無盡無止
Human Bridging

A Bridge 2 Far is the highly awarded, humanitarian result of discovering ecological solutions for disadvantaged, rural communities in China

備受高度評價的「無止橋」，以充滿人性的角度，合乎生態標準的方式，連接了中國偏遠落後的社區

TEXT: CATHERINE OELRICHS PHOTOGRAPHY: COURTESY OF WU ZHI QIAO (BRIDGE TO CHINA) CHARITABLE FOUNDATION

What began as one man's mission to assist an impoverished school in China, A Bridge 2 Far (B2far), grew to become a passionate, collaborative endeavour and only the beginning of an international 'bridging' legacy.

Originally, Edward Ng, an architect and a Professor at the Chinese University of Hong Kong, was interested in the improvement of a school located in Maosi Village in Gansu Province, China. During his extensive field study, he stumbled across the locals' modest but untrustworthy bridge. Maosi villagers had to cross the hazardous Po River via a single-log bridge balanced unsteadily on piles of rock, straw, and earth in order to reach the local medical clinic, monastery, and school. During the torrential rainy season, the make-shift bridge hindered the locals' ability to safely cross, and in one instance two villagers were swept away.

A dream was born to design and build a new bridge that was completely sustainable and met the realistic needs of the villagers. Completed in 2005 over a mere five days, it is a 90m ecological masterpiece that employs mostly local materials and can be maintained by villagers, and the first bridge in the world to stand on metal cages filled with local rubble.

An immediate test of the bridge's design happened just one month after completion. Seriously damaged by a predicted, aggressive flood, the local villagers re-constructed the crossing successfully in two days and without any further assistance.

The inspirational project aims at improving the livelihood of communities in remote areas. Yet just as importantly, it provides an educational tool for Hong Kong's and China's younger generations to have a deeper insight into ecological solutions for the country.

Participating volunteers included recognised industry-related professionals, academics and students at CUHK, PolyU, HKUST and Xi'an Jiaotong University, along with hundreds of schoolchildren and locals from the village. Together the dream was achieved, significantly improving everyone's knowledge and understanding of community-based sustainable design and development.

The traditional bridge was a basic design of ten mud piers compiled of straw, rocks, and earth

The new bridge remains sensitive to its surroundings, largely due to the natural materials used in the final design

Receiving international recognition and prestigious awards beyond anyone's expectations, B2far was awarded the RIBA International Award in 2006 by the Annual Award of Royal Institute of British Architects, the first ever award for China and the most economical project in the history of RIBA. In 2007 B2far was honoured the Design Award for Asia 2007 Special Merit Award from the Hong Kong Design Centre. Significantly the bridge was granted a title in the Top 100 Designs to Improve Life at the INDEX 2007 International Design Award.

Following the completion of B2far, a charity foundation was established to develop and build ecological and sustainable hand-made bridges. Now an energised and devoted community of volunteers will continue to demonstrate the sustainable design of 'bridging.' Currently the Wu Zhi Qiao Bridge (Bridge to China) Charitable Foundation has more than twenty bridges in planning and construction throughout isolated areas of China.

「無止橋」，由最初幫助中國貧困學校的個人使命，變成一個熱情及努力的集體標誌，甚至成為一個國際性「架橋」遺產。

香港中文大學教授及建築師吳恩融一直對改善甘肅省毛寺村的學校這項目很有興趣，他曾到當地進行多次廣泛的考察工作，也踏過建當地人也謙稱是「不可信」的橋。當毛寺村村民到診所、寺廟、學校等地方，都需要渡過危險的寶河，但原來要靠的是一條建在一堆堆岩石及稻草上的獨木橋，看起來已是非常不穩定，人在上面實在難以平衡。在雨季時，這條橋根本不能讓村民安全地過河，曾有兩個村民被洪水沖走。

