Hydrophilanthropy, WaSH, and Experiential Learning in Developing Countries

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Abstract

I describe two different and unrelated programs, one undergraduate and one graduate, that: 1) introduced students to water research and WaSH (water, sanitation, and hygiene) issues in developing countries; 2) injected developing countries’ WaSH issues into a university graduate water resources program; and 3) introduced the concept of hydrophilanthropy – defined as the altruistic concern for the water, sanitation, and related needs of humankind, as manifested by donations of labor, money, or resources – to both sets of students.

From 2002 through 2004, a National Science Foundation-funded summer program, Research Experience for Undergraduates (REU), hosted by the University of Notre Dame (http://www.nd.edu/~reuwater/) with the participation of the University of Nevada-Reno and the University of New Mexico, took undergraduates to developing countries (Haiti, Benin, Chile, and Honduras) to conduct water research. Participants were recruited from a national pool. Students received training in hydrologic techniques, international water and cultural issues at a workshop at Notre Dame, then departed for their international destination or one of the other two universities for additional work and then travel to the particular country each selected – generally, three students per country. After the international work, students and instructors completed the program at Notre Dame, where a debriefing was held and a program featuring
student presentations was convened. This paper emphasizes the Honduras component of the REU program, the one I conducted.

From 2001 through 2005, I conducted the required capstone summer field course for the University of New Mexico’s Master of Water Resources (MWR) degree in Honduras. Students participated in the construction of gravity-flow village drinking-water systems, working alongside villagers in small (c. 300-600 residents) rural mountain villages. To maximize the cross-cultural experience, students lived, worked, ate, and slept in the villages. During the five-year duration of this program 65 students participated. Some were motivated to conduct their professional project on various facets of rural water in Honduras and a few were motivated to pursue work in the general area of WaSH in developing countries after graduation. The program was terminated after 2005 because I departed as director of the Water Resources Program and also desired to rethink the program, especially with regard to sustainability and cultural issues. In retrospect, the experience was extremely worthwhile for both the instructors and students, and I am planning to resurrect the program as an elective course at Oregon State University. Each program introduced and emphasized hydrophilanthropy and the importance of using water and sanitation as a means to improve peoples’ lives and futures.

1. Hydrophilanthropy and WaSH

I will invoke the term hydrophilanthropy, which I define thusly: altruistic concern for the water, sanitation, and related needs of humankind, as manifested by donations of labor, money, or resources.
I did not coin the term; I first heard it used by Dr. David Kreamer of the University of Nevada-Las Vegas in a conversation we had about six years ago. There is no formal definition of the term; that provided above is mine.

The acronym WaSH, which stands for (drinking) water, sanitation and hygiene, is also used frequently.

2. Research Experience for Undergraduates in Developing Countries

Introduction

From 2002 through 2004, through a National Science Foundation-funded program Research Experience for Undergraduates (REU), the University of Notre Dame (UND), the University of Nevada-Reno (UNR) and the University of New Mexico (UNM), took undergraduates to the developing countries of Haiti, Benin, Chile, and Honduras to conduct water research. The overarching objective of this project (http://www.nd.edu/~reuwater/) was to engage and educate USA students in the issues and problems facing the world’s developing nations in water resources development and potable water supply and the daily tedium of many people as they struggle to obtain clean drinking water.

Participants were recruited from a national pool for the 8-week long program; the three faculty involved – Dr. Stephen E. Silliman (UND), Dr. Scott W. Tyler (UNR), and I - were impressed with the quality of the students who applied. Participants were selected on the basis of: academic performance; commitment to international research; possession of appropriate language skills, and previous international experience (Tyler et al. 2004). Preference was accorded to students who would stand to gain incrementally the most from international experience. Thus, students
who had basic language skills and limited international experience were often the most successful, as a small amount of in-country experience often represented a significant experiential broadening for them (Tyler et al. 2004).

