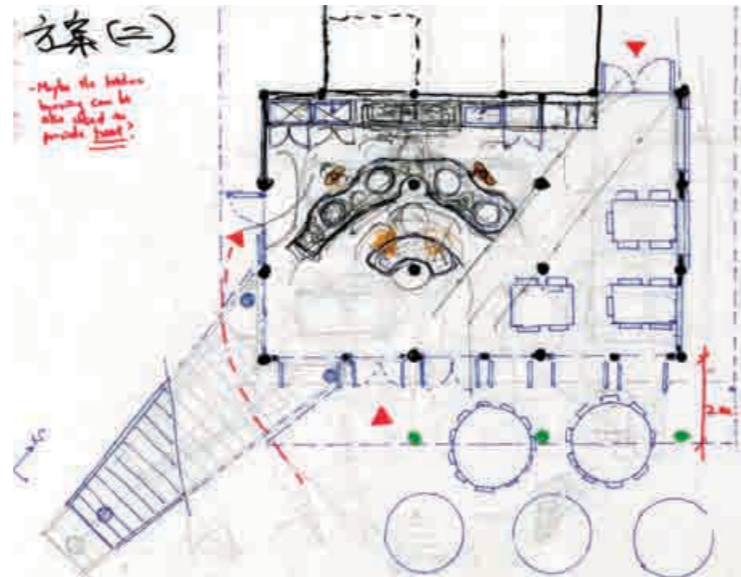
These options allow villagers to see the different ways the options integrate into the existing context and into the village square as well as into their daily habits and patterns.

