

Spatial Information and Volunteering

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This short article describes the volunteering experiences of two graduate students at the Department of Spatial Information Science and Engineering (SIE), University of Maine. These case stories point out the high relevance that spatial information skills can bring to make a needful contribution and our world a better place through volunteering. We sincerely think the SIE Department at the University of Maine is an outstanding place to develop such skills.

Guillaume Charest-Hailee:

Geographic Information Systems (GIS) are helpful in the developing world for the same reasons they are in the most developed countries. For countries whose economies rely mostly on the primary sector, GIS are more likely to be used for purposes such as infrastructure development, environmental monitoring, and natural resources management. Various international cooperation projects involving non-government organizations (NGO) are taking place in these activity areas.

After completing my Master's studies and gaining some professional experience in land-use planning, I had the wonderful opportunity to be hired by the NGO CUSO¹ for a one-year contract as a Land-Use Planning and GIS Advisor for the Water Resource and Environment Office (WREO) in Oudomxay Province, Laos, which is the equivalent of the Environmental Protection Agency in the U.S.A. This Laotian government agency had a great need to develop capacities in using GIS in order to better accomplish their mission which are improving natural resources management and land-use planning. Oudomxay Province is a mountainous area, which is undergoing rapid land use changes (conversion of secondary forest into plantation, more intensive agriculture using chemicals, hydropower development, ...); this is bringing along environmental degradation such as increased erosion, water pollution and a diminished wildlife affecting directly the livelihoods of many local communities. WREO-Oudomxay role is not to stop this evolution, but to mitigate its side effects. GIS can be an extremely valuable tool to achieve that goal.

For the time I worked at WREO-Oudomxay, I participated in a number of activities related in a way or another to GIS. First, I took part in a watershed management project that put a local community participatory approach into practice. Community mapping sessions were undertaken in all 14 villages making up the targeted watershed area located just upstream the provincial capital. Village council members, most familiar with the state of their village land, and WREO-Oudomxay staff drew actual village land-use paper maps using a topographic base map provided by a central government mapping agency. These sessions were also the occasions to foster communication between villagers and government officials: concerns regarding land-use and development issues could be expressed thereby providing insightful inputs for land-use planning carried out by the provincial government. Collecting data using a Global Positioning System (GPS) and taking digital pictures and notes for these specific

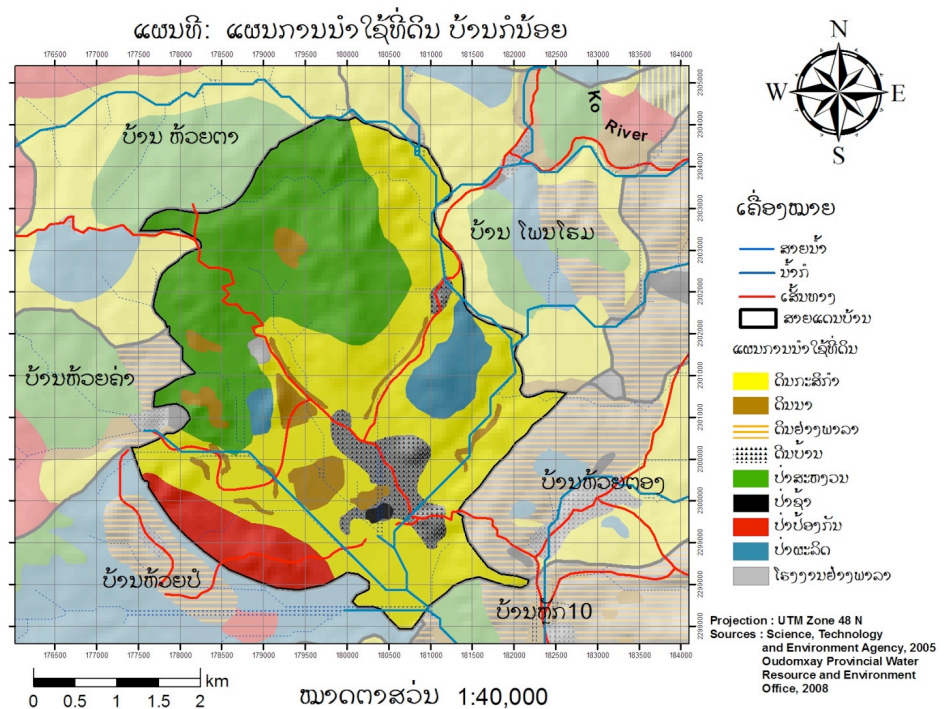
¹ CUSO used to stand for Canadian University Service Overseas. It merged with the international NGO Volunteer Service Overseas (VSO) in November 2008 and then became CUSO-VSO.

