

Not only Eating Together: Space and Green Social Work Intervention in Hazard

Affected Area in Ya'an, Sichuan, China

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Abstract:

A 7.0-magnitude earthquake hit Lushan county of Ya'an city, Sichuan Province, China on 20 April 2013. The Lushan earthquake damage is less than the 2008 Wenchuan earthquake's where 70,000 houses collapsed and 2 million people across 19 prefectures and 115 counties of Sichuan province were affected. Temple Village (fictitious name), an old village in S township, was chosen as an intervention site. As most young adults went to work in the city, the old community became dilapidated and its traditional culture, architecture, custom, skill and wisdom, were dying. Social workers were unable to tackle fully this community's multiple needs, especially those associated with environmental and physical spaces linked to notions of belonging and identity, on their own. A transdisciplinary action research team in which social workers operated hand-in-hand with the disciplines of architectural design became the means for exploring an alternative model of post-disaster community reconstruction that would enhance the quality of life of left-behind people in this disaster-affected community. Working together, the research team facilitated the formation of a community kitchen project that enabled villagers to create a new building and

cooperative organizations for the village's long-term sustainable development. This paper presents the participatory design process, contribution of green social work and transdisciplinary interventions in post-disaster community reconstruction.

Introduction

Many countries face devastating damage caused by natural disasters, e.g., the 2004 Indian Ocean Tsunami; 2005 Mumbai floods; 2010 storms in the Caribbean and United States; 2010 earthquakes in Haiti and Christchurch, New Zealand; and Japan's 2011 earthquake, tsunami and nuclear explosion (UNISDR, 2014). China endures numerous natural hazards leading to disasters including earthquakes, typhoons, mudslides, floods. The most recent major disaster in China, the '5.12 Earthquake', occurred on 12 May 2008, in Sichuan province, with a death toll of around 69,227. The injured and missing persons reached 374,643 and 17,923 respectively. Damaged physical infrastructures encompassed 21 million buildings and 7,000 schools (United States Geological Survey, 2008). Since 2008, successive catastrophes, such as the 2009 Yushu earthquake, 2010 Zhouqu mudslides, 2013 Lushan earthquake, and 2014 Ludian earthquake, highlight the threats to China's economic development and sustainable livelihoods.

Mitigating risk, developing adaptation strategies and resilient reconstruction action plans, and engaging community residents in coproducing solutions to the problems encountered are important tools for controlling hazards. Co-produced solutions to reduce losses attributable to natural and human-made disasters involves many stakeholders – local residents, government at all levels; physical scientists, social scientists, professionals, especially those in health, social work and engineering, and businesses.

Developing responses that are locality specific and culturally relevant is a challenge to the entire disaster risk reduction (DRR) and disaster risk management (DRM) enterprise, and requires working in effective transdisciplinary teams that engage scientific expertise with local knowledge. Dominelli (2015) argues that transdisciplinarity transcends multi-disciplinarity or interdisciplinarity approaches wherein physical and social scientists from different disciplines work autonomously within one team to solve common problems. Transdisciplinarity involves different disciplines cooperating through a co-produced common analytical framework that integrates scientific and ‘indigenous’/local/community expertise in ‘doing science differently’ (Lane et al, 2011) to develop culturally-relevant action plans together.

In this article, the authors argue that social workers, particularly green social workers (Dominelli, 2012) play pivotal roles in transdisciplinary teams by: coordinating

activities between different stakeholders; translating scientific knowledge to residents and ‘indigenous’/local/community knowledge to scientists; mobilizing communities to participate in coproducing activities; implementing agreed plans; and evaluating outcomes.

Social Work and Disaster Interventions

As a helping profession responsible for people’s well-being, social work has a long history of dealing with natural disasters such as hurricanes, tsunamis, earthquakes and snow storms. It is extremely effective in traumatic stress management (Galambos, 2005); delivering resources and services to vulnerable populations (Mitchell, 1983; Van den Eynde and Veno 1999; Zakours, 1996); formulating and implementing different service plans (Banerjee and Gillespie, 1994; Dodds and Nuehring, 1996), and enhancing community organization and advocacy (Dominelli, 2009; Pyles, 2007). Yanay and Benjamin (2005, p.263, 271) conclude that responding to disasters is ‘part of social work practice’ and ‘social workers are the professionals best prepared to deal with complex situations resulting from an emergency’.