2. **Presentation to villagers: 1:50**

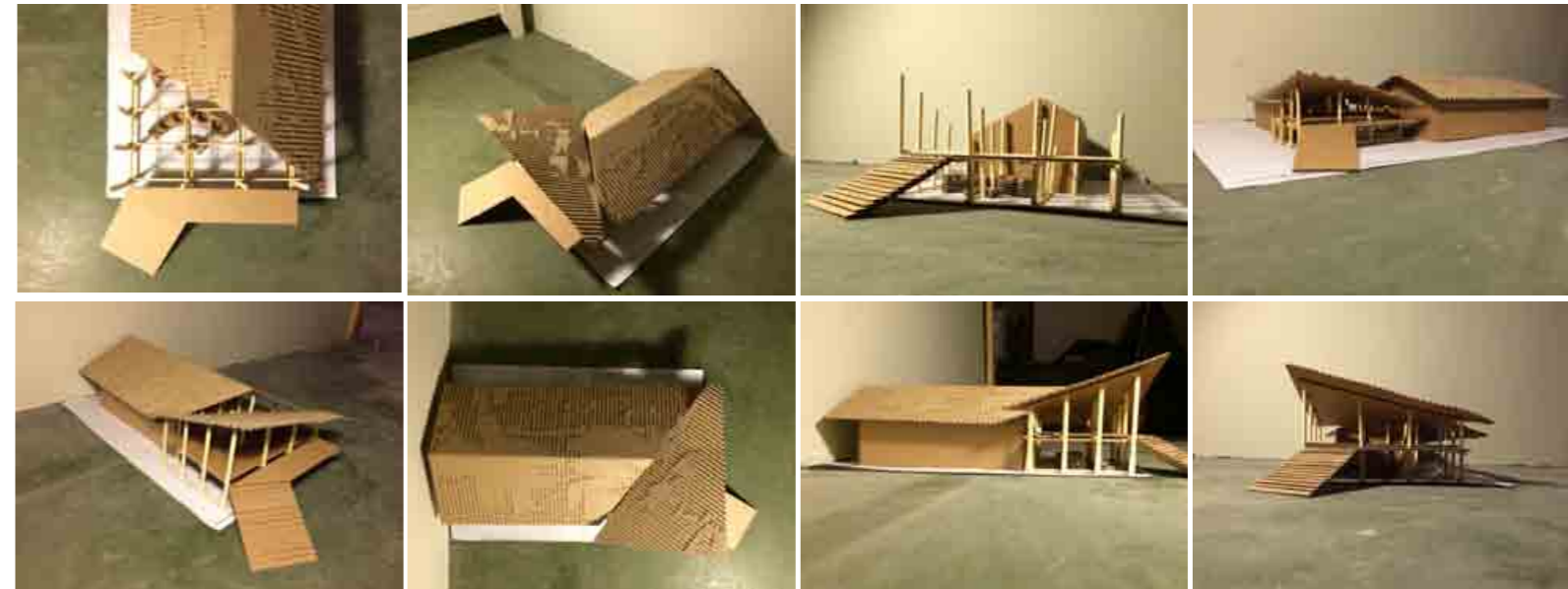
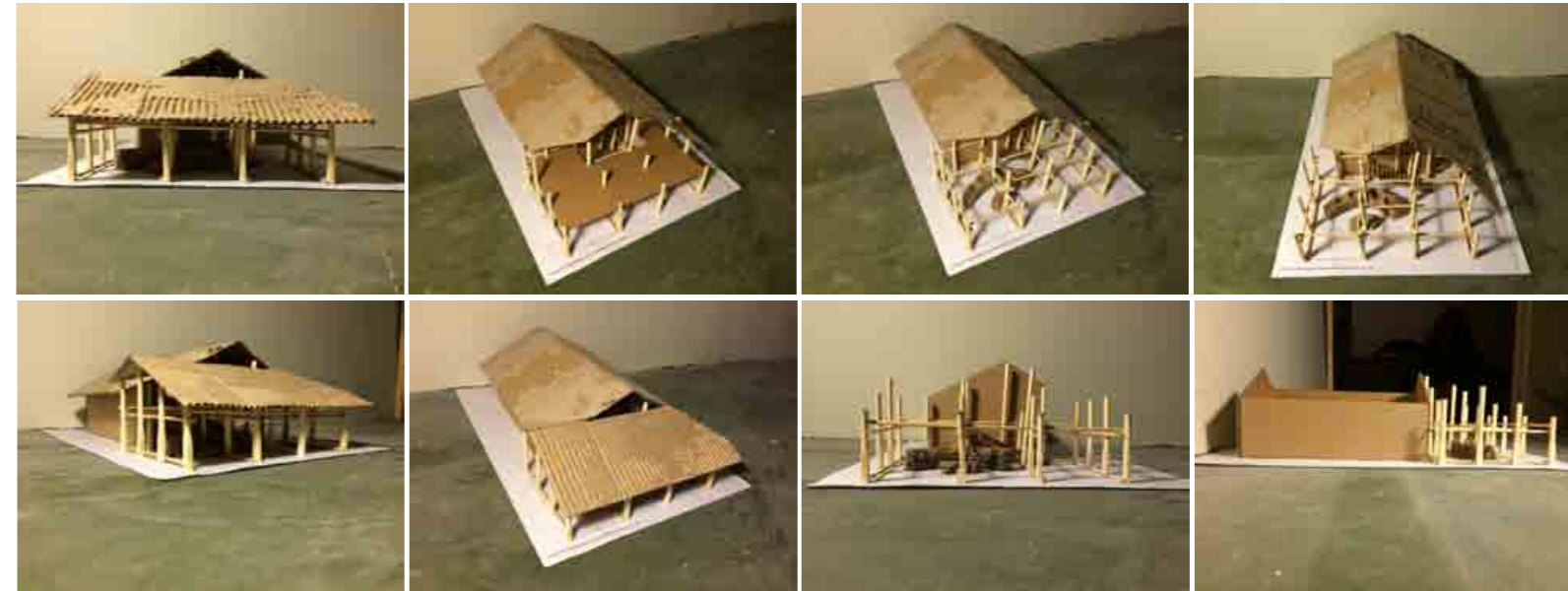
Use developed design ideas to present options to villagers. Comprehensive discussion of the different options and potentials with the villagers. and evaluation of the potentials, viability and issues with each option.