Figure 1. Map of Honduras. UNM Master of Water Resources students worked in five villages in the region between Puerto Cortés and the Guatemalan border. Nueva Florida is a representative village and the other four villages are in the same general area. REU students worked in a Nueva Vida, a village near Nueva Florida; in the Rio Choluteca valley; and east of Tegucigalpa in the Valle del Zamorano.
Students received training in basic field hydrologic techniques and international water and cultural issues at a 3-4 week session at UND. Notre Dame students then departed for their country (Haiti or Benin) and the other students departed for UNR (Chile) or UNM (Honduras; see Figure 1) for additional work and travel to the particular country each selected. Generally, groups of three students traveled to each country, where work usually lasted 10-14 days.

Students and instructors completed the program at Notre Dame, where final touches were placed on student research and oral presentations, debriefings were held, and a program featuring student presentations was convened.

Detailed information on the overall program and the UND (Haiti, Benin) and UNR (Chile) components can be found in Tyler et al. (2004) and at http://www.nd.edu/~reuwater/). My UNM (Honduras) program will briefly be described below although more information can be found in Tyler et al. (2004).

**Honduras REU Program**

Three students accompanied me to Honduras each summer from 2002 through 2004. Of these nine students six were engineers: four civil/environmental, one chemical, and one systems engineer. The other three were an anthropologist, geologist, and an environmental scientist.

They came from the following schools: University of Virginia, Cornell University, Columbia University, University of Notre Dame, University of Illinois at Urbana-Champaign, University of New Mexico (2), Colorado State University, and the University of Texas-Austin.
Students were educated on the history, government, culture, economics, and sociology of Honduras and the USA’s relationship with the country. Books such as Alvarado (1989), Schulz and Schulz (1994), and Donahue and Johnston (1997) were very useful. We also provided each student with a tourist guide to Honduras, in this case the Moon handbook (Humphrey, 2000). Students were also introduced to the concept of hydrophilanthropy and its importance in providing WaSH to developing countries.

The first trip in 2002 was piggybacked with a University of New Mexico graduate student trip to a village to construct a water system (see Section 3 below). In the village, the students worked with the graduate students, performed water quality sampling, surveyed the residents about their expectations for the water system and how it might change their lives, and built a system dynamics model of the village’s population carrying capacity.

The 2003 program was conducted at the Escuela Agrícola Panamericana, also known as Zamorano (http://www.zamorano.edu). Students worked with faculty there to study two local watersheds and constructed a simple watershed model.

The 2004 project once again partnered with Zamorano and this time students worked on a USAID-funded water quality project in the Rio Choluteca basin in southern Honduras, centered around the city of Choluteca (see Figure 1). The students learned field water sampling and measurement techniques and performed routine chemical and soil analyses in the laboratory. Their report described the water quality in the basin and speculated upon the sources of pollution and suggested ways to mitigate pollution.
Concluding Remarks

The REU program was successful; much of its success was due to Dr. Stephen E. Silliman at UND. He organized the initial 3-4 week training session at UND and the final session after the trips ended. All the faculty participants donated their time, as the REU program did not allow for faculty salaries, but Steve contributed a tremendous amount of time and effort into the program. The students were extraordinary and a joy with whom to interact.

The Honduras program was in strong contrast to the Haiti-Benin (UND) and Chile (UNR) programs, each of which had strong, well-defined research components. Although the Honduras program went well and improved as time went by, its research component was the weakest of the three schools. One of my shortcomings was that my work in Honduras was not truly research but more along the lines of implementation and hydrophilanthropy. But thanks to my colleagues Luis Caballero and Robert Walle at Zamorano, by the time the third and final trip occurred, the research experience was far better than the first trip.