Social work interventions in past disasters tend to focus on relief and recovery work for affected individuals, families, communities and organizations, and meeting

the special needs of vulnerable groups (Cherry and Cherry, 1996; Shahar, 1993; Zakours, 1996). Few overseas agencies remain for long-term reconstruction work and the opportunities such development brings. Thus, the UN Disaster Relief Organization (1992, p.202) commented, ‘disasters often create a political and economic atmosphere wherein extensive changes can be made more rapidly than under normal circumstance’. Community participation and empowerment and the involvement of local community-based organizations are critical for disaster-affected areas to overcome devastation and embark on sustainable pathways to reconstruction (Harrell and Zakour, 2000; Ozerdem, 2003; Pyles, 2007; Vandeventer, 2004; Zedlewski, 2006). Social workers intervening in disasters play multiple roles including – facilitator, coordinator, service provider, community mobilizer, negotiator, broker and educator (Dominelli, 2009, p. 141-2).

Dominelli (2012) also revealed that social workers’ limited awareness of the impact of physical environmental disasters on local and global well-being in the aftermath of environmental disasters impede development. Dominelli (2012) calls for practitioner training in green social work perspectives to respond to the challenges of 21st century environmental crises and defines ‘green social work’ as:

‘that part of practice that intervenes to protect the environment and enhance people’s well-being by integrating the interdependencies between people and

their socio-cultural, economic and physical environments, and among peoples within an egalitarian framework that addresses prevailing structural inequalities and unequal distribution of power and resources. Paying attention to these requires social workers to address the politics of identity and redistribution and not to treat the environment as a means to be exploited for people's ends' (Dominelli, 2012, p.8).

Green social work has impacted upon social work practice in disaster interventions following the 2008 Wenchuan earthquake which provided both challenges and opportunities for social work in China. There, as a newly-emerging profession, social work was poorly equipped to respond to disasters. Prior to the Wenchuan earthquake, social work training neglected practitioner interventions and research in managing disasters. Few social workers in China were equipped to work with disaster-affected communities when the Sichuan earthquake struck. Later, when providing disaster relief, many felt they were 'crossing the river by feeling the stones' (Sim, 2009, p.165). At the beginning, Chinese social workers borrowed from overseas sources. Later, some Chinese social work educators and practitioners revealed how their contextualized social work practices differed from Western approaches (Pei, Zhang and Ku, 2009). Ku and colleagues applied green social work approaches in Yingxiu. Their experiences echoed Dominelli's view that culturally-relevant and

locality-specific disaster social work intervention should consider the links between the social, economic and environmental dimensions of sustainability (Ku and Ma, 2015).

Social workers faced tremendous difficulties working in Sichuan, particularly when they initially lacked recognition and local community legitimacy to practice among residents. However, they were deeply moved and motivated by glimmers of hope in the midst of this large-scale disaster. And, without hesitating, they willingly engaged their altruistic and humanitarian principles in doing their best to serve those in need (Pei, Zhang and Ku, 2009). The Wenchuan earthquake simultaneously became a professional turning point for social workers helping those who were in desperate need and forged a new professional identity by assuming a new mission and role, using knowledge from Western sources, ranging from the strengths/asset-based perspective (Green and Haines, 2002; Kretzmann and McKnight, 1993; Saleebey 2004) to green social work (Dominelli, 2012) and applying these in unfamiliar Chinese contexts.

Spatial Injustice in Post-Disaster Reconstruction

There is a limited literature on social work interventions involving spatial injustice

(Jeyasingham, 2013, p. 2). Those writing about space focus more on what space the social worker works within, and how space shapes clients' lives and social work practice (Ferguson, 2009, 2010). Jeyasingham (2013, p. 13) states:

“Material aspects of spaces also come to be significant without entering the conscious or unconscious experience of practitioners. The physical arrangement of homes, meeting rooms and office spaces affects how people interact...Spatial arrangements such as gesture and bodily posture, more often understood in social work as forms of self-expression and communication, are also aspects of interaction between bodies and other aspects of the environment.”