01 Option 1: Conventional Roof and layout



02 Option 3: Angled Roof and diagonal stair



3. Iteration Process and Presentation: Sketch

Analysis of feedback from villagers highlight land ownership issues for some options that proposed placing a connecting stair and balcony linking to the square. The eventual resolution simplified the design and allowed for common consensus but kept the expressive roof that indicates the community kitchen's importance and difference from the surrounding houses.

The second presentation with social workers intervention also highlighted and resolved pragmatic issues of stakeholders versus landowners, collective benefit and enterprise, common useage and collective gain, construction funding and working pattern and schedule. Villagers expressed desire for completion by Mid-Autumn Festival. Preliminary discussion with master builders / carpenters.

4. Confirmation and review of project:

Discussion and review of project direction and current stage of participatory design in HK and evaluation with SD (Peter Hasdell and Brian Lee) and APSS (Ku Hok Bun). To confirm funding, direction and necessary steps.

Proposition and broad agreement of ancillary project of Guest House fit out in existing unused village house to enable volunteers to participate in design and build process and to facilitate knowledge transfer and extended engagement with SD.



Participation Process cycle 4: Design Finalisation + Detailing 1:20

The fourth cycle in the beginning of July (Kuo Jze Yi , Ku Hok Bun and Brian Lee six HK volunteers) involved the following:

1. Final Design:

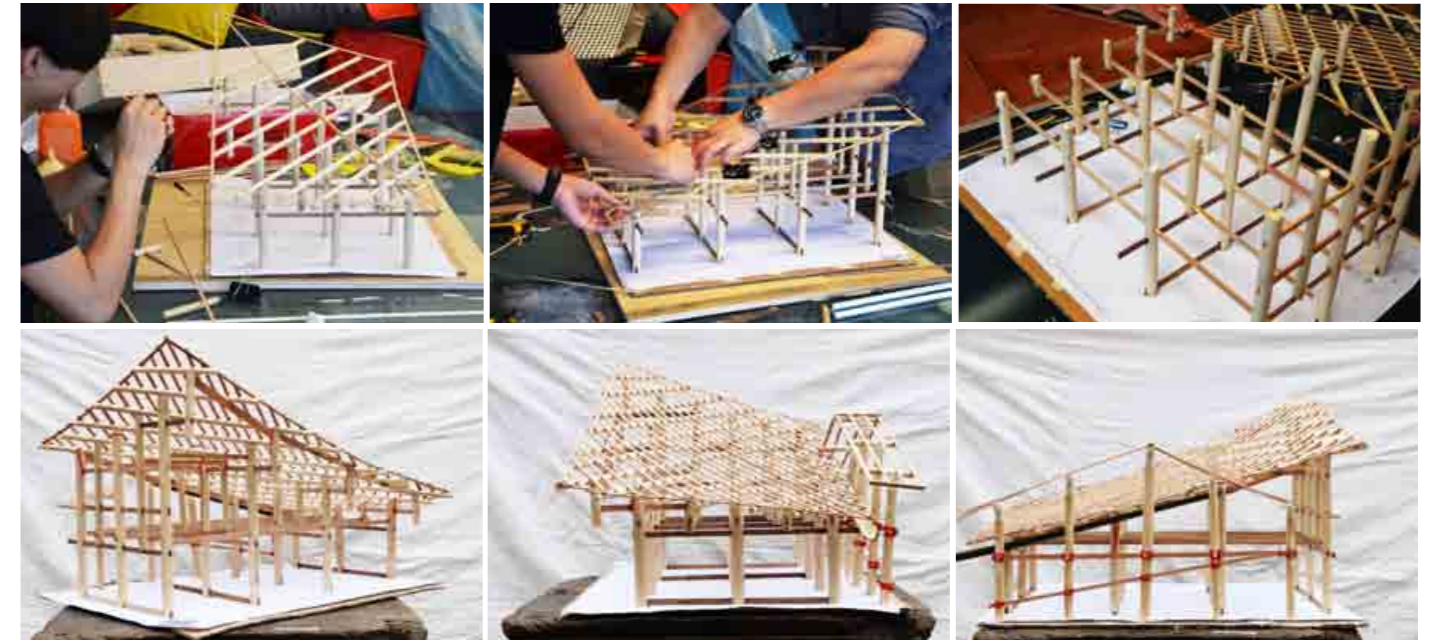
Incorporate earlier stages design process into final design. systems and spaces. Decision to make roof curved structure evolving traditional timber structures into new forms.