3. University of New Mexico: Hydrophilanthropy in Honduras

Introduction

From 1997 until May 2006 I directed the Water Resources Program (http://www.unm.edu/~wrp/) at the University of New Mexico. The primary component of the WRP was a professional Master of Water Resources (MWR) degree, which consisted of 36 semester credits of formal coursework and 3 credits of a Professional Project. The MWR degree, originally based on an MBA (Master of Business Administration) degree, was designed as an interdisciplinary degree and what distinguished it from ordinary Master’s programs were three interdisciplinary core courses, each worth four credits and taught by a team of instructors. The
final core course was a capstone summer field course, whose purpose was to promote a team approach to the solution of real-world water resources problems. Until 2001 the field course was conducted in the Albuquerque, NM, area. From 2001 through 2005, the course was conducted in five rural Honduran villages where the students helped villagers build rural water systems.

This section will not dwell on the entire MWR curriculum but focus solely on the field course conducted in Honduras each summer from 2001 through 2005 and the introduction of hydrophilanthropy to the students.

First Steps

In January 2001 I visited northwestern Honduras (Puerto Cortés area; see Figure 1) on a survey trip for the hydrophilanthropy, Lifewater International. I was there to investigate a potential Lifewater project, but after just two days it was apparent that the proposed work was not within our repertoire. With five days left before departure, Rolando López, my Honduran escort and the man who had requested Lifewater’s assistance, filled my time with visits to other potential Lifewater projects. On the last full day in country, we hiked for a few hours into the Sierra de Omoa, a rugged mountain range that trends SW-NE parallel to Honduras’ northwestern coast from the Guatemala border east to the Puerto Cortés area. Rolando, now my good friend, wanted us to see a community water project being implemented by one of his friends, Alex Uriel del Cid. Nothing I had previously seen had piqued my curiosity or generated any enthusiasm, but this was my last full day in Honduras, perhaps forever, and Rolando was certain I would enjoy what I was about to see.
I might add that up until this time I had made no mention of bringing students down here to work; the thought had not really crossed my mind. However, I had, from time to time, thought about taking students to developing countries but had usually dismissed the thought. In fact, on the flight down, a college professor was escorting some students down to Honduras and I thought to myself, “That guy has to be crazy.” Little did I know.

Upon reaching the village of Miramar, Rolando and I observed Alex instructing the villagers on the rudiments of organizing a *junta de agua*, or ‘village water committee’ that would maintain and operate the water system, collect revenue, shut off delinquent users, and plan for expansion should the village grow. It was obvious that Alex had the villagers’ rapt attention and that they hung on his every word. He held my attention, too, even though I barely understood a word of the Spanish he spoke. His charisma was evident to all those who came in contact with him.

As we watched Alex interact with the villagers, Rolando told me more about Alex. He grew up in the town of La Esperanza, in the *departamento* (equivalent to a US state) of Intibucá, where his father owned a radio station. Alex had been trained in WaSH by Save the Children-Honduras (SCH). For six years after his training, he worked for SCH in rural areas organizing villagers to build and operate latrines and gravity-flow drinking water systems and create *juntas de agua*, and instructing them in basic hygiene.

He and his family moved to the town of Omoa on the northwestern coast of Honduras so his wife could be closer to her family. He then worked as an elementary-school teacher, but still had the desire to help rural villagers with their WaSH problems. So he started spending weekends
and vacations hiking the mountains above his home doing the same thing he had done for SCH. He attracted the attention of and funds from some local sources and a foundation. Word spread rapidly about Alex, and pretty soon he had villagers coming down from the mountains to see him to plead with him to help obtain drinking water for their villages. He found it hard to say no, and he soon had a waiting list.

When Alex was finished instructing the villagers he came over and Rolando introduced us. Alex explained that his approach was the same with each village. The villagers first had to establish a *junta de agua* and develop a plan to use, maintain and expand the water system. The village had to own or have written permission to access the water source, dam/tank site, and pipeline route. They also had to have effective sanitation, such as latrines. If none of the above was met, Alex would not work with the village until all criteria were met. He was a tough taskmaster.