Based on the principle of green social work, spatial justice should link together social justice, environmental justice and space (Dominelli, 2012). However, this terrain is occupied mainly by geographers like David Harvey (1973) and Edward W. Soja (2010). The organization of space is a crucial dimension of human societies and reflects social realities and influences social relations (Lefebvre, 1968, 1972). Both justice and injustice become visible in the spatial dimension. Understanding the interactions between space and society requires recognition of social injustices and planning policies that aim to tackle these.

Physical space embodied in housing is not only a place or building that serves pragmatic needs for shelter, but also acts as a symbolic 'repository of historical meanings that reproduce social relations' and 'mnemonic device for recovering memories' (Low, 1993, p.75). Space affects how individuals and groups perceive their social position and place. Shared places help forge communities by enabling and/or constraining how people come together (Kohn, 2003, p.3). The built environment shapes people's actions, collective memory and identity. This tells who you are and where you come from as well as creating people's sense of belonging. Maurice Halbwachs (1980) explained a way to recapture the past is by understanding how it is preserved in current physical surroundings. A particular place is a way to locate stories, memories, and dreams. It connects the past with the present and projects it into the future (Kohn, 2003).

Margaret Kohn (2003, p.5) argues that space and place are political. Particular spaces aggregate or exclude people, and determine the form and scope of their interactions. Foucault (1980; 1988) suggests that space is treated as a vehicle of social inquiry and bearer of symbolic value. Space is governed by political systems and constrained/shaped via the construction of knowledge and operation of discourses. The discourse of space is a way of producing regimes of truth which legitimate constructions of physical space and its reconstruction by those with power. However,

Ku recognize the power of the powerless and their capability in producing counter discourses and shaping their space to protect their interests when he studied peasant resistance in China (Ku, 2003).

Rebuilding physical environments and built infrastructures including houses, roads, power supplies, communications, water and sanitation are crucial elements of post-disaster reconstruction. Resilient community-based reconstruction is China's top priority. After the Wenchuan and Lushan earthquakes, the Chinese government legitimated its rebuilding initiatives by creating a discourse that 'the future will be better' and 'issued an overarching post-earthquake reconstruction plan stating that the economic livelihood of earthquake stricken communities should be restored to a level that would vastly exceed the pre-earthquake level' (Ting and Chen, 2012, p. 9).

Local people defined the government's work as *bu kaopu* ('not reliable') because its reconstruction efforts did not meet their needs. This was because reconstruction work in China fashioned economic development to emphasize 'speed', 'efficiency' and 'economic growth'. In Wenchuan, the Chinese government compressed the original three-year reconstruction work plan into two years and integrated the reconstruction project into China's overall economic development goals.

Post-earthquake reconstruction became an opportunity for the Chinese government to stimulate economic growth and achieve high GDP levels to tackle declining economic

growth. It also provided capitalist entrepreneurs with chances to profit from post-disaster construction.

The mega-reconstruction project of Wenchuan during the post-earthquake period emphasized built-infrastructures: schools, hospitals, government buildings, water supply facilities and cultural centers. These were made available for each earthquake-stricken rural township. New stylish housing estates and facilities, representing the modern (*xiandai*) and developed (*fazhan*) communities, were built for villagers to purchase and move into, without addressing their needs and concerns (Ting and Chen, 2012). Government progress reports highlighted the number of roads, highways, bridges, power stations, hospitals, schools and houses that had been built within a short period. The reconstruction project became a showcase for government efficiency and success to convince Chinese and international audiences. At the community level, villagers were unappreciative and some resisted government intervention because the entire rebuilding process neglected their core concern – livelihoods. Rural housing design imitated urban residential estates: rows of houses close to each other; three or two bedrooms on the upper floor; a sitting or dining room and kitchen on the lower floor; and toilets on upper and lower floors. Crammed into these houses, villagers had no space for maintaining their original lifestyle and mode of production, or avoid becoming disconnected from their history and memory

without backyards for raising livestock, growing vegetables, and storing farm tools.

Some faced long journeys to distant fields. In Caopo Township in Wenchuan County, villagers complained of a two hour walk to reach their farmlands. Housing design totally neglected their traditions and culture (Ku and Ma, 2015).

Reconstruction in post-earthquake Lushan also emphasized rebuilding infrastructures. Two years after the Lushan earthquake, the government's new subsidized housing estates were ready for villagers to purchase and move into (see Figure 1). The research team found modern housing design in Temple Village (fictitious name) imitated urban residential estates and lacked facilities for livestock, growing vegetables and storing tools. A local cadre informed them that:

‘We plan to develop tourism. When the people move in these pretty new houses, we will organize them to develop guest houses and receive guests from outside.