因此，各人的夢想就是如此達成了：重新設計一條可持續使用，而符合村民實際需要的新橋。在2005年，「無止橋」在僅僅五天的時間便建成了，而這條長九十米的新橋簡直稱得上是「生態傑作」，採用當地的原材料之餘，由當地人建造，由村民維修，更是世界上第一條建在裝滿瓦礫的鐵籠上的橋。

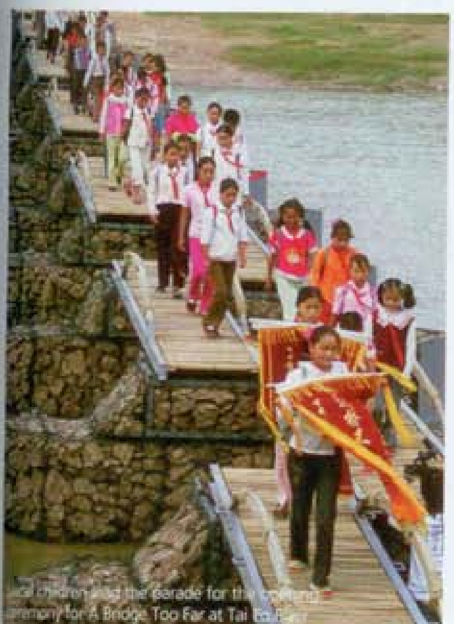
新橋完成後一個月，便遇上了考驗，被一場大家已預算會到來的洪水所摧毀，當地村民在沒有協助下，成功重新修建了「無止橋」。

建橋計劃旨在改善偏遠地區的民生，但原來同樣重要的是，為香港及中國年輕人提供了一個認識為國家開發出更能融入生態的解決方案。

參加者包括業界專業人士，以及來自中文大學、香港理工大學、香港科技大學、西安交通大學等的學者及學生，當然還有隨著數百名當地中小學生和居民，實現了共同的夢想，更大大提高了大家對促進可持續發展及設計的認識。

更令人意外的是，「無止橋」獲得國際承認及獎項，包括英國皇家建築師學會在2006年頒發的RIBA International Award，這不但是中國首次獲獎，也是首次頒給一個最符合經濟效益的項目。2007年，「無止橋」更獲得香港設計中心亞洲最具影響力設計大獎2007 Special Merit獎項。另外，「無止橋」還在INDEX 2007國際設計大賽中的Top 100 Designs取得一席位。

「無止橋」計劃完成後，步伐沒有停下來，更成立了一個慈善基金，以開發及建設環保及可持續的橋樑，現在有一班有理想，有動力的志願人士繼續示範如何建成可持續的「架橋」項目，現時「無止橋慈善基金」正計劃在中國偏遠地區興建超過廿五座橋樑。



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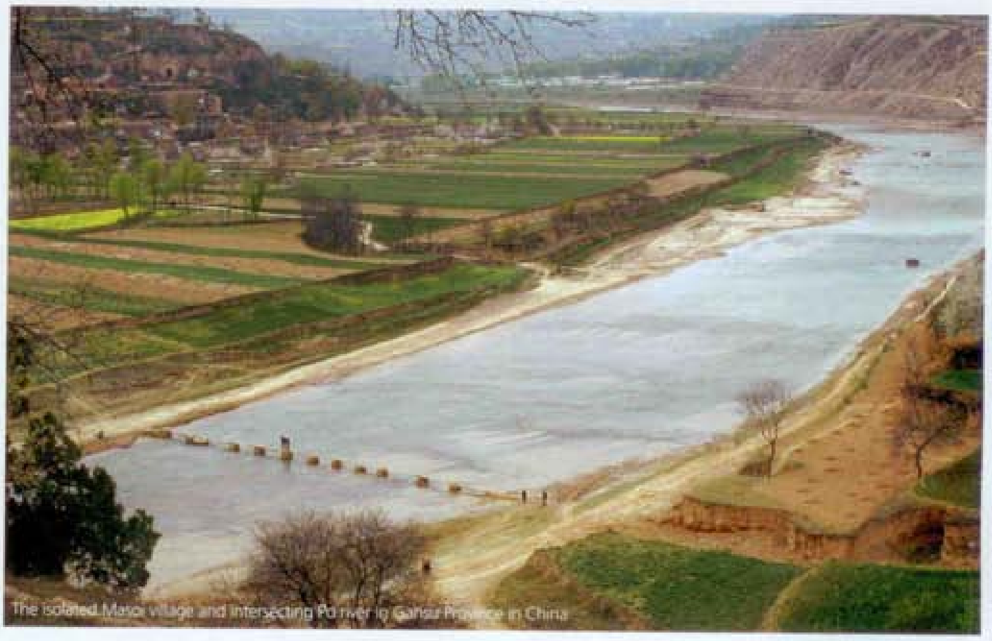