Upon hearing this, and after seeing Alex in action with the villagers, I was impressed. I thought about how much my students and I could learn by working with Alex and the villagers. I had been doing hydrophilanthropy for several years and was starting to introduce it to my students. With Rolando and Alex standing around, I said (to no one in particular), “I’d love to bring my students here to work with Alex.” Rolando immediately translated this into Spanish, and a big smile spread across Alex’s face.

And so it was decided: we would work with Alex in Miramar, a community of several hundred residents – the same village where I met Alex. The students and instructors would live in the village, in the old schoolhouse, which was vacant. We would pay some of the villagers to cook for us. We would be in country about ten days.
Alex explained that we would also be partnering with the Honduran national water authority SANAA (Servicio Autónomo Nacional de Acueductos y Alcantarillados; http://www.sanaa.hn), which would provide the pipe for the water system and certify that the system design and operation met its standards. In fact, SANAA would require all parties involved to sign an agreement defining the responsibilities of each. I signed the agreement on behalf of UNM, the head of the village junta de agua would sign, and finally SANAA would sign the agreement.

SANAA’s main responsibility was to provide support for the systems once they were completed, primarily through its circuit rider program, whereby a trained worker would visit each village every few months to verify that the system was working properly and to assist villagers in maintaining each system. I returned home somewhat favorably impressed with SANAA’s approach and its district engineer, Ing. Denis Gutiérrez, and felt confident that system sustainability would be ensured.

Next Steps

Upon my return to New Mexico, I immediately began planning the trip, barely five months away in early June. Major tasks were:

1) creating a budget;
2) raising funds;
3) developing a curriculum;
4) engaging at least one additional faculty member;
5) addressing health, safety, insurance, airfares, and other logistical issues (vaccinations, etc.); and
6) adhering to University regulations on foreign travel for student trips.
The budget was created fairly quickly. Raising funds proved to be more challenging, as about $20,000 were needed. The money would be used for the students’ and instructors’ airfares and in-country living expenses. Since the field course was required for all MWR students, I felt it would be improper to require students to pay for anything over and above normal tuition and fees. Since summer course instructor salaries were provided by the university, this item was not included in the budget. Money was raised from UNM, private donors, and from a sympathetic program officer at a government agency. I would serve as the main instructor and Dr. Michele Minnis, an adjunct professor who was one of the mainstays of the MWR faculty, would also instruct. Michele had training in psychology and communications, and taught the communications component of the MWR program.

Ten students enrolled in the course. We coordinated the trip with Rolando and Alex, who served as liaisons between us and the village, and decided to come for about twelve days in early June, about three weeks after exams ended. We ran the risk of being there for the start of the rainy season, but the extra few weeks proved critical because of the short lead time.

I met with the Travel Clinic at UNM’s Student Health Service and discussed our trip with one of the staff members, who advised us which vaccinations and medications we would need. The main things were ensuring that all participants had updated tetanus boosters, hepatitis A and B vaccinations, and malaria pills (chloroquine). Initially we advised students to get the rabies vaccination, which did not provide immunity but would mitigate the treatment necessary (lessen the number of injections) should someone be bitten by a rabid animal (bats and dogs were a big concern). The travel health specialist also lectured to us about personal safety, basic
first aid and precautions to take to mitigate the effects of sun, dehydration, insects, arachnids, poisonous snakes, dengue fever, diarrhea, and related issues. All the pre-trip required medical expenses would be paid out of the project budget, unless students had medical insurance that would cover the costs without an onerous deductible; many did not have such insurance.

Michele and I spent time preparing the students for the different culture they would encounter, and the ‘proper’ behavior to exhibit. Personal safety was discussed. I cautioned them against the ‘ugly American’ syndrome, and also instructed them on the USA’s history with Central America and Honduras in particular, and advised them that our government had not always been a ‘good neighbor.’ In fact, the term ‘banana republic’ was originally applied to Honduras because of the hegemony exhibited by the USA government and American firms, especially United Fruit. Students were also educated on the history, government, culture, economics, and sociology of Honduras. The concept of hydrophilanthropy was also introduced. Books such as Alvarado (1989), Schulz and Schulz (1994), and Donahue and Johnston (1997) were very useful. We also provided each with a tourist guide to Honduras, in this case the Moon handbook (Humphrey, 2000).

