APPLIED RESEARCH FOR A SUSTAINABLE CITY MODEL

BY TONY CANTÚ

IT'S NOT OFTEN UNIVERSITY STUDENTS SEE THE IMPACT OF THEIR ACADEMIC WORK OUTSIDE OF THE CLASSROOM IN WAYS THAT BENEFIT THE COMMUNITY AT LARGE FAR BEYOND THE CAMPUS BOUNDARIES. USUALLY, SUCH IMPACTS ARE SEEN POST-GRADUATION AS FRESHLY MINTED UNIVERSITY GRADUATES PUT THE LESSONS THEY'VE LEARNED INTO PRACTICE UPON EMPLOYMENT. YET SEVERAL UTSA PROFESSORS FROM THE COLLEGE OF ARCHITECTURE, CONSTRUCTION, AND PLANNING (CACP) ARE ENGAGING STUDENTS IN PROJECTS EXHIBITING MEASURABLE IMPACTS AT CITY AND COUNTY LEVELS ON MYRIAD FRONTS. FROM EFFORTS TO SAVE "LIVING" HISTORIC DISTRICTS FROM EXTINCTION TO EXHAUSTIVELY TRACKING HERITAGE TOURISM TO MITIGATING POLLUTANTS IN STORMWATER RUNOFF, ACADEMIC INITIATIVES BREAK DOWN THE ABSTRACTION OF STUDY WITH REAL-WORLD PRACTICALITY. FROM CAMPUS ENVIRONS, AN APP IS BEING DEVELOPED ENHANCING HOUSING SEARCHES SPECIFICALLY FOR A LOW-INCOME SEGMENT OF THE POPULATION WITH EXQUISITE DETAIL — IN ADDITION TO PRICE RANGE DATA, IT INCLUDES PROXIMITY TO SCHOOLS, BUS LINES, GROCERY STORES, PARKS, EMPLOYERS AND OTHER AMENITIES — UNAVAILABLE IN SIMILAR APPLICATIONS. ANOTHER PROFESSOR EXAMINES CONSTRUCTION COMPANIES' METHODS OF DELIVERY IN SECURING BUILDING SUPPLIES, AIMED AT REDUCING CARBON FOOTPRINTS WHILE PROMOTING USE OF SUSTAINABLE MATERIALS. MUNICIPAL GRANTS AND STAFF SUPPORT ON SUCH ACADEMIC PROJECTS YIELDS POWERFUL TESTIMONY TO THE IMPORTANCE CIVIC LEADERS PLACE ON UNIVERSITY-ORIGINATED PROJECTS.

The City of San Antonio -- the most visited Texas city among tourists -- does a good job of compiling overall numbers of visitors descending upon the city on leisure travel. But the specificity of numbers associated with those coming on so-called heritage travel is largely unknown. With funding from the city's Convention and Visitor's Bureau (CVB), **SEDEF DOGANER**, Ph.D., is changing that, with the help of her students.

"We're finding out the different budgets people have for heritage travel," Doganer, an associate professor in the UTSA College of Architecture, Construction and Planning, said. "Visits to museums, the Guadalupe Cultural Arts Center, museums, and cultural events." Such detailed data will aid the city in not only promoting more cultural travel but building marketing campaigns around the travel trend.

"We have a very rich culture, but we don't have a specific marketing plan for tourists," Doganer explained. So-called heritage travel is a growing segment of the travel sector. It's a cottage industry of sorts arisen of businesses catering to the history-conscious traveller, offering guided tours to historical sites from Boston to Wales.

ASIDE FROM VISITING THE FOCAL POINTS (THE ALAMO, FOR INSTANCE), DOGANER'S WORK WOULD GIVE RISE TO MORE SOPHISTICATED OUTREACH TO TRAVELS THAT PINPOINTS TRAJECTORIES TO INCLUDE RELATED STOPS REFLECTING A DESTINATION'S SURROUNDING CHARACTER.

"We're hoping to base a document to build cultural tourism in town that includes restaurants, bakeries, and local stores."

Attention to overall details could promote creation of businesses reflecting the environs of a given locale, she noted. An example of such broad-based, history-laden locales is the city's Southtown district -- an area touted by tourism officials but with a broader brush.

Doganer assumes the role of miniaturist in her work rather than muralist, noting the interesting details innate to a heritage stop. The work also aims to subtly remind city officials of the importance of keeping unrelated commercial development at bay in favor of complementary construction to retain the rich history of specific locales.

