The China Environmental Health Project

Trip Report: China and Thailand
December 5-15, 2006
(accompanied by a PowerPoint presentation)

Submitted to
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under
USAID Coop Agreement No. 486-A-00-06-00014-00

December 29, 2006

Executive Summary: Following initiation of the China Environmental Health Project (CEHP) in October 2006, this trip had three primary purposes: 1) reconnaissance planning for upcoming training and field work at Mengzi, Yunnan in collaboration with Southwest University of China (SWUC) and the International Institute for Rural Reconstruction (IIRR); 2) Communication with the Beijing US Embassy Section on Environment, Science, Technology, and Health (ESTH); and 3) communication with the USAID Regional Development Mission/Asia (RDMA) in Bangkok, Thailand. Meetings leading to enhanced working relationships also took place with 1) Yunnan Province Hydrogeological Survey; 2) State Key Laboratory of Resources and Environmental Information Systems 3) Environmental Systems Research Institute (ESRI) China; and 4) local government environmental officials of the Honghe Prefecture, Yunnan, which includes the Mengzi field site.

Grant Participants: Chris Groves, WKU

Partner Group Participants: Yuan Daoxian, SWUC; Amelia Chung, IIRR

Key Successes: 1) We obtained assurance for excellent local logistical support and cooperation at both the (Honghe) prefecture and (Yunnan) province level for our field demonstration work in Mengzi, Yunnan; 2) We obtained critical planning tools to support this work including maps, and previously obtained cave and hydrologic data: and 3) We made significant progress with IIRR in identifying detailed goals and strategies for the social science/stakeholder component of our work at Mengzi and from this IIRR has prepared a more detailed work plan; and 4) Based on progress during the trip we have a prepared a draft release "USAID *Telling Our Story:* Engaging Stakeholders for Water Resource Enhancement in Rural Southwest China."

Problems Encountered: 1) During the trip I learned that obtaining visas will likely be more complicated and take longer due to USAID protocol than we had anticipated with regard to the standard J1 visa process that we had expected. This in particular may create problems for us with regard to the two Chinese graduate students in timing for them to complete scheduled MS degrees in Geoscience at WKU within the two-year Project timeframe. We are moving as quickly as we can and will make adjustments as we are able in an effort to complete these programs within the scheduled timeframes. We have already accordingly adjusted the schedule with regard to visiting scholars from SWUC to WKU by making plans in the Technical Program for Water, for example, by having two scholars come for one year each rather than one scholar for two years.

Narrative: December 5-8, Beijing China: Having left Kentucky on Dec. 5, I arrived in Beijing in late afternoon Dec. 6, and the following day met for lunch with John Pasch (USAID) and Bruce Duthu from the University of Vermont Law School, also a recent Agency grant recipient. We were able to begin discussion about the following day's embassy briefing, and have our questions answered about various Agency and grant issues.

This was followed by a meeting with Dr. Liu Gaohuan (Associate Director of the State Key Laboratory of Resources and Environmental Information Systems in Beijing) and Mr. Gou Yuquan (ESRI China sales representative) to discuss the Geographic Information Systems (GIS) laboratory we are developing at SWUC, as well as spatial data access issues. Later that afternoon John and I were able to continue our discussion, focusing on how to begin working through the considerable complexities of Project management, focusing our discussion on visa issues for Chinese scientists visiting the US with USAID funds, and importing equipment into China.

Meeting at 7:30 am Friday we all walked together to the US Embassy where the University of Vermont group and I gave presentations about our Projects. In attendance related with our grant were Yuan Daoxian and I representing CEHP, John Pasch from USAID, and Deborah Seligsohn and Dan Jassem from the US ESTH Section of the Embassy. I appreciated very much the general engagement in discussion of our Project, in particular that Debbi Seligsohn was already tuned in to special challenges associated with karst topography, having traveled extensively in the karst areas of southwest China, including numerous trips to Guilin preparing President Clinton's 1998 visit.

Following the Embassy meeting and a short debriefing back at the hotel, Yuan Daoxian and I left for the airport and later that afternoon arrived in Kunming, provincial capital of Yunnan, to meet several scientists from SWUC and Zhang Gui, Director of the Yunnan Provincial Hydrogeological Survey, who had extensive experience and local knowledge of the Mengzi area that is to be the focus of our Yunnan field/training efforts. We arrived in Mengzi that night around midnight.