In terms of designing a curriculum, I planned to have the students do a watershed study, and to that end, decided to bring some simple surveying and water-quality testing equipment. The students would help the villagers build a water system but in their spare time we would study and map the watershed, develop a plan to protect the drinking water supply, and try to imbue the concept of stewardship in the villagers.
The First Trip

We flew from Albuquerque to Houston Intercontinental Airport (IAH) and spent the night at a motel near the airport. We did this so that we could take the early morning flight from IAH to San Pedro Sula (SPS), so as to arrive around noon, giving us plenty of daylight to get up the mountain to Miramar. The return trip could be done in a single day. At SPS we were met by Rolando and Alex, and we piled into two pickups and, after eating lunch, headed for the trail up to the village.

At the trailhead outside the town of Omoa, villagers awaited us with mules, burros, and horses. The trek would take about two hours. Most of our gear would await more villagers with more pack animals, but our gear did not reach us until two days later. Not only did our gear not arrive on time, but also the materials for the water system – wood, cement, and PVC pipe – would not arrive until three days after our gear. So the first week we spent hiking around, meeting villagers, and familiarizing ourselves with and noting the approximate boundaries of the watershed.

Once the materials and our gear arrived we spent the remainder of our time there working exclusively on the water project. We cleared the area for the dam, helped mix and pour the concrete, dug trenches, and laid pipe. We also threaded 4-inch and one-inch GI (galvanized iron) pipe.

We did not see the completion of the project, which we occur several months later. This was true of all five water projects.
We were tired but had enjoyed our work in the village and felt we made a contribution. The villagers were very glad to have us there. They knew what we had left behind in the USA—a life of comfort compared to what they endured on a daily basis. But they did seem puzzled as to why we came to help them. When one of the village elders asked me why we had come, I replied, “Because if the situation was reversed, and I needed water, I would hope you would come to help me.” He smiled, and though my Spanish was poor, I could tell he knew what I meant.

After we finished our work in the village we spent a few days unwinding and cleaning up at a local ‘resort’ before departing for home twelve days after we arrived. Upon returning to Albuquerque we debriefed and discussed what we had learned. The class project I had planned fell by the wayside and the students were assigned the task of writing about their experiences and discussing the technical aspects of the trip. Power Point presentations were also prepared.

It is interesting to note that the trip garnered a lot of publicity for the University and the Water Resources Program. Even before we headed to Honduras, I received a few inquiries from non-MWR students as to whether they could join the trip. After we returned the now-defunct Albuquerque afternoon paper, The Tribune, prominently featured a story titled “Benevolent Voyagers” above the fold on the front page of the local news section. The trip generated interest among prospective students, and this was to continue for the next four years as we took more summer trips. In a few cases, parents called me wishing to send their high-school age children on these excursions. In two of these cases it was apparent to me that the parents wanted these trips to ‘straighten their kid out’ and expected me to assume the role of boot-
camp drill instructor. Needless to say, I declined such requests, even foregoing a large donation in one instance.

Later Trips

We took four more trips from 2002 through 2005, each time working in a different village in the same general area (Figure 1). We decided to split the students into two groups and have them work sequentially. We did this so as to not burden the villages with an influx of gringos and to ensure that the students would be fully utilized with a minimum of down time during the in country stay. In this fashion, one group went down to work for about ten days, and then the other group would go down. The two groups would overlap in country for about three days, which we spent at Copán Ruinas, the resort town near Mayan ruins of Copán near the Guatemala border. We spent time there touring the ruins, giving the outgoing students time to relax, clean up and visit with the incoming students, who received a briefing from the outgoing students. It also promoted bonding among the students.