Our village is near S old town. When they come to visit S old town, they can stay in Temple Village and that will drive local economic development’.

Local government officials told visitors of their plans for economic development through tourism. Yet, Yingxiu had demonstrated that this approach was unsuccessful and unsustainable (Ku and Ma, 2015).



Figure 1: Rebuilt housing estate in S township

The Chinese government's efficiency in building houses for victim-survivors of natural calamity is impressive. However, from a social work perspective, the rebuilding process in Sichuan's earthquakes lacks democratic underpinnings because those belonging to marginal groups, particularly older people, children, and minority ethnic groups, are excluded from design and implementation processes. Moreover, core concerns have not been seriously considered and addressed in rebuilding processes.

Post-earthquake reconstruction involves processes of power domination and local resistance. In facing injustice arising through building processes, social workers ask, 'How should we respond?' Lefebvre (1996, pp. 76) offers a possible answer. He advocates that urban theorists, architects, and planners, 'make the effort to reach out

towards a new humanism, a new praxis...[than] that of urban society'. He also demands specific rights for those who live in cities: rights to training, education, work, culture, rest/leisure, health, and housing (Lefebvre, 1996). Green social work's emphasis on environmental justice and advocacy of post-disaster rebuilding that engages local residents in designing and developing accessible private and public spaces for local residents can expand Lefebvre's ideas. The first step in achieving this goal is to enable disadvantaged social groups to voice their views during urban planning and renewal processes.

Participatory Action Research, an Empowering Methodology

The research team used participatory action research to explore the following research questions:

- What are the needs of residents?
- How can marginalized groups be empowered and encouraged to participate in community design, planning and building processes?
- How will transdisciplinary social work interventions impact upon spatial reconstruction?

The Hong Kong Polytechnic University's Research Committee for the

Protection of Human Subjects approved this study. An agreement was signed with the village committee. Local participants gave consent to implement the project together and for all figures to be used in publications.

Community workers used Participatory Action Research (PAR) in Temple Village to strengthen and support the community's capacity to grow, change, and create a more just society through transformative social action (Park, 1993; Reason and Hilary, 2008; Small, 1995; Vickers, 2005). PAR relies on engaging local people as full partners in research processes (Park, 1999) and their becoming co-researchers (Gaventa, 1988; Park, 1999; Schruijer, 2006; Small, 1995; Streck, 2007). PAR engages residents in creating knowledge, educational consciousness-raising, and empowering action (Park, 1999; Reason and Hilary, 2008; Small, 1995). The fundamental principles of PAR are that participants including peasant/poor/marginal people are treated as 'knowers' whose knowledge and experiences are valued. Researchers humbly temper their 'expert' status, without assuming a superior perspective or dismissing their own specialist skills (Dominellis, 2015). Participants are encouraged to recognize and value their own knowledge and agency, and enter into reciprocal relationships with researchers (Kesby, 2000, p.424) to coproduce knowledge and solutions.

Temple Village's multi-disciplinary research team combined social work, anthropology, environmental design, architecture, and product design. PAR involved four stages: 1) identifying problem, needs, and strengths; 2) developing action plans; 3) implementing action plans; and 4) evaluating action processes and impact.

The research team began by establishing trust to understand people's lived experiences after the earthquake, assess needs, identify local assets, and encourage local people to form different groups – a women's group and public space management group, to address their own concerns. Guided by PAR, the research team used different skills to engage participants, implement activities and record the processes utilized. The community's needs and assets were identified through participant observation, oral testimonies and asset-mapping techniques. Focus groups and workshops facilitated group discussions, explored ideas and developed action strategies. When implementing community activities, participants' observations and informal feedback were recorded as field notes. Public meetings encouraged participants to articulate and share their sentiments. In-depth interviews were conducted with local officials, community leaders and selected representatives of various age groups (children, young people, adults and senior citizens). The entire research team kept notes and recorded their reflections in journals and trained local people to collect data and analyse these. Data was analyzed on an ongoing basis and

included discussions with different groups at each stage to plan ensuing actions. The data in this paper are drawn primarily from fieldnotes and journals.