The isolated Masoi village and intersecting Pu river in Gansu Province in China

Local children lead the parade for the opening ceremony for A Bridge 2 Far at Tai Po Tau

In the Beginning

Mu Jun is the Project Coordinator for a B2far 1 and 2. He is also a pioneer of a venture that began in 2004 which initiated the original B2far — The Maosi Ecological Demonstration School in Gansu Province, China. The school was a key feature of his Masters thesis in Ecological Architecture. Currently studying for his Ph.D, Jun shares with Perspective the development of a rural educational facility which successfully generates a methodology for future building projects located in other deprived regions.

How did the Maosi Ecological School evolve?

In 2002, Edward Ng made a field investigation in China's Loess Plateau region. In the Maosi village, he was shocked by the poor education conditions. Limited by the shortage of funds, children had to study in the dark and in dilapidated classrooms; therefore it was hard to attract teachers to come. Fully supported by the local government, Edward decided to seek donations and help them design and build a primary school to improve the quality of life.

Modest and simple design features up date the classroom interiors while providing a more comfortable space for the children to learn in

What were the main environmental issues affecting the school?

Loess Plateau is characterized by environmental degradation, a lack of resources, and low levels of economy, education, and technology. Over the past centuries, pollutions, soil salinisation, desertification, water and soil loss, and drought attacked the villagers' survival. The indoor ambience is always too hot in the summer and too cold in the winter. Large single pane windows, thin roofs, wall construction, and incorrect site layout are expensive to build, difficult to maintain, and impossible to occupy without fossil fuel consumption. Taking their original primary school as an example, during the winter season in three months, 700kg of coal was burned to keep each classroom warm due to its poor thermal performance.

How did the new ecological design for the school come about?

We got inspiration from local vernacular architecture. Under the poor conditions of the region, during the past thousands of years the locals have learnt how achieve harmony with the natural surroundings, and create a special vernacular architecture in the form of earth-based dwellings, which can be classified as hill-side caves, sunken havens, and earth-vaulted houses. It is cheap and easy to construct for the locals. For example, in winter the hill-side cave only needs 10 per cent comparably of fuels for heating, due to its more stabilized and warmer indoor thermal ambience. And, its construction cost is only 20 per cent of conventional buildings due to simple techniques which the occupants can handle themselves. These advantages result from the local traditional technology based on earthen materials and natural products, such as adobe, rammed earth, reed, straw etc., which have outstanding performance in local availability, thermal properties, environmental performance, and cost efficiency. Therefore, the local earth-based technology is worth involving in the study of ecological architecture.

What was the aim in the final design for the school?

To educate locals on how an effective village building can be achieved, and how they can build it themselves. All while remaining the most effective and affordable ecological approach just by utilizing local natural materials and their familiar, traditional techniques. Our conceptual design relies not only on construction and materials, but also on a significant illustration of the building process to locals. The school design was implemented by the villagers mainly with their own manpower and simple tools. From this demonstration, they can realize that by utilizing local products and their traditional technology they can attain a lower construction cost and can build, by themselves, an optimal building which is comfortable, beautiful, environmentally friendly, and doesn't require much money to operate.