Course materials became more sophisticated with time. By the 2003 trip I had prepared a packet of materials derived mainly from Lifewater International (reissues of USAID technical documents http://www.lifewater.org), the journal Waterlines (http://practicalaction.org/?id=waterlines), U.S. Army (2002), Davis and Lambert (2002), and Jordan (1980). This packet covered village water system design and construction, sanitation, community development, water system governance, gender issues, hygiene, first aid, and more.

Future course projects were better-defined than the first trip’s project. We generally left it to the students to decide for themselves (with our approval) the nature of the project. Dr. Minnis
and I selected two students who would serve as project leaders/report editors and lead the students in identifying a project. To the extent possible, the decision on the nature of the project was made before the trip, although flexibility was permitted because of the changing situations in country. Projects dealt with such things as: source water protection plans; education and outreach programs; and watershed management plans. One student even created an ingenious Spanish-language board game to teach children about the importance of environmental stewardship.

The students were not indoctrinated in hydrophilanthropy; indeed, quite remarkably, they naturally understood what it entailed. This I found quite surprising, but when you are in a poor country donating your time to help campesinos obtain clean water, no one needs to lecture you on hydrophilanthropy or provide you with a definition; you are doing it. Many of the 65 students who went on the five trips underwent a transformative experience, as manifested by: joining Peace Corps; seeking and obtaining jobs with faith-based and secular NGOs (nongovernmental organizations) doing WaSH work in developing countries; pursuing international positions, although not necessarily with NGOs doing WaSH work; working with PVOs (private voluntary organizations) in developing countries; choosing to do their professional projects on international themes, including field work in a developing country; and becoming more aware of the importance of water, sanitation and hygiene in developing regions and the hard life that most of the world lives each day.
Important Items

I will provide a list of important items – mainly things that made an impression on me and should be considered by anyone seeking to take students to developing countries for WaSH work.

1) It is imperative to have local people as in-country partners. I cannot imagine trying to repeat this without people like Rolando López and Alex Uriel del Cid.

2) More faculty should be involved. Had I continued this program I would have engaged more faculty from different disciplines, e.g., public health, sociology, anthropology, political science, engineering, community development, and planning.

3) Projects to be undertaken should have a good chance of being sustainable.

4) At least several students who speak the local language should be on trips.

5) Serenity now! Things do not work they way that we are used to in the developed world. It does not do any good to fret when things go too slowly or do not go at all. Tranquilo, por favor!

6) Students and faculty from a variety of disciplines enhance the experience.

7) Pay careful attention to health issues. I was fortunate that no one got anything more serious than some stomach discomfort and a sprained ankle. If some of the student or faculty travelers have first aid or EMT training, that is extremely beneficial.

8) A satellite phone is useful, especially in very remote areas.

9) Long-term funding is preferable to raising money each year.

10) In Honduras, the rabies vaccine was unnecessary. It was also expensive; in 2003, the sequence of vaccination was about $500 per person. Some health professionals advised me against the vaccine in developing countries because in country health professionals are
unfamiliar with the post-exposure treatment of people who have had the vaccine. Check with a medical professional about the conditions in your particular country.

11) Familiarize yourself with your organization’s requirements for foreign travel, insurance, liability, and health issues.

12) Seek out faculty who have taken students to developing countries, preferably to rural areas with few services. I benefited from discussions with a biology professor who had been taking his students to Belize each spring break for about ten years.

13) Central America is a great place for this kind of trip because it is convenient, has relatively inexpensive airfares, and does not have onerous time changes because flights are primarily north-south instead of east-west.

The trips were discontinued after 2005 because I left UNM for Oregon State University. However, had I remained at UNM, I likely would have suspended the trips for several years to rethink my approach. Key items considered:

1) Pursue a funding source that would free me from raising money each year.

2) Involve more faculty from diverse backgrounds. Faculty can be involved both in the course design and its in country implementation. My sense is that no more than three or four faculty should be in country at any one time, assuming a class of about fifteen students. Our trips never had more than two, and in 2005 I conducted the course alone. That was not a good idea, especially if an emergency had arisen.

