

ONE UNIVERSITY ONE VILLAGE 一專一村



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“One University One Village” International Earth Building Festival @Kunming

The first International Earth Building Festival, jointly organized by the 1U1V team of The Chinese University of Hong Kong and Faculty of Architecture and City Planning, Kunming University of Science and Technology, came to a close on June 26, 2018. The event lasted for eight days. It was attended by a total of 24 participants from various countries, such as Canada, Japan, USA, Inner Mongolia and Ningxia. During the event, the 1U1V team invited two French specialists in earth construction— Mr. Marc Auzet and Ms. Juliette Goudy— and Prof. Bai Wenfeng, who specializes in the seismic performance study of building structures at Kunming University of Science and Technology, to provide professional guidance.

This Festival covered three aspects: rammed-earth construction materials, rammed-earth construction technology and the practice of earth construction. It aims to provide an opportunity for participants to get close to the construction site of an earth building and deepen their understanding of the material and method.

The process is both intelligently and physically challenging. Apart from attending lectures about soil and visiting traditional earth building villages, the participants also learnt about the construction condition of the 1U1V Earth Building Research Centre. Furthermore, they were taught to distinguish soil composition, test it, make adobe bricks with different proportions, and build self-design structures (including partition walls, bars and seats) with clay of different properties. Participants have shown their endurance to hardship through their sweat. Due to rain, some activities were held indoors. They persisted in the face of challenges and did their best to complete the task. The eight-day event was an unforgettable experience for the participants.

At the closing ceremony, the leaders of the School of Architecture and Urban Planning of Kunming University of Science and Technology congratulated the organizers and participants for the success of the event. Professor Edward Ng gave a speech and presented calligraphy artwork “土圭垣墨·塾堯坤垠” written by former CUHK Vice-Chancellor Professor Joseph Sung for 1U1V projects. Each of the eight words contains the Chinese character "earth", and represents his recognition and expectation of the team. Click here to view the highlights of the Festival and the participants' quotes.



Our Projects



Site Location: **Qiunatong Village, Gongshan County, Nujiang Prefecture, Yunnan**

Project Nature: Rural Sustainable Development Assistance Programme

Teams: CUHK, Peking University & Kunming University of Science and Technology

Project Duration: Dec 2013 – Nov 2018



The 3rd Early Childhood Education Service (30 May to 21 Jun)

Collaborating with the Service-Learning Centre of Chung Chi College at CUHK, the 1U1V team conducted the 3rd Early Childhood Education Service this year. The 3-week (30 May to 21 Jun) programme featured the theme “Playing for Learning” and served children aged 3-8 years old in Qiunatong Village who are not attending school. Investigations in public health, disaster prevention, ecotourism and cultural documentation were also

carried out. In our previous programmes, village children learnt the concepts of discipline, manner, and sense of time. They were also able to work in teams and communicate in groups with proper behaviour management. The village committee and the township government plan to reopen the village school, which has been suspended for years. Kindergarten education is of top priority. They also visited us during the service to discuss the ideas and experience of early childhood education and invited us to provide guidance in the launching of village kindergarten education.

Eco-farm Land Use Planning and Building Design

Currently, the local government and related departments encourage villagers to run tourism businesses to boost local rural employment. Our eco-farm design has been commended by both the owner and the County Tourism Bureau. However, the eco-farm construction project faces suspension as a planned village ring road under the local government’s development plan will cross over the site.



Vernacular House Renovation as a Village Library

In September last year, a young villager expressed his wish to turn an unused house and its courtyard into a village library. The team applied participatory design to engage all stakeholders and other villagers with strategies including village meeting, games and collages, home visit, and individual interview. During the process, villagers’ needs and imaginations about “a library” were listened to, while the progress of design development and coordination were open to all. However, a dispute of land use right emerged at the later stage of design. The team will postpone the project until the dispute is resolved

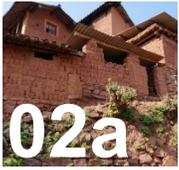


Positive Discipline Psychological Training in Township Middle School

Teachers in the township middle school have a mature understanding of education philosophy and the relationship between psychology and education. Most of them are willing to improve their psychological skills to communicate more appropriately with students and gain mutual development. The team cooperated with a professional psychological trainer to provide systematic and customised positive discipline training for all classroom teachers. Teachers shared their experience after having practised the tools they learned during the training. This service was positively received by the middle school and the township government.

Increase the Value of Agricultural Products

In May this year, the team proposed to the villagers an improved packaging design for their home-made wine of corn or barley. Strings made from natural hemp collected in the Nuijian River region are knitted to create beautiful patterns on bottles of different shapes. Not only does this increase the cultural value of the product, but it also enriches the local wine culture and increases villagers’ income and business opportunities.