locations were also part of the fieldwork undertaken during my stay in this part of the world. These fieldwork activities were accompanied by office work, where the primary focus was on developing a GIS with the use of the collected data. I started out by structuring the different spatial datasets WREO-Oudomxay had inherited into a coherent whole. I also made the most of a Digital Elevation Model covering all Oudomxay Province by deriving hydrographic, slope, and watershed area delimitations spatial datasets, all very useful information for conducting environmental management work. After explaining the spatial datasets they could access and manipulate to my workmates in addition to the GIS database design, it was time to move forward with the training of other tasks related for the most part to our fieldwork activities. Georeferencing and digitizing land-use paper maps, incorporating GPS data and related information, and making thematic maps were the most common GIS activities we were involved with at the office.



Community mapping session, Lak 22 Village, Xay District

What was the most challenging task for me was not carrying out the tasks mentioned above, but to transfer the knowledge I had to my Laotian workmates. Training people with very limited computer experience on how to use GIS in a language and alphabet foreign to their own required patience and pedagogical adaptation. But these efforts proved to be worthwhile because I felt that my presence as a cooperative partner among this young Laotian government agency enhanced its capacities to better fulfill its gigantic mission. Knowing that the staff I worked with is now able to make use of GIS for targeting development slightly more toward sustainability is rewarding. My experience in Oudomxay, Laos has convinced me that people interested in international cooperation should seriously consider studies in GIS/spatial information. In many respects development of societies is related to the land they inhabit and its resources thereby stressing the importance of developing capacities with regard to tools and methods aimed at better managing them.



Land-use map based on data collected during a community mapping session, Kornoy Village, Xay District

Matt Dube:

Volunteering is a critical component of an integrated society. It involves a person sacrificing some of their time, talents, and resources to make an improvement in the quality of the life or circumstance of another possibly unknown individual or unconnected location. The preceding example is one where a student from our department took it upon himself to assist the Laotian government with his time and talents.

As this experience relates, time spent in the activities of volunteer work creates very eye-opening experiences and realizations and oftentimes can provide the volunteer with perhaps a greater sense of benefit from the project personally than they perceive that they had given to the cause. Volunteering is a simple and tremendously effective way to get a glimpse of the world from a different reference point. We are often stuck in our own frames of mind, seeing the world only through our own perception. There are countless ways that an individual or group of people can make a difference in our world by making a sacrifice of time. Whether that is through coaching a youth sport, doing after school programs, Habitat for Humanity, food pantries, or others, there is truly something that speaks to the skills and talents of everyone. The spatial domain is certainly not

immune to this. In fact, I would argue that it is one domain that has limitless opportunities to make a serious impact.