Community Rebuilding in Temple Village

Discovering Temple Village

S township was one of the places most seriously affected by the Lushan earthquake.

Visiting the site many times, the research team's first visit revealed that many concrete houses, whether new or old, had collapsed during the earthquake. To their amazement, many old wooden houses in a small community called Temple Village remained stable and upright.

Temple Village, located in a rural valley near S town, in Ya'an prefecture is two hours west of Chengdu, Sichuan. An agricultural valley area adjoining hilly and mountainous areas north of Chengdu, its river plains and low lying hills provide good quality subsistence farmland while forestry and related industries are found in the higher hills. These features traditionally encouraged the dominance of wooden buildings. The local culture, customs, skills, and traditions, researched to identify opportunities for engagement/actions, revealed that Temple Village is an agricultural

community with strong familial, kinship, cultural, and social ties. The region has a Tibetan flavor since valleys connect it to the Tibetan Plateau. The 2013 Lushan earthquake disrupted the village's social, cultural, economic and physical structures. Other complicating factors included: the impact of recent changes to land ownership; fragmentation of farmlands by suburbanization; dilapidation and depopulation of traditional wooden villages; and loss of former agricultural practices, cultural practices and skillsets. Changing agricultural practices have marginalized subsistence farming and impacted upon local economic wellbeing. Temple Village like other Chinese villages, had lost its young adults to work in the cities, skewing its demography towards left-behind older people and children without family. They lived in a dilapidated, rundown community where older buildings had bad ventilation, poor hygienic conditions, dim lighting, and no public spaces.

Having chosen Temple Village as the reconstruction site, social workers played the role of broker between the local government and villagers. The social work station and villagers gained authority to rebuild the old community by signing a formal agreement with the local government.

Oral Testimonies and Discovering Local Strengths

The strength-based perspective and asset-building framework identified a wide range of assets and strengths held by local communities, without ignoring difficulties.

Models that focus upon the strengths, assets, and capacities of local people are critical for social work practice in rural communities (Ginsberg, 2005; Lohmann and Lohmann, 2005; Collier, 2006). Scales and Streeter state (2003, p.2) that rural social workers ‘uncover and reaffirm people’s abilities, talents, survival strategies, aspirations, and community’s assets and resources’. PAR’s commitment to empowering rural communities and using resources innovatively to create new assets enabled local residents to determine their own direction, set priorities, and leverage both internal and external resources.

Social workers listened to local people articulate needs in their own voice and facilitated their becoming ‘subjects’ in the community rebuilding process. In August 2014, social workers coordinated school children’s collection of older people’s oral testimonies to understand their local history and culture and discover their strengths. Collecting oral testimonies, a method of participatory rural appraisal (PRA), effectively mobilizes community participation and reveals community needs (Ku and Luk, 2002; Slim and Thompson, 1995). Oral testimony becomes a means of empowerment that provides social workers with an opportunity to discover common

community experiences, and gain deeper insights into the community's relationship to its past and cultural heritage.

Oral testimonies highlighted Temple Village's past glories. Its major surname, Yang, indicated their ancestors were high ranking military officers in the Qing dynasty. They lived in big houses with luxury woodcarving that symbolized past social status and wealth. Unlike the recently-built concrete buildings that collapsed, the surviving wooden buildings exhibited durability and earthquake-resilience. However, the dilapidated state of century-old wooden buildings in several villages bore witness to a declining tradition of wood craftsmanship. By collecting oral histories, the research team discovered that many older people and local building masters held knowledge of traditional construction processes, finishing details, skills and local material resources which could stem the decline in wood-carving skills.

The oral testimony project empowered marginalized older villagers who were considered useless while awaiting their final years. Ill-health and limited interactions between them and wider society left them feeling useless, lonely and isolated. In telling their own stories, older people recalled past memories, regained self-confidence, rediscovered their youthful achievements including participation in the Civil War, dedication to China, and many other significant accomplishments.

When telling their stories, their faces radiated with joy, as they affirmed themselves as

useful persons. During the interviewing process, social workers felt older people's pride and strong identity with their history and culture. When the social work station had been established, older people engaged to revitalize community life and traditional culture, including the community banquet called 'nine bowls' (*jiudawan*).