Site Location: Dabaiyi Village, Xiyang Township, Jinning County, Kunming City, Yunnan

Project Nature: Earth Building

Teams: CUHK & Kunming University of Science and Technology

Project Duration: Feb 2017 – Dec 2017 (1st phase project)

Apr 2018 – Jul 2019 (2nd phase project)

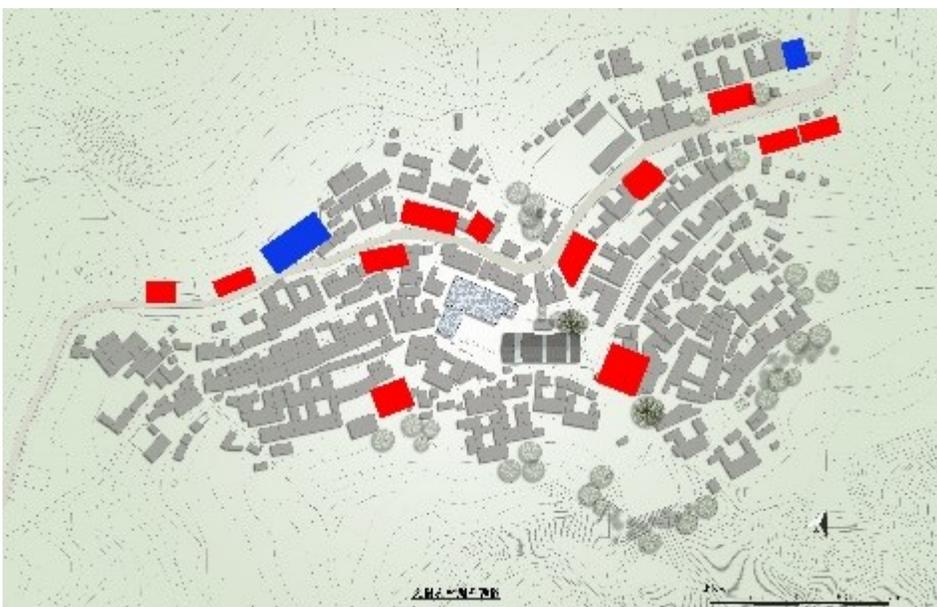


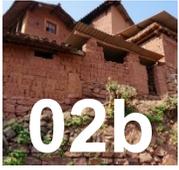
The 1U1V team has completed the first phase of the house rebuilding project in Dabaiyi during the past year (February to December, 2017). The project delivered great social impact, with a total of 14 households expressing their willingness to participate in the second phase of the project to have their houses rebuilt under government's assistance.

Building on the experience from the first phase, we rely more locally on the village for resources such as skilled workers and construction materials in phase two. The team hopes to adopt a cooperative model and encourages villagers to join the construction team. Through that, the team can leverage on the mutually beneficial way of living in the village and the resources there. That can help reduce construction cost and divert more resources to workers' training.

In April 2108, site survey and mapping work for 14 households were completed by the student volunteers from Kunming University of Science and Technology (KMUST). In view of the issues of land distribution between some households and manpower deployment, it is estimated that renovation for the six households in the second phase of the project will officially commence in October 2018.

The team is now working with KMUST's student volunteers on the design work for 10 households. Through this, the team tries to encourage more university students to practise in real construction projects so that they can have a chance to learn and work for impoverished villages. It not only strengthens communication between the students and villagers, but also provides practical opportunities for the students.





Site Location: Gaoliangdi Village, Xiyang Township, Jinning District, Kunming City, Yunnan

Project Nature: Earth Building

Teams: CUHK & Kunming University of Science and Technology

Project Duration: Oct 2018 – Dec 2020



Gaoliangdi Village is located at the boundary interface between Kunming City and Yuxi City, about 110km away from the city centre Kunming. Gaoliangdi Village is populated by mainly Yi and Hani minorities. The area has a population of 94 in 74 households. Located on a terrace, the village slopes down in steps from west to east. Most of the building are earth constructions in poor conditions with various types of damage.

Gaoliangdi villagers visited Dabaiyi Village in December 2017 under the arrangement of Xiyang Township Government. They expressed strong interest in the new anti-seismic rammed earth house construction technology developed by the 1U1V team. Therefore, the team agreed to work out a two-year rebuilding plan for Gaoliangdi Village under the support of the local government in May 2018. After more than a month of visits and investigation by the township government, about 61 households were convinced to participate in the rebuilding project.