2. Detailing Communication:

Develop design into detail and costing of this to allow for ordering of materials. Appropriate communication methods were developed to allow for a variety of communications with different stakeholders, in this case a detailed 1:20 scale wood joints model for dictating detail issues and guiding construction, was made by students.

3. Final Design Presentation:

Final confirmation design to villagers highlighted some ownership issues resulting in design modification and adjustment to final design. Presentation to carpenter team initially caused consternation but was resolved under the guidance of the master carpenter who agreed our design and structure and technical resolution. Our proposal was that the roof system is structure is rotated about 30 degrees from the column grid and roof beams positioned at different heights to give shape to the curved roof (knowledge transfer).



4. Final drawing production and presentation:

On site production of revised drawings and final measurements for construction and for the carpenters. Initial design ideas for screens modelled and presented to villagers and further discussion on layout and functional usage.



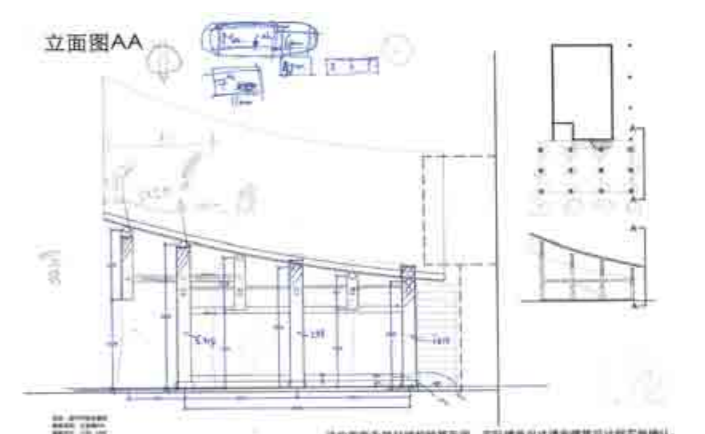
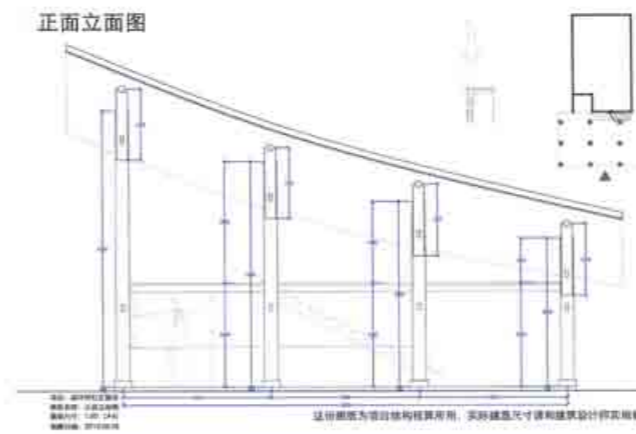
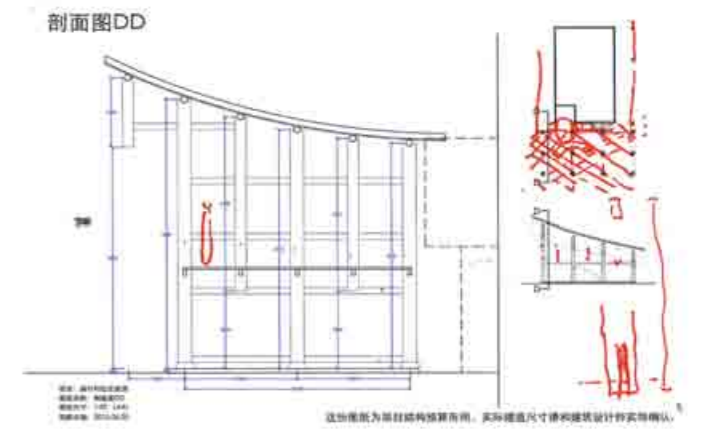
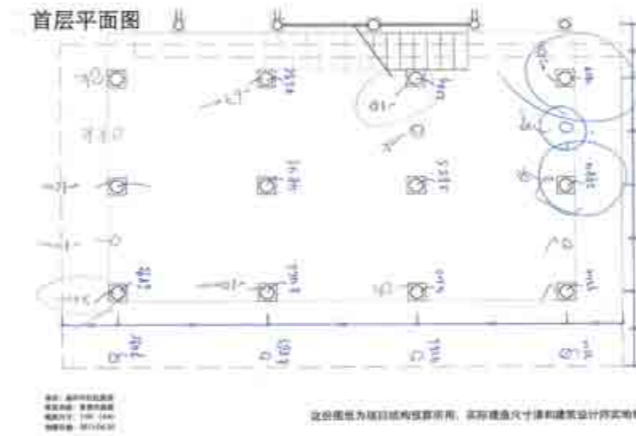
5. Detail Design Process Review:

