In the spring semester of 2008, students in the CRP course Applied Geographic Information Systems (GIS) conducted a participatory study of risk and vulnerability associated with a flood-prone informal urban settlement in the Dominican Republic. The course was part of a new research and service-learning relationship between the city of Santo Domingo Norte, the UT Austin School of Architecture, and the Universidad Autónoma de Santo Domingo (UASD), initiated in summer 2007 by Dr. Kent Butler and CRP student Kelly Schum, with the collaboration of faculty in the LBJ School of Public Affairs, the Departments of Geography and Anthropology, and the Institute of Latin American Studies. The intent of the partnership is to provide technical assistance in planning institutions in Santo Domingo and opportunities for learning and field research to students concerned with development planning in Latin America.

The course project took place in Los Platanitos, an informal housing settlement next to a 1-kilometer-long arroyo—flowing formerly unfilled—in the municipality of Santo Domingo Norte (SDN). Following a series of meetings with community leaders in Los Platanitos, urban development agencies, and NGOs, the students established a partnership with several organizations in the Dominican Republic, Dr. Byrn Skote developed a pilot project to document the social and health implications of a drainage ditch, also known as a cañada, which runs through this community. The cañada was at one time a natural creek, but in recent years has been lined with concrete, and, in places, covered with a cement cap. Because of inadequate sewage and solid waste management, the concrete cañada is now severely contaminated with garbage and blackwater. When it rains, water laden with sewage and chemicals flows the breaches in the cañada levees, leading to high levels of gastrointestinal disorders and respiratory diseases.

The students enrolled in the course began preparing in November 2007 for the first of two trips to Santo Domingo in January 2008. The class drew on the theoretical framework of political ecology and developed a blend of research methods, including participatory mapping, architectural surveys, and ethnography to document the flooding problem in Los Platanitos. Students were organized into three teams—physical survey and ethnography, GIS and mapping, and social documentation—each working at a different scale and with different types of data to develop a comprehensive analysis of the challenges confronting the community.

The physical survey and ethnography team focused on the material and cultural landscapes of the 1-kilometer-long cañada itself. They meticulously documented the physical environment, including measuring channel depth and width and all the buildings lining the channel; systemically photographing every upturn from the cañada and documented the development of impermeable surfaces around the community. This research showed that the accumulation of solid waste and flooding in Los Platanitos are, in large part, consequences of uncontrolled urban growth in areas outside the neighborhood.

The social documentation team conducted a detailed random sample survey to gather data on the demographic, economic, and environmental vulnerability factors in the neighborhood. The team also conducted focus groups related to problem-ranking, well-being indicators, and children’s perception of the environment. Survey results indicated that more than half of Los Platanitos residents have lived in the community for over a decade, with many of those reporting a length of residence over ten years.

With preliminary findings in hand, the students returned to Santo Domingo during spring break to present maps, posters, and an initial report to the residents of Los Platanitos, representatives of the municipality, scholars from UASD, and NGO’s engaged in the project. Additional fieldwork was conducted to fine-tune and complement the data collected, creating an open dialogue about the problems facing the cañada. The “roundtable discussion” was a vital step in integrating the research findings, community concerns, and the perspectives of the municipality and the NGOs into a cohesive framework that could be applicable for the cañada residents in Los Platanitos and other cañadas. In conjunction with the roundtable discussions, students facilitated a community visioning workshop to develop a community-based plan for social and environmental improvements in Los Platanitos.

The final class projects included 2D and 3D GIS maps, architectural drawings of the cañada and the built environment, posters, photographs, and life stories, which combined to paint a profound picture of the social and environmental conditions in Los Platanitos. Based on the joint effort of the student and their local partners, the final class report also includes specific recommendations to address the environmental and social challenges facing the community. A documentary filmmaker from a documentary film unit (student researchers).

Ph.D. student Maryam Khashi, also joined the students for both fieldwork sessions and to produce a fieldwork document to present a film about the project. This open, unprecedented dialogue between residents of Los Platanitos, city officials, and NGO representatives was one of the most important achievements of the class project. The students and city officials created for the project a valuable model for rapid assessment of community vulnerability and for the development of integrated plans.

Los Platanitos contains a range of housing types and demographic groups.

1. The students brought the students together to document the vibrant life of the community. Residents play dominoes at one of the many active street corners in the community.

2. Los Platanitos contains a range of housing types and demographic groups.

3. The student researchers documented the vibrant life of the community through photography.

4. AutoCAD renderings of the cañada and the other parts of the community were created by the student researchers.

5. The risk of flooding and other hazards continually endangers all members of the community.

6. Students at a local elementary school visit a class for class beginning.

7. Residents play dominoes at one of the many active street corners in the community.

Student participants
Shawn M. Strange, CRP and Latin American Studies; Monica Bosquez, CRP and Latin American Studies; Mike and Maxine K. Mike and Maxine K. have supported the students.

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The GIS mapping team worked on a larger, regional scale to better understand the context of the flood and solid waste problems. Their goal was to draw on local knowledge to identify locations that are important for everyday life in the community, such as businesses, residences, and public places, but also features related to the flood problem, such as the location of drainage ditches. The GIS team also mapped important hydrological features in the watershed.