What are significant environmental and economic improvements to the new school?

Besides electric energy for lighting at night, the school operation does not consume energy throughout the year. According to the latest field measurement, even in the coldest of winter, the occupied indoor atmosphere can still achieve acceptable thermal comfort without consuming fuel for heating. Apparently not even one piece of coal is needed and the money saved can be used for buying

Reaching extremely low temperatures in winter, the thermal performance of the new school is successfully improved while reducing environmental harm and economical demands

books. Construction cost of classrooms is 73.6 USD per sq-m, cheaper than that of other local schools. No fossil fuel is needed for heating and cooling, which saves 1,210 USD per year. This is highly significant as their per-capita income is only 140 USD annually. The new school is also now a multi-function centre for the entire village community.

What challenges did you face and how did you overcome them?

There were many challenges, but the most important and difficult was communication with village builders. We had to learn their traditional construction method. Most villagers have a very low level of education and don't know how to read construction drawings. We had to tolerate their slow working efficiency. Therefore, during the whole construction process, approximately one year, I stayed in the village. They were not working for me, but we were working, eating, and living together. Not only was I teaching them, but we were also learning from each other for a better technical solution.

It was the ancient vernacular architecture of [illegible] dwellings from which the concept for the new school was derived

鋪橋搭路

穆鈞是「無止橋」第一及二期計劃的項目聯絡員，也是一家合資企業的「先驅」，從2004年已推動最初的甘肅生態示範學校「無止橋」計劃，這學校也是他生態建築論文的主要內容部份。目前，穆鈞仍在攻讀博士學位，他各大家分享發展農村教育設施，如何可成為其他貧困地區同類建設項目的典範。

甘肅生態示範學校是如何發展出來？

在2002年，吳恩融教授到中國的黃土高原地區進行實地調查，在毛寺村，如此差的教育條件令他很震驚，由於缺失資金，孩子要在黑暗中學習，教室破舊不堪，又很難吸引教師到來。得到地方政府的支持，吳恩融決定尋找捐助，令他們得以設計及建造一所新小學，以改善當地人的生活質素。

建設學校時遇到甚麼環境問題？

黃土高原的特點是環境不斷惡化，資源匱乏，經濟、教育、技術的水平均低。在過去的幾百年，人為污染、土壤鹽鹼化，沙漠化、水土流失、乾旱等，都大大影響了村民的生活。即使在室內，夏天也太熱，冬天就太冷。大單面板窗口、薄屋頂、建築高總都非常昂貴，又難以維修，要消耗很多燃料，才能住下去。以原本的小學為例，在冬季的在三個月內，就要用上七百公斤煤，才能保持每個教室的溫暖。

新的學校又如何表現出生態設計？

我們的靈感其實來自當地民居的建築。在這樣的惡劣條件下，當地人在過去幾千年來都學會了如何實現與自然和諧並存，營造一種特殊的民居建築，即是所謂的洞穴式房子。對當地人來說，這是十分經濟和簡易的構造，例如，在冬季，山邊窯洞只需要百分之十的燃料加熱，已可有穩定及溫暖的室內環境。另外，由於技術簡單，可以自行建設，所以成本只是常規建築物的兩成。我們就想到要發揮這些優點，即是在地方傳統工藝的基礎上，採用當地天然的材料，例如泥磚、夯土、蘆葦，稻草等，效果不錯，又取自當地，既耐熱，又環保，更可降低成本。因此，這種地道的環保技術，就是十分值得研究的生態建築項目。

學校的設計項目還有甚麼目標？

教導當地人如何實現有效的鄉村建設，以及如何能靠自己建成。其實，所有最有效，以及能負擔的生態做法，就是利用當地的自然材料，以及村民熟悉的傳統技法。我們的設計概念得以成功，不僅靠施工及材料，還要向當地人示範整個建設進程。校舍設計的成功，也不過是靠當地人簡單的人力和工具，從而令他們認識到，地道的物料和傳統的技藝，其實已可同時低成本及完成優良的建設項目。舒適、美觀、環保，都不需要太多的金錢。