Participatory processes of presentation, review and sketch presentation coupled with sequence of increasing scale models was effective and vital in confirming and getting the engagement and support of the villagers.

The villagers participation, input and the moderation of the social workers were both essential for the rapid development of the project to date.

It is important to remember that the project started in a very unclear state and in a much less ambitious vision prior to this (2 months earlier). Also that this is the first new building in the village (apart from the tibetan temple) for perhaps 50 years.

The social and physical construct in this case are intrinsically linked in their development. The next phase of construction will make clear if the collective ownership of the design transfers to the collective ownership of the building, as well as civic pride, user satisfaction and social enterprise success.



Participation Process cycle 5:
Design Realisation + Construction 1:1

Construction stage, simultaneous with the fifth cycle in the beginning of July (Kuo Jze Yi , Ku Hok Bun and Brian Lee and six HK student volunteers). The construction is funded by already secured private donations to the APSS project in Miaoxia. This process involved a number of steps including:

1. Demolition:

Villager and volunteer participation involved in demolishing the existing building. Roofing tiles, floor stone pavers and some timbers were recycled.

2. Tools:

Master carpenters employed very basic tools, but their skill experience and precision allowed them a high level of craftsmanship with suprisingly high level of speed. Mechanical tools limited to portable bench saw, grinder and electric drills.

3. Site layout and foundation stones:

The site layout and positioning of foundation stones involved the assigning of the columns to specific positions and basic sizing and shaping.





4. Framing:

The frame parts were shaped and formed in the existing temporary building from unmilled timbers under the master carpenters supervision. No nails assembly and fine tolerances for joints that are wedged. Our model used for reference by builders. The frames were made to be assembled flat on the ground pulled vertical (like barn construction) so precision of the parts is crucial.

5. Frame erecting:

Villager and volunteer participation together with carpenter team, erect the assembled frames on site. It is evident that the collective action and participation is essential for this process and also aided collective ownership of the building.



6: Frame completion:

Completion of the erected frames, connecting them wedging them (no nails construction), allowing for later tightening up when the wood dries and finishing details.

7: Roofing and topping out:

Roof frame and tiling was also completed as a collective action, with important topping out and finishing ceremonies including the burning of incense. The tiling was completed in one morning with over 20 participants

8: Summary reflection:

The construction process was effective in galvanising community support and participation (all ages) and across boundaries (HK student volunteers with locals). This also generates sense of collective ownership and community pride as well as allowing knowledge transfer in many ways to occur.

An ancillary benefit is this project contributes to the continuation of a craftsman tradition of carpentry that is presently declining in the area due to the proliferation of concrete buildings.



Participation Process cycle 6: Design Fit-out

Design of walls, windows, partitions and interior fit-out including kitchen and services and furniture stage, the third week of July (Peter Hasdell and Li Qin).