"What kinds of businesses are we able to develop in those areas?" she asks, envisioning the value of her study. "If you want to control development in an area, we need to get local businesses in there. We get the World Heritage inscription because of the people living in the area."

The work is being funded with a $5,000 university grant and an undisclosed amount of city funds.

Doganer's work is informed by her own academic past, having studied architecture at Istanbul Technical University in Turkey. "That's what I brought with me," she said, referencing her arrival to the university in 2008. "I'm an architect, and my Ph.D was very much focused on hotel design and tourism development."

A handful of graduate students have been working on the project with Doganer since September, with a final document scheduled for completion at the end of February. Updates to the work would be provided every two to three years to track prevailing traveling trends.

When assistant professor **REBECCA WALTER**, Ph.D., sought a meaningful project that would engage her students, she turned not to the glamorous but to a work focus that would yield real-life benefit to the lives of ordinary residents.

Strengthening that noble ideal was the target of her project: a low-income segment that are among the most vulnerable members of the population. The idea: an app that aids people in their quest for low-income housing; not just any broad-based compilation of available housing and attendant rental prices, but an app pinpointing surrounding amenities tailored to low-income households — the availability of schools, proximity of bus lines, parks and hospitals, along with the presence of potential employers — yielding virtual road maps on which to build a life.

Teaching in the urban planning program of the College of Architecture, construction, and planning, Walter aims her work at a specific subset of the low-income population centered on those eligible for assisted housing.

The housing app is different from other rental search websites because it takes into account not only unit preferences but accessibility issues and neighborhood conditions.

"This actually is an applied application of our research," she said. "We are developing software specifically used by our local partners that include the San Antonio Housing Authority, Housing and Community Services and the Bexar County Housing Authority."

As it currently stands in the low-income landscape, those eligible for low-income housing sometimes lose their place in line given a finite amount of time to use their vouchers. Frustration in searching for an ideal home for their families is often exacerbated by the lack of adequate available information, she said.

BEYOND YIELDING A UTILITARIAN TOOL, THE PROJECT WILL PROVIDE IMPORTANT DATA FOR ANALYZING SOCIO-ECONOMIC DISPARITIES ON SPECIFIC GEOGRAPHIC AREAS OF THE CITY. "THIS TOOL EXAMINES THE GEOGRAPHY OF INEQUALITY AND OPPORTUNITY," SHE SAID.

Significant outside funding for the project points to its importance on a community-wide level. In partnership with Vince Wang, co-researcher with the Shimberg Center for Housing Studies at the University of Florida, the work is being partially funded through a $15,000 grant from the San Antonio Area Foundation and a Jessie Ball duPont Fund award totaling $156,000. The funding also allows for the purchase of computers and related training for future project beneficiaries. The academic project just began at the beginning of the year, but Walter is palpably enthusiastic as to the end result.

The Edwards Aquifer Recharge Zone is considered one of the most prolific artesian aquifers in the world, a source of drinking water for some two million people and the main tap for agriculture and industry. To help ensure its purity is arguably one of the most important priorities. Yet that's precisely what a team of more than a dozen architecture students and three researchers are helping to ensure.

In an intertwined research project led by **AZZA KAMAL**, Ph.D., an assistant professor of research at the College of Architecture, Construction and Planning, students are examining and designing re-naturalized site techniques for protecting campus-located portions of the aquifer's recharge zone from stormwater-originating pollutants. The study will offer prototype tools for communities and homeowner associations across the Edwards Aquifer Region.

The work is being funded by generous grants from the San Antonio River Authority and the Edwards Aquifer Authority totaling more than $30,000.

"Mimicking a typical practice environment, my students worked in teams to design and integrate an ecological urbanism approach for water management in areas located on the Edwards Aquifer recharge zone," Kamal said. "The project helps offer a model for urban sustainability on US campuses."

The student-led work has gained further attention in the public sector, having been selected as a submission for the "Rain Work" competition staged

DR. KAMAL AND HER STUDENTS AT THE TEXAS HEALTH & BUILT ENVIRONMENT CONFERENCE

by the Environmental Protection Agency. Finalists in the competition will be announced in April of this year. Students developed various scenarios for protecting the recharge zone in collaboration with the UTSA College of Engineering and faculty members **HEATHER SHIPLEY** and **MARCIO GIACOMONI** of the Department of Civil and Environmental Engineering, who offered a great insight in hydrology and climate change models.

