# Interdisciplinary, asset-based, participatory development approach confronting with vulnerabilities and inequalities-Superadobe house architectural intervention in XiaoShuiJing leprosy rehabilitation village as case study

**Hei Chan**
The Hong Kong Polytechnic University

**Peter Hasdell**
The Hong Kong Polytechnic University

**Meng Hsun Hsieh**
Chengdu Building for the People

**Andrew Ming-Yuen Kwong**
HIS Foundation

## Abstract

**In this paper, we argue that when confronting with vulnerabilities and inequalities, architects have to shift their mindset. Traditionally, we starts our projects by focusing on a community's needs, problems and deficiencies in a needs-based, top down, outside in approach without understand the underlying causes. The result may not be effective and even worse, after spending vast human and financial resources, we might have hurt the vulnerable people in the process of trying to help them. More often, vulnerabilities and inequalities is not only lack of material resources, but also suffering from poverty of spiritual intimacy, poverty of being, poverty of community and poverty of stewardship. A more desirable way would be an asset-based, bottom up, inside out approach. The design process itself could be a healing process to restore their broken relationship. An essential 3 steps to support architectural intervention towards locally driven sustainable community development are evaluated: Step 1 - building relationships; Step 2 - asset mapping and Step 3 - participatory design.**

**With this framing，the challenge for professional designers to effectively participate in supporting vulnerable community development is discussed through a case study of a superadobe house architectural intervention in XiaoShuiJing village - a leprosy rehabilitation village in Yunnan, China.**

## Keywords

Architectural intervention, asset-based community development, participatory design, interdisciplinary cooperation, sustainable development

## Aims or objectives

This research study is to explore in what extent architectural intervention through interdisciplinary, asset-based, participatory development approach could contribute to vulnerabilities and inequalities in locally driven sustainable community development. The investigation is based on a project work done in 2015. It was cooperated with architects, local social workers, foundation and related parties using participatory design method at XiaoShuiJing village - a leprosy rehabilitation village in Yunnan, China as an intervention site, activating local asset to create tangible and intangible value. Not only to improve vulnerabilities and inequalities of their built environment, but also teach people with knowledge and skill. Let them understand that they are capable and valuable. It is aim that with the support of the local social workers, the villagers can make use of the knowledge and skills gained to achieve sustainable community development in the long run.

## Background

### Background of China urbanization and establishment of leprosy rehabilitation villages

In China 1950's, People's Communes were established during the Great Leap Forward, implementing centralization of life. It became the main carrier of urbanization (岳清唐 2010).

Due to the lifestyle of family unit in the past, leprosy has not been very influential to others. However, after implementing of People's Communes, people are centralized and afraid of infection. Therefore, at that time, the country began to build leprosy villages to isolate leprosy patients. With the development of People's Communes, the isolation movement accelerated. According to incomplete statistics at that time, the whole country have been established more than 700 leprosy villages （雷亮中 2014). Urban vulnerabilities was thus the initial caused for the formation of leprosy villages.

Since 1980s, China has fully implemented the combined chemotherapy treatment by which patients can be fully cured. Although physical isolation could therefore be eliminated, leprosy discrimination can hardly be eliminated. According to National Leprosy Prevention and Control Plan (2006-2010), nearly 210,000 leprosy patients in the country still facing inequalities with social isolation, prejudice, physical disability and economic difficulties after the disease is cured. They stayed at the same place where they were displaced since then and formed the leprosy rehabilitation villages nowadays （卓彩琴 and 张慧 2011). XiaoShuiJing village is among one of the leprosy rehabilitation villages situated in Yunnan, China.

### *Background of traditional approach of architectural intervention*

Vulnerabilities and inequalities have always been one of the key topics in China National People's Congress over past decades. Government at all levels had launched various kinds of assistance for vulnerable groups with mega-construction projects:
-Year 2011, China's New Urbanization － Optimize the allocation of urban and rural space.
-Year 2013, Construction of Beautiful Village － Promote rural ecological development.
-Year 2014, Targeted Poverty Alleviation Strategy － Take targeted poverty alleviation resources to ensure that assistance reaches poverty－stricken villages and households.
-Year 2017, The strategy of rural vitalization － Prioritize development of agriculture in rural areas and the integration of urban and rural areas.

The ruling Communist Party of China has set 2020 as the year that the country should eliminate poverty and become a moderately prosperous society (State Council, 2016). Under the mega and ambitious top-down plan, the construction work fashioned to emphasis 'speed', 'efficiency' and 'economic growth'. Modern stylish communities were constructed for villagers to buy and move into without addressing their needs and concerns. At community level, villagers were unappreciative and some opposed government intervention as the planning ignored their main concerns-livelihoods, traditions and cultures (Ting and Chen 2012; Ku and Dominelli 2018). Good intention may sometimes do harmful effect without understanding (Corbett and Fikkert 2009). Consequently, the behaviors of vulnerable groups are also affected since they become to believe that their well-being relies on others (Kretzman and McKnight 1993). Thus, needs-based, top down, outside in approach encourage both the providers and recipients to bypass local assets and resources (Turner-Lee and Pinkett 2004).