新校舍在環境及經濟上有哪些顯著改善？

除了晚上的照明外，學校的運作基本上不會消耗能源。根據最新的實地考察，即使在最寒冷的冬季，即使不用燃油，也能為室內提供達可接受程度的溫暖。既然不需要煤，省下來的錢便用來購買書本。教室的建築成本的是每平方米73.6美元，比其他地方學校已很化算。不需要消耗燃料於加熱及冷卻上，即可節省約1,210美元。這是十分重要的，因為當地人的每年人均收入只有140美元。新學校還已成已當地的多用途社區中心。

你曾面對甚麼挑戰，又如何克服？

我們曾遇過很多挑戰，但最重要和最困難的是與當地人溝通。我們要學習他們的傳統施工方法，而大部份村民的教育水平都很低，根本不知道怎樣看施工圖則。我們還要忍受其緩慢的工作效率。因此，在為期約一年的施工過程中，我都留在村裡。其實，他們不是為了我工作，而是我們一同工作、吃飯及生活，不只是我教他們，我們在相互學習，尋找出最好的解決方案。

The simple roof design is primarily local straw and easily constructed

Bamboo is split and plaited for the bridge handles, the design is essential for quick reconstruction if damage was to occur

A Student's View

Shelley Woo is the Project Coordinator for B2far1 and 2. An undergraduate in Industrial and Product Design at the Hong Kong Polytechnic University, she is an active member of the Charitable Foundation.

What is your role as Project Coordinator?

Since I am still an undergraduate student, I did not have much practical experience. At the beginning, I felt nervous and questioned my ability to manage the time schedule of each team. I now know that a coordinator should thoroughly understand the bridge, especially the background and design process, so I can effectively explain everything to sponsors, organizations, and volunteers. During the design procedures, I am responsible for making a record for WZQ journals, so that in the future we can have a clear reference as to what we have done previously.

What experiences have you gained from this project?

I hoped to explore more about the world by doing meaningful voluntary work. My previous experience could only provide me some basic idea on how to fulfil my role. Most of my new experiences are related to the ways that I can effectively organize activities in the community. We are not only organizing the bridge construction, but also involved in the communication and cooperation between Hong Kong and Mainland China.

Why do you think the project was so successful?

I think the success is significantly due to the nature of people sharing. We involved volunteers from different professions like Architecture, Engineering, Graphic design, Logistics, and Marketing, therefore we all have the same goal and passion for our work but different perspectives. Good relationships between our volunteers enabled us to understand their role, tasks, and responsibilities. Also, our clear objective to 'Integrate, Improve, and Inspire' is key s success in achieving sustainable desig Architecture is of course a huge topic; and t work had not only a great impact due its practi and functional design, but also in the way it c bridge the heart between the local villag professionals, and students.

How has this experience influenced you perception of design?

As a student of design, I now believe that desi no longer has distinct borders, but is rather link to every prospect and everything is related. Nu with a better understanding of sustainable desig I consider the concept of reducing, re-use, a recycling in design. I also now understand th good design is not only for improving our life, b also can inspire others and allows furth improvement in the future. And I see we need t strike a careful balance between introducin advanced technology and maintaining the simp life in remote areas.

學生觀點

Shelley Woo也是「無止橋」第一及二期計劃的項目聯絡員，她是香港理工大學的工業及產品設計本科生，但原來也是慈善基金的活躍的成員。

作為項目協調員，你擔當甚麼角色？

由於我仍是一個本科生，並沒有多少實際經驗。在剛參加時，我十分緊張，也很擔心自己的能力，如能否以管理每個小組的進度。我現在明白到，一個項目協調員需要理解的建橋項目，尤其是背景及設計過程，這樣我才可各贊助人士、不同團體及志願人士解釋。在設計過程中，我負責一份「無止橋」的紀錄日誌，方便我們日後參考，令我們更快完成工作。