Oral testimonies assisted in rebuilding inter-generational communal relationships and strengthened social cohesion. By talking to older people, young people realised that despite their aged status, elders were once as young as they were and had led a colourful life, rich in experience. Consequently, they began to respect older people and find common topics that narrowed the generational gap between them. Older people rediscovered their faith in life and became part of the community, active in public affairs once more.

Participatory Design and Capacity Building

Oral testimonies emphasized local community strengths, tangible and intangible assets and values as foundations for future growth. The community's social work station provided different services and activities for those left-behind – children, women, and elders. These included summer camps for school children, classes in cooking and organic farming for women, and the community school for everyone.

Social workers also organized groups for older people and women for long-term community development, and held many group meetings to discuss Temple Village's future. Older people were keen to revitalize traditional culture, especially the community banquet and have public spaces for gatherings and entertainment. Social workers responded to their wishes by holding discussions through which villagers reached a consensus around building a community kitchen. This enabled Temple Village to revive traditions of sharing meals and caring for elders and children. Hence, building the community kitchen had multiple objectives: revitalizing local cultures and values; reclaiming local capacity and confidence; enabling villagers to develop new cooperative organizations; and extending village capacity for income generation through community events.

Transdisciplinarity allowed social workers to overcome their lack of skills in building houses and environmental and physical spaces. By drawing on their expertise in linking different groups together, they connected external resources, architects and housing designers to the villagers. Ku invited two housing designers from Hong Kong to facilitate the reclaiming of local capacity, participation in design and building processes for the community kitchen and urban spaces. In January 2005, the two designers explored their initial evaluations through participatory design approaches. Utilizing similar ideas about participatory community development, the designers and

social workers quickly turned village discussions into concrete designs for the community. These were reworked following their return to Hong Kong and another architect went to the project site to collect additional information (see Figure 2).

Brief and concept development

With the assistance of social workers and villagers, the architect studied the site and conducted a photo survey to obtain an overview of existing building systems and techniques. The architect studied the local culture, customs and habits, actively listening to and interviewing local villagers. This became a process whereby the architect and social workers learned from local building masters about traditional construction processes, finishing details, skills and local materials. The architect employed anthropological ethnographic methods, e.g., staying with villagers, to understand their living habits. The research team undertook community measurements, found local second-hand materials like wood, tiles, and bamboo for recycling in community rebuilding, following green social work principles.



Figure 2: Hong Kong architect interviewing local elders about the local culture and traditional construction

The team carefully listened to local villagers' opinions and exchanged ideas about redesigning their space. Social workers organized several participatory design workshops that enabled villagers to discuss and coproduce design plans. The architect revised the potential design, site parameters and opportunities according to feedback and clarified the project's overall conception. Participatory design emphasizes user-centeredness to confirm villager's requirements. After re-defining and re-evaluating the project's intentions and direction with the villagers, an agreement was reached that the community museum and community kitchen should be prioritized for construction through ongoing dialogue, discussion and negotiation.

Design prototyping and revision

The architect brought the revised design options to the villagers in May 2015. These were presented in simple models and drawings within the ‘straw man concept’ utilizing two concepts: the *living museum* to highlight villagers’ crafts, skills and expertise; and the *community kitchen*, a multifunctional cultural space constructed around a community kitchen. Social workers organized a participatory design workshop to engage the public when the designer presented the 1:100 models. Villagers were encouraged to express their opinions on design options freely. Differences of opinion and quarrels emerged during these discussions. Social workers played important brokering roles between designers and villagers. They observed group dynamics, ensured that meetings ran smoothly for villagers collectively to select community kitchen options, highlighted issues of flexibility, adaptability to existing habits and patterns, and highlighted income-generation opportunities.

Through PAR, the research team analyzed villager feedback, reviewed and adjusted designs on site, and facilitated further discussions to incorporate villagers’ ideas into the design process cycle. Together, they confirmed the project’s broad focus and working brief as a multifunctional community kitchen that provided:

- Multifunctional, adaptable and flexible spaces for villagers’ use.

- a community kitchen with income-generation potential including cooking for festivals and banquets.
- well-lit, comfortable spaces (heated in winter) to drink tea, chat, meet and play cards, especially useful for older villagers.
- upper floor space with a small meeting room or public balcony.
- a design that harmonized with existing wooden buildings and reflected local cultural contexts.