## Research Method

### *Participatory Action Research*

Participatory Action Research (PAR) is a common research method to support community development and sustainable livelihoods that focus on the process of participation and action. It is an empowering method that emphasizes action must be done 'with' people and not 'for' people (Reason and Bradbury 2008). PAR is applied in the research to investigate how locally driven sustainable community development can be done through architectural intervention. The following research questions are being raised and explored:
-What are the needs of the vulnerable people?
-What are the local assets and people's capabilities that can contribute to their well-being and community sustainable development?
-How to empower and encourage vulnerable groups to engage in community design, planning and building processes?

The research process followed the four stages of PAR: (i) identifying problem, needs and strengths; (ii) developing action plans; (iii) implementing action plans; and (iv) evaluating action processes and impact (Ku & Dominelli, 2018). The research team started by building trust and relationship with NGO and the vulnerable group, establishing common goal and determining the role of each parties. The needs and assets of the community were identified by participant observation, in-depth interview and asset-mapping. Data were analyzed on an ongoing basis and experiment

were carried on and off site in a trial and error approach. Discussion and informal feedback were collected from NGO, social workers, designers, volunteers and the vulnerable people for evaluation.

The research team of XiaoShuiJing rehabilitation village consisted of two very different disciplines- architectural designers and social workers. In the participatory action research, they 'participated' in different stages and 'action' in different ways to contribute their professional knowledge. They were complimentary to each other as 'software' and 'hardware'. Social workers acted as the coordinators between designers and villagers as well as the facilitators in community engagement while architectural designers acted as innovators for new possibilities in built environment and formulators for action plan.

## Discussion

An essential 3 steps to support architectural intervention towards locally driven sustainable community development with the example of superadobe house building in XiaoShuiJing village:

### 1. Building relationship and understand the reality

The understanding of social and environmental vulnerabilities and inequalities involves the analysis of the risks and assets of disadvantaged groups (Bankoff, Frerks, and Hilhorst 2004). Both vulnerabilities and inequalities are both related to poverty. According to World Bank, the definition of poverty is not just "poor" and "low income", the essence of poverty is that there are no various "development opportunities", and there is no "free choice". It is the lacking of basic opportunities and choices in human development – longevity, health, decent living, freedom, social status, self-esteem and respect. Corbett & Fikkert further pointed out that people in poverty often "lack one or more of life's essentials: **spiritual intimacy, a sense of self-worth, relationships in community, and an ability to work productively and steward the fruits of that labor**. "Understanding their realities and walking with them to look for solutions together, as opposed to doing for them, is the solution to the underlying issues of poverty. A deep understanding of the area requires long-term observation and research, and it is extremely difficult under the limited time of a project. More and more design teams will choose to work with other humanities teams to conduct preliminary research (Li 2018). It will be wise for designers to adapt **interdisciplinary cooperation** and partner with local social work and NGO to minimize the barrier between the vulnerable group and achieve long term operation.

In this architectural intervention project, the first step was to **establish relationship**. The research team initiated by a foreign foundation had partnered with local NGO and social workers to understand the general picture of the area and XiaoShuiJing leprosy rehabilitation village was being introduced. They found out that the village was on the mountain with a very poor accessibility. No vehicle could go up the mountainous road and only accessible by foot with an hour walk. The living situation was very bad (Figure 1). Some houses were structurally unstable and some villagers were staying in the same house with cows. The research team conducted in-depth interview with the villagers. When asked what the villagers wanted most, they replied houses was one of their biggest concerns. Under observation, they had a low self esteem, a poor relationship with neighbors, tendency to depend on others and did not have much hope in life.



Figure 1 Existing building and living environment

## 2. Asset based not need based

All individuals have the ability to contribute to the community. Everyone has resources that they can use to change their situation. External resources can build upon what's already exist, but those resources should never replace one's innate capacities. (Corbett and Fikkert 2009) Thus, the second step is to draw up a comprehensive **map of assets** which begins with the inventory of community's residents' gifts, skills and capacities. Under asset based approach, it looks at people and the community from a strengths perspective. This provides ways of working for service providers to focus on strengths, abilities and potential rather than problems, deficiencies and pathologies (Chapin, 1995; Early & GlenMaye, 2000; Saleebey, 1992; Weick et al., 1989). "While in a community whose assets are being fully recognized and mobilized, these people too will be part of the action, not as clients or recipients of aid, but full contributors to the community-building process." (Kretzman, J. P., & McKnight 1993)