你從這項目獲得甚麼經驗？

我希望能透過這些有意義的志願工作來探索這世界。我以前的經驗，只能為我如何履行責任提供一些基本思路，但新的經驗卻令我明白如何有效地完成工作。我們不僅籌劃建橋的項目，還涉及很多中港交流和合作的工作。

為甚麼你認為這項目是如此成功？

我認為成功在於與人分享。計劃涉及的志願者來自不同的專業，如建築、工程設計、平面設計、物流、營銷等，雖然觀不同，但同樣為共同的目標而努力。由於關係良好，使我們認識到各位志願人士的角色、任務和責任。另外，我們的目標明確：團結、改善、啟發，令我們得以成功完成這可持續的建築設計。建築當然是個很大的課題，但涉及的工作不僅是其實用性及功能，還有關它能聯繫當地村民、專業人士及學生。

這經驗有沒有影響了你對設計的觀感？

作為一位設計學生，我認為設計不再是一個一個的「外來者」，而是將所有服務及相關事物聯繫一起。由於對可持續設計有更深的理解，我會考慮到減廢、再用、循環使用等設計理念。我也明白好的設計，不只能改善生活，也可啟發他人，進一步改善我們的未來。我認為我們必須審慎平衡在這邊地區引進先進技術和保持簡樸生活。

Humans prove the most reliable, after delivery trucks unexpect broke down, local children carried the rubble to the site

Designing a bridge

Kevin Li is an active member for Wu Zhi Qiao Charitable Foundation. A registered architect for Hong Kong's Architectural Services Department, Li was originally a teacher for architecture students regarding bridge designs for the project. Due to his extensive contribution to the original B2far, he is currently a leading advisor on the Project Committee for future bridge initiatives.

How has your previous experience contributed to the bridge design?

I had no previous experience on the design and building of a bridge, actually no one in the original team had such experience. So my guiding principle was to search for a better solution continuously. The final design reflected some important sustainable and ecological principles. In retrospect, I have not developed any new architectural concept. I have only applied the enquiry approach to design and developed a low-tech and manageable design solution. We were fortunate that there was ample time to develop different design options for debate and refinements. We also believed that limitations could be transformed into a generative force.

What are the key principles of the design?

They are simplicity, pragmatism, and it had to be easy to build and repair. The bridge design did not have any stylistic preconceptions and its choice of material and appearance reflect such principles.

The zigzag formation was to eliminate trucks trying to cross and provide space for children to relax without interrupting other human traffic

Please explain the key architectural and design features of the bridge?

First, we decided that the bridge should only be used at normal conditions when the river depth is less than 1m. At high tide or under storm conditions, students would stay at home. We concluded that the bridge deck would be close to the river level, therefore it is a submersible bridge design.

Secondly, is the adoption of gabion. Back in 256 B.C. in the Sichuan province of China it was claimed that bamboo gabion was used for river bank reinforcement in Du Jiang Yan. When I put forward this idea in the early design stage, I did not receive consent from engineers who preferred something more stable, such as a reinforced concrete base. The turning point was support given by structural engineer Anthony Hunt. He considered that by combining individual gabions together structurally, it could provide a rigid and stable base for a reasonable period.

Finally, the bridge frame and bamboo planks were subsequently developed with practicality in mind. They were pre-fabricated in Xi'an and assembled on site by volunteers, students, and villagers.

The bridge design did not rely on heavy machinery and most work was carried out on the shore to minimize exposure

How has this project influenced your view sustainable social design?

Providing that there is a vision, there is certainly a way to realise it. Some people thought that a project in a remote part of China would be hard or impossible. The bridge demonstrated that with teamwork and endurance, it can be achieved. We encouraged the villagers to take part in the bridge-building process, and we were pleasantly surprised by the enthusiastic support from the school children and their teachers.