Design confirmation and revision

The architect used information collected during stage 2 to develop the community kitchen model and produce schematic design options presented to villagers simply as 1:50 models and sketch drawings (see Figure 3). These options provided three different layouts and spatial organizations that: incorporated space for the public square, tree, future organic gardens and outdoor meetings; proposed three different roofs embedded with the village's existing spatial language and contexts; internal layouts with space that could be configured differently to suit villagers' needs, e.g., using the stove for communal cooking, social gatherings and heating. These options highlighted how villagers could integrate the village square into existing contexts, and daily habits. The architect revisited the village in June to present revised design

options to villagers. In the participatory design workshop, the research team engaged villagers in comprehensive discussions of the different options, including evaluations of each option's potential and viability.

After the workshop, the architect and social workers analyzed villagers' feedback. The eventual resolution simplified the design and allowed a common consensus to emerge. This included keeping the expressive roof that highlights the community kitchen's importance and difference from surrounding houses. The architect also held a preliminary discussion with master builders/carpenters to explore the feasibility of implementing the design plan. Time was tight to achieve the villagers' desire to complete by the Mid-Autumn Festival. The research team invited student volunteers from Hong Kong to participate in design and building processes, facilitate knowledge transfer, and extend engagement between design professionals and villagers.



Figure 3: Designer introduced three options to villagers

Design Finalization and Detailing 1:20

Stage 4 was critical to finalizing the design options. The research team returned in July, 2015, accompanied by six architectural students . The architect incorporated designs from earlier stages into the final design process and evolved the curved roof from traditional timber structures into new forms. Research team members worried whether the villagers would accept the new design.



Figure 4. Participatory design workshop

Social workers invited villagers to the final design workshop. The room, was absolutely crowded with people, especially older ones. The designer gave a final presentation that highlighted ownership issues. This resulted in design modifications and adjustments to the final design. The proposal was that the roof system rotates 30 degrees from the column grid and roof beams positioned at different heights to give shape to the curved roof. Older villagers and the carpenter criticized the curved roof's final design and structure. Some villagers thought the design did not follow their traditions; others were unconvinced about the structural stability of the curved roof; and others rejected it. Final confirmation rested with the villagers (see Figure 4). The presentation to the carpenter team initially caused consternation. Social workers facilitated dialogue between the architect and master carpenter. The architect carefully

engaged the master carpenter and sought his guidance on his ideas. The master finally agreed the redesigned structure after finding a technical solution to the problem identified by the villagers with whom final approval rested.

Design realization and construction 1:1

Construction ran from July to August to secure the full participation of local villagers and volunteer design students. The first step was demolition. Villagers and volunteers demolished the existing building, recycling roofing tiles, floor paving-stones and timbers. The designer laid out basic sizing and shaped and fixed the site and foundation stones by assigning columns to specific positions. Social workers and the designer relied on the master carpenter and villagers in the building process, although they worried about the pace of progress because they utilized only basic construction tools.



Figure 5: Villager setting up the frame of building collectively

Mechanical tools limited to a portable bench saw, grinder and electric drills, were used to shape and frame parts from unmilled timbers within the building under the master carpenter's supervision. No nails were utilized in their assembly and wooden joints were wedged to precise tolerances. The frames were assembled flat on the ground and pulled vertically (like barn constructions) to ensure precision. Villagers, social workers and volunteers participated with the carpenter's team to erect the assembled frames on site (see Figure 5). Builders used the models for reference. Collective action and participation proved essential to collective ownership of the building. The research team admired the skills and collective spirit of master carpenters and villagers which fostered a high level of craftsmanship and speed in the

building process.



Figure 6: Social workers and villagers doing tiling

After completing the frame, the carpenter and villagers connected and wedged the erected frame. As a no-nails construction, they also tightened the frame when the wood dried and finishing details were completed. Tiling the roof frame became a collective endeavour. Twenty participants completed the tiling in one morning (see Figure 6). Important topping out and finishing ceremonies included the burning of incense, a traditional ritual for praying for the safety of the building. The construction process effectively mobilized community support and participation, especially among older people, and crossed boundaries when Hong Kong student volunteers joined villagers. These actions generated a sense of collective ownership and community

pride, and the continuation of craft traditions in carpentry.