1. Preliminary design and strategy:

Initial schematic design and strategy focused on minimal intervention, due to concerns that the villagers may not have the will to push the project at this stage.

2. Presentation:

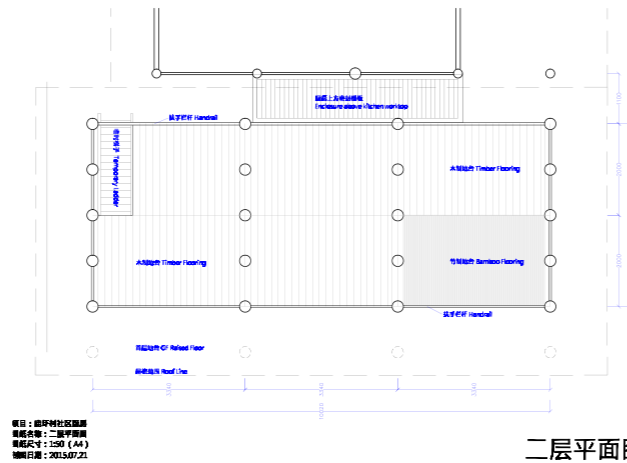
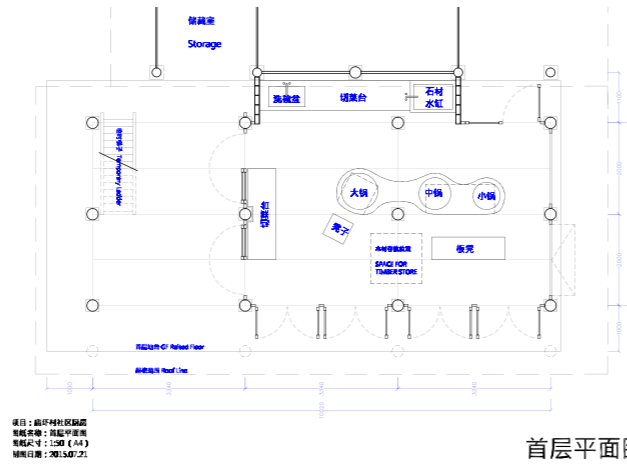
Presentation of initial schematic design to villagers underestimated their desire to complete the community kitchen as soon as possible (before Mid Autumn Festival: mid September). Discussion ensued requesting resolution of all parts and expedited completion with villagers consensus. Discussions with Social workers to work out practicalities, costing, scheduling and ordering.

3. Follow up Design Revision:

Development of complete design detail drawings and material specifications for costing and ordering with strategic parts that can continue to be part of the participatory design process (doors and screens) involving student volunteers making prototypes in a second volunteer visit (end of August)

4. Further Steps:

The community kitchen building process is ongoing. Expected completion date mid September. Ongoing user evaluation will be carried out and documented by the ShangLi Social Work Station, they will also help evaluate the villager's responses after construction is complete.



Participation Process cycle 7: Design Fit-out Prototyping

Prototyping design and fabrication of wall elements, windows, partitions and interior floor pattern. This process involved 12 HK design students in a participatory design workshop over 10 days in August (Kuo).

1. **Assist construction of floor and kitchen wall:**
Assist builders in the construction process of floor and masonry walls.
2. **Wood cutting and shaping:**
Assist in the cutting, shaping and framing of door and screen frames.
3. **Sketch design of stair and wall elements:**
Sketch and scale design of stair and wall elements for prototyping.
4. **Door and screen full scale prototyping:**
Development of model and full size mock-ups of wall element prototypes with timber and bamboo for testing on the building frame and for presenting to villagers. A variety of different options was the outcome.
5. **Door and screen prototype presentation:**
Presentation of prototypes to villagers for their feedback, participation and comments. Discussion resulted in villagers rejecting bamboo solutions due to poor life cycle and high maintenance considerations. Further development is required. Additional discussion of project deadlines due to unseasoned wood means project completion will be delayed.



Participation Process cycle 8: Design Fit-out Construction

Construction of wall elements, windows, partitions, ceiling and interior floor. This process was less participatory than previous stages due to the fact that the villagers wished to complete the building as fast as possible. Strategic negotiated decisions on keeping upper level open as deck area were undertaken.

