

1st feasibility study trip for Wangdong bridge, Guangxi  
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**Background:**

The Wangdong Bridge project was initiated after another PM project to renovate the deformed Tengcun bridge at Tengcun, Wangdong Xiang, Rongshui Miao Autonomous County, Guangxi, was put off due to a more cost-effective renovation scheme proposed by local craftsman in lieu of the one proposed by PM. The Wangdong Bridge (2km upstream of Tengcun Bridge) was selected because it had been the major river crossway between a village school and most of residential area before it collapsed due to the same flooding that deformed Tengcun Bridge in 2016. The main difference with Tengcun Bridge Project is that Wangdong Bridge's deck was demolished after the incident, the bridge piers are the only remains at site. This trip, under the order of Professor Tham, who led the previous Tengcun Bridge Project, aimed to conduct site surveying and collect other background information of the site. The students also briefly discussed the feasibility of new bridge ideas with local authorities such as Boss Wu and Secretary Liao of the Party, who are in charge of administration of several villages including Wangdong Xiang.

**The trip:**

The crew included five student participants (Calvin Poon as PIC), led by Dr. Huang, and Mr. Wa (technician of surveying equipment lab). The crew was greeted by Kelu (who helped organized the accommodations and meals, and accompanied the crew throughout the whole 3-day trip) and Boss Wu (who provided technical suggestions), both of whom provided us transportation between hotels, the surveying site and Express Rail Link Stations (courtesy to their generous help). Other locals who we have met included the Principal of target village school at Wangdong Xiang and Secretary Liao. The 3-day trip was organized that the first and last day were merely for transportation between HK and Rongshui County, Guangxi, and the second day was wholly for surveying work. The taskforce was divided that three students with Dr. Huang, and Mr. Wa would conduct surveying and two students would conduct interview and taping. The interview with Principal, Secretary Liao and Boss Wu was done with the majority of background and engineering questions answered, it was finished shortly using 2 hours. However, the surveying part was quite rush as a considerable amount of time was used for lunchtime, at the end some critical objects were not measured (please refer to the drawn map).

Another incident that happened in the trip was that we missed the express rail ride from Shenzhen Bei to Guangzhou Nan, consequently missing other rides up to Sanjiang nan. Our route taken was changed to travelling from Shenzhen to Guangzhou by taxi and Guangzhou to Guilin by express rail, Kelu then drove us from Guilin to Rongshui Zhen.

The delay was mainly due to the underestimated time needed to cross the HK-Shenzhen border, which was populated apparently due to the holiday season. During the course, some of us got separated in the crowd which also caused some delay. But the delay of nearly 45 min shows that the planning itself should reserve more time to cross the border. In view of these events, here are some suggested improvement that future trip planning should incorporate:

***Surveying:***

- The PIC should first instruct the surveying team the priority of objects to be detailed when the crew arrived the site, so that secondary objects are only done when there are sufficient time left.
- The job to take photos can be taken by one of the member in charge of booking, apart from the interview team.
- The surveying team can take the active role instructing the interview team what objects to be taped.
- Inform the teachers and guide (such as Kelu the time needed and progress for surveying so that can arrange the lunch time to suit the schedule. (the original plan was to do surveying from 9:00-18:00, in reality it was done from 9:30-18:00 with lunch break from 12:00-3:30 elsewhere)
- Aerial photos can be taken before / during the trip if possible to facilitate planning of surveying or drawing of AutoCad Map.

***Interview:***

- Make good use of the car ride to take photos of other surrounding bridges and facilities for design reference, and also to ask Boss Wu, Kelu questions to understand the village history and site setting.

***Transportation:***

- Plan the measures to keep in contact (i.e. exchange mainland phone numbers) before crossing the border
  - Let participants know what to do in case they get lost (e.g. go to the station's service counter)
  - Arrive the train station at least 30-45 min before the train set off, or meet up at Lok Ma Chau 2 hours before the train set off (early is better than late).
  - Let future trip planners understand the procedures to buy / change the time slot of express rail tickets, as previous PM trip also had students who missed the train.
- Other good things to note about the trip which should can continue to be incorporated in future planning include:
- The booking of surveying is neat, it has two students, one who hand sketched the map and labeled the points, and the other who recorded the data.

-The one repetition used in detailing object by the total station and a prism stick is enough accuracy for the map needed in this trip.

-Kelu has stopped by several bridges so that students can take pictures and use them as design reference; visit and study of other bridges is beneficial to students coming up with bridge design ideas and understand local practice.

-The infrared taping tools can measure distance very fast and save taping time, however it is not fully utilized in this trip

-The interview involves asking about the costs of different designs and availability of different materials, facilitating design cost estimation in later stage

List of the team member for the trip

Teaching stuff:

Dr. Y.P. HUANG

Undergraduate students:

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