Design Fit-out and Construction

The research team began their interior design in late July. The designer provided an initial schematic design and strategy focused on minimal intervention to respect the villagers' wishes. Social workers presented this design to villagers and sought to resolve all outstanding issues including practicalities, costing, scheduling and ordering to reach a consensus and expedite completion. . Social workers documented villagers' ongoing evaluations with their overall evaluation being conducted once construction had been completed.

The final construction stage in September 2015 involved walls, windows, partitions, ceilings and interior floors. Designers and social workers reduced participation during this stage because villagers wished to complete the building quickly. The research team and villagers simultaneously negotiated retaining the upper level deck as reconfigurable open space.

The villagers constructed the floor and kitchen walls. It was difficult work as they had to choose, position, and place stone slabs, and select final surfaces finishes for the kitchen area. Constructing the kitchen stove and amenities was skilled work. Skilled older villagers positioned and constructed the stove. They collectively constructed the

bamboo vent above stove area, water filtration tank, staircase to the upper level, and timbered the ceiling and upper deck. Other site work and landscaping included rainwater gutters, drains, and paving except for glazing windows and minor adjustments which were completed by late November 2015. During December 2015, villagers completed the interior furniture, decoration and final finishes.

Temple Village's community kitchen was inaugurated in January 2016 when 200 villagers joined the Opening Ceremony (see Figure 7). They decorated the community kitchen with red lanterns and streamers, reviving traditional opening ceremony rituals including lion-dancing and setting-off firecrackers. Finally, two yellow dancing lions climbed to the second floor of the community kitchen for villagers to unveil a plaque named, *Chongshan Lou* (Building for Good). The community banquet kept them together the entire day. Songs and laughter filled the whole community. The old people felt very joyful. One of them told the social workers, 'our village hasn't been so festive for a long time!' Despite these community-oriented functions, the community kitchen's income generation potential remains for future realization.



Figure 7. The inauguration of Temple Community kitchen

Conclusion

Environmental and spatial injustice is a key concern that green social workers endeavor to address. The community kitchen part of the larger project exemplifies green social work practice in one of China's earthquake-affected areas. The transdisciplinary, participatory action research collaboration among villagers, social workers and environmental designers encapsulated by Temple Village coproduced a new model of social work practice that incorporated spatial justice in post-disaster rebuilding processes. We call this model the *green social work spatial intervention model*. It integrates spatial and environmental justice with social justice. This treats the physical environment as integral to green social work interventions in

post-disaster reconstruction. This model is relevant to other places because it provides a transdisciplinary framework that utilizes PAR to create a communication platform including participatory design to solve common problems through teamwork that involve design professionals, social workers and residents in combining scientific and local expertise, knowledge and skills in reconstruction processes. Its outcomes are coproduced common analytical frameworks, and culturally-relevant solutions. This model also provides a framework whereby social workers and design professionals can understand built environments as significant spaces in maintaining local people's well-being. It provides a concrete practice model of green social work that promotes sustainable community development by integrating people's social, cultural and economic skills into long-term livelihood recovery following major disasters.

We conclude by identifying seven outcomes and benefits generated by the Temple Village project. These are:

- 1) inclusive community engagement and revitalization that makes visible the hidden voices of marginalized older people and ends their isolation.
- 2) local community empowerment of elders through PAR processes that actively engaged the skills, labor and capacities of 60 villagers.

- 3) re-activating traditional culture by constructing the community kitchen as social space that reconnects villagers to their traditions, land and memory and promotes locally-based wisdom, skills, craft traditions and earthquake-resilient wooden buildings.
- 4) affirmation of villagers' self-sufficiency through a multi-functional, all-weather community kitchen and new cooperative organizations that contribute to village well-being, long-term sustainable development, and income-generating capacities to attract external visitors.
- 5) transdisciplinary collaboration involving local villagers in actualizing participatory design to formulate a new model of post-disaster reconstruction for China.
- 6) knowledge sharing/transfer platforms which engaged the different knowledge domains and skills of social workers, designers, and local villagers.
- 7) innovations in green social work practice that included spatial injustice and physical environments in post-disaster reconstruction.

Finally, the community kitchen fostered positive change and collaborations that activated existing skills, self-organization initiatives and capacities in the village. This community kitchen was not only for eating together!

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