設計橋樑

Kelvin Li是「無止橋慈悲基金」的活躍成員。他是香港建築署的註冊建築師，曾是參與「無止橋」項目的建築學生的導師。由於貢獻良多，他現更是未來建橋項目計劃的項目委員會的領導顧問。

你以往前的經驗對橋樑設計有何貢獻？

我原本也沒有設計或興建橋樑的經驗，其實當時的成員中也沒有相關的經驗。我的理念就是不斷尋找更好的解決辦法。最後的設計反映了一些重要的可持續的生態原則。回想起來，我沒有提出甚麼新的建築理念，我只是應用了一些設計調查方法，以及制定了一些低科技和易於管理的解決方案。我們幸運地有充分時間，就著不同設計方辯論及修改，我們相信，限制原來也可轉化為推動力。

設計的重點是甚麼？

就是簡單、實用，以及容易興建及修葺。橋樑設計沒有任何設計風格可言，選擇的材料及外觀已體現了這些原則。

請解釋橋樑的主要建築及設計特點。

首先，我們決定這橋只應用於正常的環境，即河流深度在一米以下。在高潮或暴雨時，學生要留在室內休息。我們又認為，橋面將接近河面的水平，所以這是一個所謂潛入水中的設計。

其次，是採用石籠。早在公元前256年，中國四川省的都江堰已有用竹籠作為河岸加固的記載。我在設計初期時已提出這想法，卻得不到其他工程師的和讚，他們都推薦一些較穩陣的建議，如用鋼筋混凝土基礎。但轉折點是結構工程師Anthony Hunt的支持，他認為，在結構上來說，結合一個個石籠，能在一段合理的期限內提供穩定的基礎。

最後，橋架和竹板也發揮了很大實用性：預先在西安裝嵌，運到現場後，再由志願人士、學生及村民一同組裝。

這項目有沒有影響到你對可持續設計的看法？

只要有理想，就有方法以實現它。有些人認為，很難或根本沒有可能在偏遠地區完成項目，但建橋計劃卻表明，只要有團隊精神及忍耐力，就一定能達到。我們十分鼓勵村民的參加，在建橋過程中，我們對學生和老師的支持也十分驚喜。

All elements of the final bridge can be easily dislodged and will quickly sink, when flooding occurs

Guizhou WZQ site — severe lack of maintenance and heavy rain forced the stone bridge to collapse

Bridging the Future

Lucia Chueng is an active member for the Wu Zhi Qiao Charitable Foundation. A registered architect for HKIA, her previous work with B2far concerned the design of the bridge deck. She continues to be a leading advisor on the Project Committee and is currently working towards potential sites and designs for future bridges.

What is your current involvement in the Wu Zhi Qiao Charitable Foundation?

As a member of the Project Committee, I am sharing my experience with the students on the current projects. Since the completion of Maosi Bridge, I was involved in the planning and design of another bridge in Dengbo Village. Located in Daocheng County of Sichuan Province, Dengbo Village is a Tibetan community set in a valley that is 3573m above sea level, with a population of 855 villagers.

How did this project evolve?

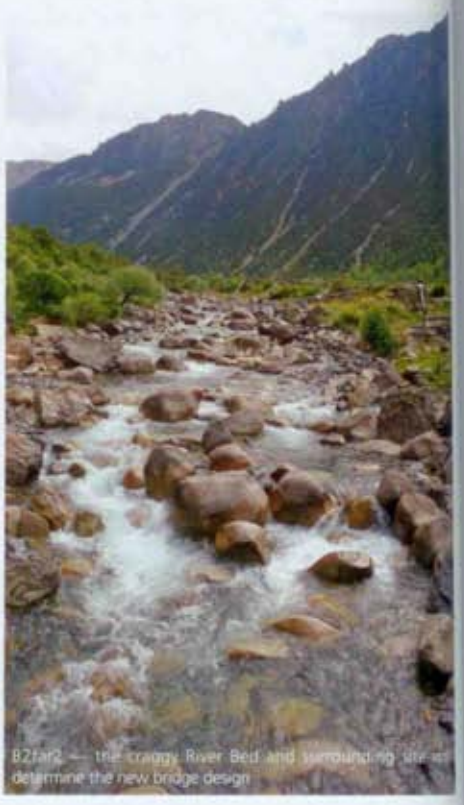
A monk learnt about the Maosi Bridge project and approached Professor Edward Ng. The project involves students from CUHK and Chongqing University. The design was completed and the construction was planned in 2007, but was postponed due to issues in the village. Partial work on site was done last year and now the bridge construction is planned for August 2008.