December 9-11, Mengzi County, China and vicinity: December 9 started with enormous bowls of Yunnan's famous *míxiàn*, or "Crossing the Bridge noodles", which were said to have been invented in Mengzi, but which bore striking resemblance to *phở* seen commonly in Vietnam and Vietnamese restaurants around the world (Please see accompanying PowerPoint slides, Figure 1). This fueled a long day studying key sites to understand the local hydrogeology and water resources in the vicinity of the seasonally dry *East Mountain* karst plateau just east of Mengzi City (Figure 2), seat of the ten county Honghe Prefecture.

The general situation is illustrated in Figure 2, that the East Mountain karst plateau is generally lacking in surface water resources, with a major area to the northwest of Shi Dong (or Rock Cave) where the Yang Jiu River disappears into the karst aquifer (Figures 2, 3 and 4). The river emerges some 32 km to the northwest at Nan Dong (South Cave). We learned that on the plateau there are some 100 small villages typically with 300 people each, which in varying degrees have serious water supply problems during the dry season. We did not get much detail about specific water conditions at particular villages on the plateau, but did hear that in some cases water supplies are obtained from shallow soil "aquifers" that supply very limited quantities of fine sediment laden water, that was treated simply from gravity settling over what can be many hours. We were told that the average annual income of East Mountain plateau residents is about ¥600 (~$78). Later, we were separately told that this may well be an overestimate.

The underground river flowing beneath and draining the dry plateau has not been successfully explored in spite of repeated efforts at least as early as the 1960's, when as a young hydrogeologist our principal Chinese water partner Yuan Daoxian worked at the same site, exploring and mapping caves to try to find this river, in a time where it was a five day walk to visit the same sites that we did in two days by jeep. In general there has been prolonged effort to exploit these groundwater resources, but because of the well-developed karst landscape in this case, there have in our opinion been insufficient technological resources. A major emphasis of our work is to enhance these resources through specialized training. A significant success of the short trip there was to begin a well-coordinated and sustained effort to build a stakeholder network including Project partners, scientists, government officials, local environmental groups, and citizens.

We also saw immediately how access to water in the plateau area appears to be tied to quality of life—from our limited first field examination there, amply supported by descriptive information we were able to gather, there seemed to be a pretty distinct line separating areas upstream and downstream from the sink point of the Yang Liu River at Shi Dong. Ming Jiu Village in the valley upstream from Shi Dong had ready access to surface water supplies, and though still a remote Chinese village with development issues, including water quality, under the conditions it appeared to be relatively prosperous (Figures 5, 6, and 7) compared to conditions in the more remote (and dry) areas of the plateau (Figure 8).

That evening we were joined by Amelia Chung of the Kunming China office of IIRR, and we immediately began discussions about our goals in the Mengzi area, and details of the specific roles that IIRR (in collaboration with the Woodrow Wilson Center) and local NGO's could play to achieve these. These discussions over the next two days led to a more detailed work plan subsequently submitted the CEHP by IIRR, which will be incorporated into the overall CEHP work plan currently under revision.

On December 10 we continued inspection of key areas of the Mengzi/East Mountain Plateau area, this day joined by Amelia Chung of IIRR. We inspected of several major cave sites, including the main spring at Nan Dong, and major structural geology features that help us understand influences on ground water flow. In the afternoon we were invited to a formal meeting with the officials from the Honghe Prefecture, including the Director of the Honghe Bureau of Land and Resources, who ultimately promised to provide whatever local support they could to assist the Project, including Yi nationality language translations. Amelia kindly and efficiently served as a skilled interpreter for the meeting, as times also acting as a sort of "cultural advisor" when I had questions about some aspect of our discussions.

December 11 was a travel day first back to Kunming, where Amelia, Professor Yuan, and I continue our discussions over the five-hour drive. From there, I headed to Bangkok, arriving at about 10 pm.

December 12-15, Bangkok, Thailand. Over three days I had a great chance to get an orientation to the USAID RDM/A, and appreciate very much the time people took to ask about the CEHP and to tell me about their various roles. In addition to several opportunities to talk with John Pasch, I met with Teresa McGhie, Skip Kissinger, Michael Silberman, Supattira (Ke) Rodboontham, and Acting Mission Director Richard Wheldon. In between I spent much of the 12th and 13th updating the Beijing CEHP PowerPoint presentation following feedback and developing new GIS maps in conjunction with Mike Futrell, a member of our GIS staff back in the US (including the current Figure 2) . I gave the resulting presentation to USAID officials in the afternoon of the 14th, before heading to the airport and home (very) early the next day, comfortably beating the Bangkok traffic.