After understanding the situation of XiaoShuiJing village, the research team went back to search for possible solution with the community's limited assets. They found out that there was a building system called superadobe, created by an Iranian-born architect, Nader Khalili. It is an economical, time efficient, energy efficient and environmentally friendly system convenient for disaster regions as well as low-income areas (Zhao, Lu, and Jiang 2015). The Superadobe System's main materials are long sandbags, barbed wire, on-site earth and a few simple tools. The construction is easy, flexible and time efficient (Figure 2). Everyone is capable to build. The whole family, men and women, from grandma to the youngest child, should be able to build together. There are no heavy lifting, backaches or expensive equipment involved (Cal-Earth). It can utilize the capabilities of villagers and solve the material transportation problem. The research team communicated with the local social workers and ask them to consult the villagers if they willing to learn this kind of architecture. After getting the consent of the villagers, the research team took an intensive training at CalEarth to further understand the theory and building technique. Then they went back to XiaoShuiJing village to make sure the earth composition was suitable, double check all the tool supplies were available at local market and conducted initial site measurements. An

introduction workshop was held in the village to explain all the details again (Figure 3). The aim of building the architecture was not merely solving the problem of the collapsing houses in the village, but to empower the vulnerable people to let them know they were totally capable to change the current situation with their own power and the existing asset within the community.



Figure 2 The building process of Superadobe
Source: www.calearth.org

Figure 3 Introduction workshop and asset investigation

### 3. Build with people not build for people

The final step is building the architecture together through a **participatory design** process. Participatory design began from the basic point of view that those impacted by the design should have a voice in the design process. It developed project strategies and assisted resource weak stakeholders to allow them to participate effectively to ensure their existing skills could become an asset in the design process (Bjögvinsson, Ehn, and Hillgren 2012). It is essential because the vulnerable people want to be personal independence, be part of the society and have contribution so that they can have dignity and feeling of self-worth. Overcoming poverty requires the direct involvement of a person in the decision-making process. People own what they participate in

(Corbett and Fikkert 2009). Peter Hasdell (2017) has given a more compressive narrative about participatory design that "the repositioning of participatory design within complex social processes enables design's reconsideration as a socio‐material assembly, integrated within a social context as complex adaptive systems and manifested through knowledge generation and transfer process. Further, this help participatory design as an effective tool for sustainable development in rural contexts, generating an understanding of resources, capacities and capabilities as form of local knowledge."

The process of superadobe building involved participation of the community throughout design and construction stages. The research team had discussed the size, location and orientation of the architecture together with the villagers then asked them to clear the rocks and prepare for the foundation. It gave the chance for the villagers to make use of their capacity and showed trust in them. At the same time the research team had to wait for the slack farming season to come again in order to have more villagers to participate together. For the third time of returning to the village, the site and materials were all ready. At the beginning, few villagers participated. They tended to observe a while and went back to do their own things. Some tried to keep a distance and still had doubt in the intention since seldom had people care for them. Furthermore, the villagers did not have a close relationship within the community and not used to work together. It takes time to build up a relationship. As time went by, more villagers started to join in the building process (Figure 4).

In the process, the villagers gradually restored the relationship with themselves with growing self esteem and had improved the relationship with the neighbors in the community. They had also steward the fruits from their own labor in the building process. Due to the weather influence, the building process had to be suspended several times during raining and snowing period. The team had to come back and forth with different volunteers and professionals joined in. Although it was a very small architecture building even not with an appealing appearance, through the participatory design process, the vulnerable people felt that they were being valued, cared and loved. There was a substantial change in their relationship and attitude after a year-long participation process (Figure 5).

Figure 4 villagers participation in superadobe building process



Figure 5 restore in relationship through architecture intervention, Jun 2015 - May 2016

## Conclusions

We conclude by identifying interdisciplinary, asset-based, participatory development approach confronting with vulnerabilities and inequalities is more effective as an architectural intervention in terms of fostering people's life essentials: spiritual intimacy, a sense of self-worth, relationships in community, and an ability to work productively and steward the fruits of that labor, with the superadobe building as an example. It suggests a sustainable and practical pathway oppose to the traditional top down model which mainly focus on speed, efficiency and economic growth, without deep understanding of people. Mother Teresa said that "few of us can do great things, but all of us can do small things with great love". The superadobe is a tiny inconspicuous architecture in an isolated leprosy rehabilitation village on top of a mountain with a long communication and building process. However, through which it stimulated a positive change and people in vulnerabilities and inequalities felt that they are being understood, respected and loved.

In this research study, due to the time and manpower reason, the short-term architectural intervention came to an end. The vulnerable people now have the ability and recognized the assets that can continuous to improve their living environment. The role of the vulnerable group, social workers and architects shall change eventually when the vulnerable people start to replicate the model. They shall take the lead in the building process instead while social workers and architects shall become the role of consultant for professional suggestions and support only. More study in this aspect remains for future research potential to evaluate the change in knowledge, capabilities and self-organization initiatives of the vulnerable group as well as how much support shall architects and social workers provide to foster the long term sustainable community development.

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