What challenges has the project team faced?

The altitude and remoteness of the site has been challenging. It is a two-day drive from a nearby city in Chongdian and only a jeep can reach the site, but not a truck. Therefore the delivery of material to site is a big challenge. The rocky condition of riverbed also makes construction in the water dangerous.

How is the design of this bridge different similar to the Maosi Bridge?

The design is a suspension bridge in order t minimize future work in the river. A suspensi bridge is also a local tradition in the mountai regions of Tibet and Nepal. The difference is th cultural dimension of this project. In a way, w tried to translate and improve the construction of Tibetan bridge. Similar, is the adoption of loc material and the use of gabion due to th abundant supply of rubble on site. The expecte outcome is a fusion suspension bridge.



B2far2 — the craggy River Bed and surrounding site determine the new bridge design

How has the new project changed your view of sustainable and ecological social design within the rural communities of China?

Through the few trips to the site, I got acquainted with the Tibetan bridge builders and they are endangered species in the building profession. They are all very old and no proper documentation has been made regarding their magnificent works. Building on local wisdom and helping it to proliferate can be a useful approach to tackling projects in the rural communities of China in the near future. The key is to observe, and to understand the actual need and the context, then appropriate the design.

連繫未來

另一「無止橋慈悲基金」活躍成員Lucia Cheung是香港建築師學會的註冊建築師，她在「無止橋」計劃中主要設計橋板部份，現時仍擔當項目委員會的顧問，尋找建橋地點及外觀設計事宜。

你現在於「無止橋慈悲基金」擔當甚麼工作？

作為一個項目委員會成員，我會與同學分享我的經驗。自完成毛寺村大橋，我也曾參與策劃及設計部坡村新橋的項目。部坡村位於四川省稻城縣， 是一個位處水平線上3,573米的山地的藏族社區，大約有855村民。

為何會進行這項目？

有一名僧人得知毛寺村新橋，所以接觸吳恩融教授。這項目涉及香港中文大學及重慶大學的學生。在2007年，我們已完成設計，及籌劃擴建工程細節，但由於村務問題，所以延遲開始。部分考察工作已在去年完成，興建工程會在2008年八月開始。

項目遇到甚麼挑戰？

高原及地方偏僻已很有挑戰性。要從最近的城市到達，也要兩天的車程，而且只有吉普車才能抵達那處，連貨車也不能，運送物資是一大問題，而且河床有很多石，也提高了建設的危險程度。

這橋和毛寺村的橋有何相似及不同之處？

為了減少在河中的工作，新橋的設計是懸索吊橋。懸索吊橋也是當地西藏與尼泊爾的山區傳統。不同之處最主要是文化方面。在某種意義上，我們試圖翻新及改善這條藏族橋樑。而類似的，都是採用當地材料及使用石籠，因為當地供應充足。我們預期應該是一條「混合式」吊橋。

新項目有否改變你對在中國鄉村發展可持續及生態的設計的看法？

經過數次的實地考察，我認識了西藏的橋樑建設者，他們其實是建築業中的瀕危物種。他們都很老，也沒有文件記錄他們曾興建的的宏偉工程。利用傳統智慧，繼續發揚光大，是將來幫助解決農村社區中的建築問題的最好方法。關鍵在於觀察，以及了解實際需要和文化背景，然後便可得出最適當的設計方案。E