3) Develop a course that would deal specifically with WaSH issues in developing countries and require it as a prerequisite for the field excursion.
4) Emphasize sustainable water and sanitation systems. The need for sustainability became apparent after one of our MWR students (Casey 2005) studied our previous projects and found that two were not working well, mainly because SANAA had failed to send around its circuit riders. It is ironic that the agency that insisted we all sign an agreement was not meeting its responsibilities. My concern for sustainability arose from a fear that the course might devolve into a ‘feel-good’ experience for the students and instructors with little long-term benefit to the villagers.

5) Make the course an elective and have the students pay their way.

6) Investigate the feasibility of conducting several courses per year, open to any college or university student willing to pay the fee. A course for non-traditional students should also be an option.

No student ever asked to opt out of the course. It was a required course, but had a student expressed real reservations about the trip I would have made other arrangements. No one would be forced to attend, and during pre-trip orientation I stressed to the students that anyone with safety or health concerns or health conditions should not take the trip. The work was going to be strenuous in hot, humid conditions in a remote location. Safety was not a real concern; the villagers had a very protective attitude toward all of us. When I asked one villager why he was bringing a rifle to a swimming hole, he replied, “Jaguar.” I later leaned that he was concerned about banditos. But to my knowledge, that was the only such incident in five trips.
Concluding Remarks

The UNM trips to Honduras were very popular. They generated a lot of favorable publicity for UNM and the MWR degree program and attracted dedicated students who sought to come so they could focus on work in developing countries. With respect to the latter, I actually designed a track in the MWR curriculum for those interested in focusing on developing countries. I left UNM before I implemented it.

The concept of hydrophilanthropy was introduced into the MWR curriculum in a subtle way, as I used various opportunities to discuss this type of work and its benefits. Articles and book chapters dealing with work in developing countries were also featured not only in my courses but also in the MWR introductory core course and the field course.

The fact that the students and instructors knew each other fairly well was a definite strong point. The students had also been through a number of courses with each other. I often wondered how the trips would have unfolded had the students been self-selected and I had not been familiar with them.

With few exceptions, those who took the course had praise for what they did and learned. Of the 65 students, only one had a negative experience; it just was not her ‘cup of tea.’ Many non-UNM and non-MWR students also sought to take the course.

From my perspective, the course was a wonderful experience. What thrilled me the most was seeing students rising to the occasion without complaint when conditions dictated an increased level of effort. The ingenuity and industriousness of many students were sources of inspiration.
to me. The fact that we all lived together in the village enabled us to know each other and the villagers.

When I made the decision to implement this course, I specifically remember thinking to myself as I flew back to the USA, “This will either be the dumbest thing I’ve ever done or the smartest thing.” Fortunately, thanks to a healthy dose of luck and some truly remarkable students, it turned out to be the latter. In fact, in my 17 years at UNM the memories of this course and the students who took it are by far the fondest ones I have and what I miss the most about UNM.

For anyone considering such a course, I encourage them to do so. It will be a positive, transformative experience.

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I first wish to express my heartfelt thanks to the students who made each project such an unforgettablely pleasant experience, one that will remain with me forever. They were a remarkable group of talented, patient individuals who uttered nary a complaint as I found my way. Had they not performed so well, I dare say these trips would not have persisted for five summers. My UNM colleague Michele Minnis was a wonderful faculty partner and friend in the graduate course and did her usual yeoman’s work. Steve Silliman and Scott Tyler were excellent REU colleagues, and Steve merits special thanks for conceiving the project and doing the ‘heavy lifting. Steve also deserves my gratitude for his friendship, mentoring, and encouragement that led me down the path to hydrophilanthropy. Of course, Rolando López, and Alex Uriel del Cid got me started on this journey, and without Rolando’s logistical support and friendship none of this would have been possible. Luis Caballero, Robert Walle, Mario Contreras, and Martin
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