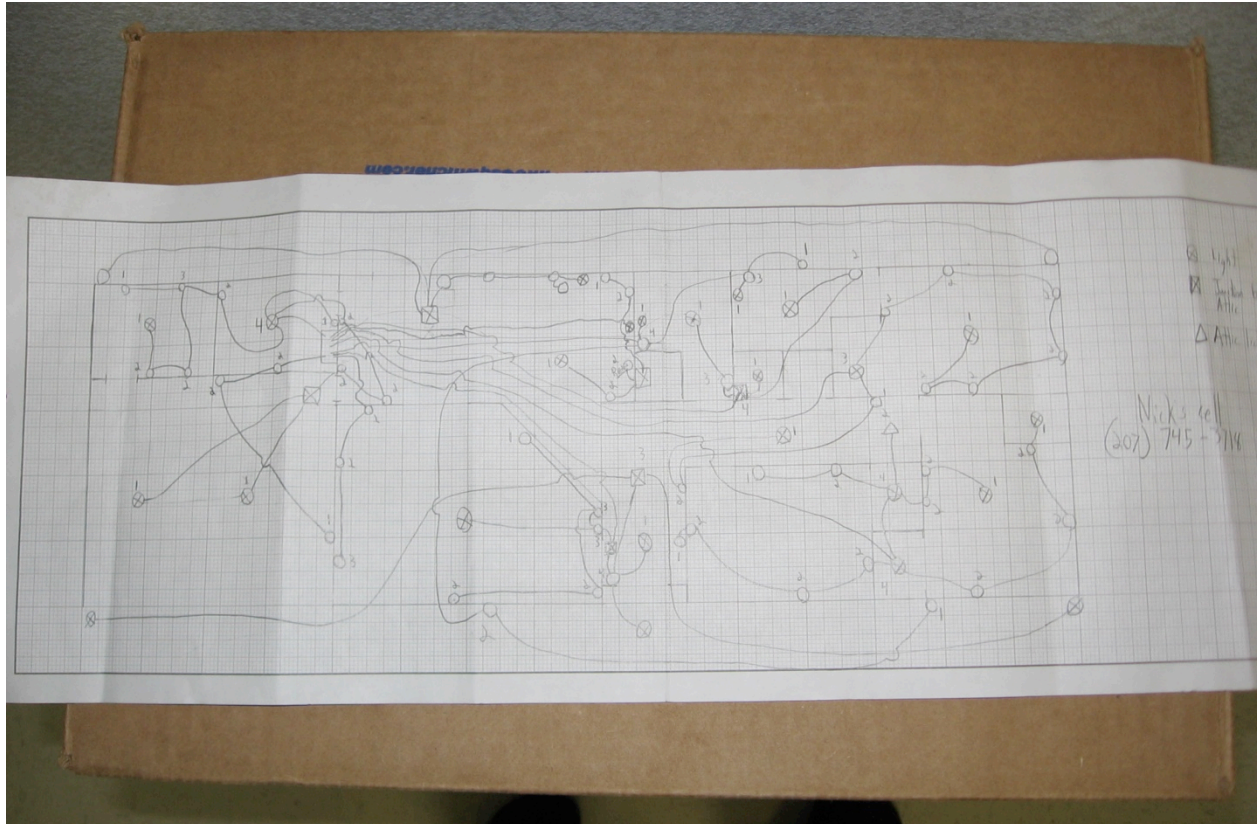
Teamwork clean- up after Hurricane Katrina

and respective receptacles. This would ordinarily be fine with the presence of a schematic diagram, but that was something that we were not presented with and unfortunately did not exist. By the time that I had finished a week of service, we had finished the wiring of 80% of a house, but my largest contribution was the creation of the schematic diagram of the house, a simple map designating the circuitry of the house in relation to the fuse box. This map helped to streamline the process for those who would eventually finish the job. It is a powerful example spatially in that it shows the power of a map and the benefits that it can have.

From my own experience, spatial skills were a critical component to a service project I conducted back in 2006. In the wake of Hurricane Katrina's landfall in Waveland, Mississippi, I was sent to work with Impact Ministries, a Christian organization conducting relief work in the area. Strapped for qualified volunteers, people with an electrical background were hard to come by. Fortunately for them, I had this background and knowledge. I entered a site in shambles from an electrical perspective: wires dropped through fully dressed walls, but not tied down into their circuits

GIS is a growing field and knowledge of it is becoming more and more important in a cross-section of society and business. As such, countless volunteer opportunities have arisen and will arise in the near future to teach middle school students, high school students, college students, researchers, and professionals the basic skills of the software and how they can apply to other tasks. I have done some work with local students at the high school and collegiate level to catch them up to speed on GIS skills, equipping them to be more attractive hires in their future. One such student ended up contributing important documentation for wind energy research proposals and governmental funding for alternative energy sources.

As a department, we have participated in many initiatives with local businesses. We have worked with Cherryfield Foods to create an integrated terrain model and database alignment that has made their operations down on the farm more cost effective and more strategically driven, providing critical optimization techniques in a down economy. We have ongoing projects with other companies, including Global Relief Technologies. Our work is extremely diverse, including sensor systems, mapping, databases, inferential methods, and information policy just to name a few.



Schematic diagram of a house electricity system, Waveland, Mississippi

As illustrated by these case stories, volunteering can have a very strong spatial information science component. The Department of Spatial Information Science and Engineering at the University of Maine is an excellent place to undertake graduate studies in that field.