Based on the survey results, Gaoliangdi villagers shows very strong support to such earth rebuilding house project. To boost participation, house owners will foot all the construction materials bills for their own buildings. This mode of cooperation not only encourages owners' participation, but also allows them to decide for themselves the sizes of their rebuilt houses according to their own economic status. This facilitates land management and planning, and allows for future eco-tourism development.





Site Location: Hetaoping Village, Miyi County, Panzhihua City, Sichuan, Yunnan

Project Nature: Earth Building

Teams: CUHK, Tongji University & Kunming University of Science and Technology

Project Duration: Oct 2018 – Feb 2019



Hetaoping Village is about 60 kilometers away from Miyi County. It takes about 1.5 hours to travel between the two places on car. Local villagers are BaiPo Yi minority and all speak the Yi language. Their lives are mostly simple and harmonious. The village primarily produces tobacco, green pepper, pepper and walnut. There are also pig and chicken farms. Not many of them work outside the village.

The team was invited by the Miyi County Construction Bureau to construct new demonstration houses for a group of 7 households in the village. The villagers attended artisan training at 1U1V Earth Building Research Centre in Kunming for a week.

The buildings in the village were mainly built with rammed earth and hollow brick blocks. Some common problems are listed below:

- a) With the exception of the Village Secretary's house, all houses have no windows and the circulation and lighting indoors are poor.
- b) The roofs are not closely attached to the wall and wind often leaks into the houses. Although they are rammed earth buildings, thermal insulation is poor. The house is very cold in winter.
- c) The wooden structures are worn out. Some villagers have built pig sheds and they face risks of collapse because of the poor structure.
- d) The toilet is outside the house. There is a great need to combine the septic tank and biogas tank with the pigpen to solve the sewage problem.

In mid-August, the team investigated and learned about the villagers' livelihood. Seven farm houses have been selected for the rebuilding project. Designs will be drafted according to each household's situation and needs. The team plans to finalize the construction details after further development of the initial plan in early September. In mid-October, demolition and foundation work will begin. It is hoped that the families will be able to move into the new houses by Chinese New Year.





Site Location: **Dujia Village, Xinglong Town, Yubei District, Chongqing**

Project Nature: Bridge Building Programme

Teams: CUHK, Chongqing Jiaotong University & Tsinghua University

Project Duration: Jan 2017 – Mar 2018



In December 2017, the team completed the site foundation work, abutment work and anti-corrosion and pest control for the bamboo. Also, a shed was built on the playground of the abandoned school in the village for the construction of the main structure of the bridge. It took another three months to complete the assembly of other components, installation of railings and laying of bamboo flooring. The bridge completion ceremony was held in the morning of 8 April 2018. This "Yi Xin Qiao" bridge is currently the largest rural bamboo bridge in China with a span of 21 meters. It is a breakthrough in the construction technology of modern bamboo bridges.

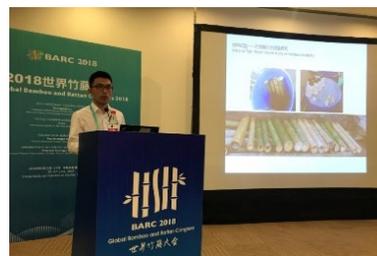


In the past year, in addition to bamboo testing and structural research, the team also actively looked for bridge sites with urgent needs. In view of different environmental conditions, materials for bridge building projects are not limited to bamboo, but can extend to concrete, steel, wood, and a combination of the above. The team has built river-crossing bridges for the following villages:



- Xiaowu Village, Chongqing (12-meter steel bridge completed in mid-February 2018)
- Ganxi Vilalge, Chongqing (12-meter steel bridge completed in late March 2018)
- Zhoujia Village, Chongqing (12-meter steel bridge completed in early June 2018)
- Fangeng Village, Sichuan(10-meter steel bridge completed in July 2018)

In addition, "Yi Xin Qiao"s person-in-charge and CUHK Architecture PhD student, SHAO Changzuan was invited to participate in the first Global Bamboo and Rattan Congress held at the Beijing National Convention Center. He was recognised by the "Special Contribution Award for Bamboo Architecture" for his project's outstanding contribution to the research and demonstration of bamboo structure. It was also the only bamboo architecture award at the conference. He gave a lecture titled "Key Technology of Bamboo Structure Design and Construction" at the Forum on Sustainable Bamboo Building Materials cum the Third Modern Bamboo Structure International Conference. He also exchanged views with other guests there.





Site Location: Kunming City, Yunnan

Project Nature: Earth Building Research & Development Centre

Teams: CUHK & Kunming University of Science and Technology

Project Duration: Nov 2016 – May 2018



Kunming University of Science and Technology officially approved the application for the construction of the Centre in June last year. Design and preparation work is now in full swing. The Centre covers an area of 1,121 square meters and its gross floor area measures 1,053.5 square meters.