1. **Construction of floor and kitchen wall:s**
Positioning and placement, choice of stone pavers to provide continuity to square, finishes for kitchen area, selection.
2. **Kitchen stove and amenities:**
Positioning and construction and finishes to stove. Construction of bamboo vent above stove area, and water filtration tank, drain system.
3. **Stair elements:**
Construction of stair to upper level.
4. **Ceiling and upper level decking:**
Construction of timber ceiling and upper level decking.
5. **Facade, door and screen walls:**
Development of design options for wall, door assemblies and screen details for door. Key negotiated decisions focused on maintaining as much light and flexible operation for community uses.
6. **Minor site works and landscaping:**
Include rainwater gutters, drains, paving, and finishes.





Construction effectively completed by week three in November, with the exception of glazing windows and some minor adjustments.

Interior furniture, decoration, finishes will be done in future stages, or by villagers themselves.

Various activities have been taking place in the building (or structure before it was completed) since August. Recent events included the rural medical clinic and a banquet for visiting groups. These functions are largely community oriented at present, but do not engage yet the social enterprise income generation potentials of the community kitchen.

We anticipate that villagers will take some time to adapt and adjust and to get their social enterprise operational within the community kitchen. The Shangli Social Work Station will help to facilitate this and provide user evaluation.



Project Evaluation + Future Developments + Project Evolution

1. **Evaluation:**

Project Evaluation:

Will be carried out by the social workers as part of their ongoing work.

Research Evaluation and Outputs:

Research framework evaluation and assessment presently ongoing. Development of research outputs in progress.

2. **Participatory Design:**

Participatory design and construction process in this project developed our unique approach to PD and we are evaluating this process and reflecting on its merits and areas that could be improved. Engagement of various stakeholders, designers, social workers, volunteers and craftspersons is essential.

3. **Improvisation and Opportunities:**

Having the design team participate in the construction process allows them to improvise on unforeseen design opportunities and reflect on design issues. Allowing for unforeseen development opportunities as well as physical and social opportunities to

4. **Social Work and APSS collaboration:**

The social work in the area established very useful if not essential foundations and relationships as well as mediation and continuity in the process. The integration of the tangible culture (building) and intangible culture (social systems, social enterprises) has a lot of potentials for not only knowledge transfer but also symbiotic development that is more aligned to sustainable practice.



5. **Student and voluntary participation:**

The involvement of students contributes in two ways: Students' learning experience + introducing external energies to the villagers of various ages, particularly young people. There is potential to expand this much further.

6. **Knowledge Transfer:**

Knowledge transfer has been on many levels and in many ways. Better structured pathways could facilitate this better in future (this is a pilot project), this would require better facilitation and clearer process and documentation.

7. **Future Village Developments**

The project can evolve and develop further social enterprises where design expertise (spatial, product) can contribute. These include the redesign of the square, development of landscaping and herb gardens, development of guest houses, development of a living museum, development of community workshop spaces and so on. As well specific local handicrafts and cultural entities such as Sichuan food or the village special dried herbs and spices offer additional opportunities.

8. **Collaboration possibilities**

The project shows that the cross disciplinary collaboration can be fruitful but also that this can extend provided support and funding can be found (not as a one off pilot project). This generates a series of opportunities including to make a 'remote' rural station that students and researchers can use and develop, or by inviting external design schools and their students.





10. Acknowledgements

Project Leaders:

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 Dr. Hok-bun KU (APSS) Principal Researcher
 Brian LEE (SD: IPD) Co - Researcher
 Jze Yi KUO (SD: E + I) Research associate / Project Designer

Social workers:

齐华栋(督导)
 阳珍丽
 金恩实
 强朝兴
 金言(志愿者)
 方晓维(实习生)
 江芬菲(实习生)
 向青青(实习生)

Villagers:

木工师傅：杨世康、罗荣斌
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Master Carpenters:

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HKDI Volunteers (July Workshop):

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