Meticulous preparation was put into the processes of initial site selection, site preparation, foundation, rammed-earth wall building, pressure test, structural construction and slab flooring. It was in the end tested and approved by experts. The main structural construction work was completed on 20 July. The roof construction work is still in preparation, while the team searches for suitable parts of roof beam and truss in Chongqing. Once completed, they will be delivered to Kunming for installation. Interior decoration and landscape work will then follow. The overall project is expected to be completed in September.

In addition, during construction, the team conducted the second phase of artisan on-site training (10 days) for 10 workers from Miyi County of Sichuan and Mengzi County of Yunnan. The training was based on practical operations. The trainees were systematically taught to determine soil proportion, use formwork and operate the ramming machine.



Planning Ahead

Project Status

Earth building project :

Construction and Rebuilding House Project @ Manggang Village in Yunnan - Manggang Village is located in Ruili City of western Yunnan, adjacent to Myanmar. The project is commissioned by Ruili City Immigration Bureau. After two occasions of investigation, the team plans to build two new demonstration houses, modify two houses and transform an abandoned primary school in the first phase. The project is expected to be completed in early 2019.

Bridge project: In addition to bamboo loading tests and durability research, the team also plans to carry out research on anti-seismic housing with bamboo structure and launch a demonstration project in the earthquake-stricken area of Wenchuan, Sichuan.

Village Assistance Programme:

The team plans to conduct the second “Positive Discipline” training to middle school teachers, where specific issues in middle school education will be discussed. Students will be engaged this time. On the other hand, due to impact of urbanisation, the ethical culture in the Nu River Valley is declining rapidly. The team wishes to design and publish a picture book for children aged 0-3 of folktales in Nu River Valley. The picture book itself serves as an exploration of the local identity as well as educational material. It also provides a glimpse for outsiders to the lives of Nu River people and their cultures.

Awards

Following the Architecture Review (AR) House Awards 2017, the rebuilding assistance programme in Guangming Village of Yunnan launched by 1U1V won several other local and overseas awards as listed below:

- WAN Awards 2017 - WAN residential Award
- CIC Construction Innovation Award 2017 - Local Grand Prize Award
- World Architecture Festival 2017 - World Building of the Year Award
- World Architecture Festival 2017 - New & Old Completed Buildings Winner
- DFA Design for Asia Award 2017 - Silver Award

It was also shortlisted as one of 62 projects for the 2018 RIBA International Prize. The awards not only shine a spotlight on rammed-earth buildings, but are also important recognition for their revival.



Promotion & Publicity:



Following the recognition and encouragement of the awards, the team actively published journal articles related to earth construction and accepted multiple invitations from overseas, such as Turkey, Japan, France and Manila, to give interviews and lectures and hold exhibitions to promote the new anti-seismic rammed earth house construction technology. The team was also featured in a cover story of the “China Today” magazine, where its achievement in the “Oscar of Architecture” with its earth-building project was reported. It also introduced the work and philosophy of the team in the construction of bridges, schools and houses in the poor rural areas in the mainland over the past decade.

As a summary of the construction experience from each project, the team plans to compile a manual for anti-seismic rammed-earth construction. The drawing work is expected to start in October and the first draft be ready in 6 months.

1U1V team received an invitation from CLAB of Chengdu, Sichuan last year, to provide training and construction guidance for the rammed-earth construction of the "Innovation Lab of Architecture and Arts" in Qiongyao Relics Park. The integration of rammed-earth construction into its design has greatly enhance the technical limits of traditional earth construction and allow it to be built on magistoseismic area with 8-degree seismic intensity. The project was completed in May this year.



In September this year, the team will visit the International Center for Collaborative Research on Disaster Risk Reduction, Beijing (ICCR-DRR), with Dr. Emily So of the University of Cambridge. At the meeting, international collaboration for the development of a code for anti-seismic rammed-earth construction will be discussed. ICCR-DRR was set up by the Academy of Disaster Reduction & Emergency Management (authorized by the Ministry of Civil Affairs and Ministry of Education) and Beijing Normal University. The team hopes to take this exchange opportunity to incorporate anti-seismic rammed-earth construction into the international disaster risk reduction research, with the goal of providing guidance and evidence for the post-disaster reconstruction policy and earth construction codes in the mainland.



1U1V's demonstration house project in Hetaoping Village of Miyi County will be featured in one of the episodes in documentary *Reinventing Hometown*. The show is one of the key productions of CCTV9 Documentary in 2018. It aims to tell the stories of people in rural construction. The documentary is currently in production and expected to be aired in early 2019.



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