"The aim of the project is to design the university campuses and provide a prototype proposal for the site to mitigate the pollutants and contaminants in stormwater," Kamal said. "Part of the work is not just to design the site, but to enhance campus life and sustainability credit through implementing sustainable outdoor installations, water-efficient landscape, renewable energy, and reclaimed water."

THE WORK FOCUSES NOT ONLY ON PROTECTING AQUIFER WATER BUT SENSITIVE NATIVE PLANT LIFE IN ITS MIDST, SHE NOTED.

"We're focusing on the campus," she added. "However, the goal of our process development and research is to develop a prototype site selection methodology using geospatial analysis to be applied not only at other campuses, but also in other neighborhoods in San Antonio."

Where would the UTSA model be located? "We are currently focusing on the most visible location coinciding with the projected campus expansion. So primarily main quads of academic buildings and students housing," Kamal said. "As the UTSA Main Campus is located on the recharge zone, it feeds and infiltrates clean water into the aquifer. We're proposing a series of site treatments and structures using a re-naturalized approach to infiltrate water in a way that is aesthetically pleasing but also assures clean water."

"This isn't only about water engineering, but creating an environment that attracts more students to the campus, and making a better, healthier community for the students, and personnel as well."

The work manifests itself in many ways, including the development of low-impact development (LID) techniques achieved through site design and landscaping that entails native plants along with organic soil and structures. As part of the project's scope, renewable energy sources such as solar will be implemented at the work sites for complementary lighting to create a safer outdoor environment, Kamal said.

She knows about the importance of preserving treasures like the Edwards Aquifer, having secured academic credentials not only at Texas A&M but also graduate degrees from Cairo University in Egypt. She also worked for over two decades in sustainability projects for preserving neighborhoods, communities, and housing.

Sadly, Kamal conceded attention to environmental issues on that scale is not always a focus in the architectural industry due to the complex and multifaceted approach necessary to deal with it. She hopes her students' work might heighten awareness of the field's importance.

"This is an area that's barely touched in architectural firms," she said. "Normally, they will have a lot of other consultants commissioned from outside — hydrology experts, engineers, landscape designers, etc.— and therefore, I'm very proud of the work we're doing."

Executives in the private sector are notoriously secretive about details of their operations, often citing issues related to proprietary concerns or reluctance to alert competitors as to their inner workings. This is why the eagerness of construction officials to share with **SUAT GUNHAN**, Ph.D., inside-the-ballpark details on how they conduct business is that much more impressive. Their enthusiasm also points to the importance of the work being conducted by the associate professor of construction science and Associate Dean for Academic Affairs and Undergraduate Studies in the CACP.

Focal to the work is examining companies' sustainability delivery methods and the prevalence of construction projects using sustainable building materials. The university also voiced its endorsement of the project's importance through a $10,000 Office of the Vice President of Research grant.

"I wanted to explore specific sustainability delivery methods mainly

operating in commercial construction," Gunhan said. To that end, he contacted nine companies and found they were eager to aid in his research.

THE WORK EXAMINES THE VOLUME OF SUSTAINABILITY CONSTRUCTION PROJECTS; THE LIFE CYCLE OF STRUCTURES USING SUCH METHODS; THE LEVEL OF ENERGY EFFICIENCY; THE EQUIPMENT USED; THE DISTANCE VEHICLES TRAVEL TO SECURE BUILDING MATERIALS WITH AN EYE ON FINDING LOCALLY GENERATED SUPPLIES TO REDUCE CARBON EMISSION FOOTPRINTS.

"I even explored if they were harvesting rainwater for toilets," Gunhan added, illustrating the level of specificity toward his discoveries. "The findings have been positive," Gunhan said, noting heightened attention on sustainable building methods. Partially attributable to the trend is increased recognition that environmentally sustainable buildings are not more costly than those using traditional building methods.

The misconception of higher cost associated with using sustainable buildings is achieved when builders neglect to take into account the longer life of a structure when built with attention to efficiency in using sustainable materials, Gunhan noted.

"The good thing is that sustainability is becoming the norm in the construction industry," right now, he reports. "Owners are pretty much leading the way in the long run through an understanding of the useful life of a building."

Gunhan hopes the type of work in his academic focus will be used not only in office buildings but industrial ones as well. As more companies vie for the coveted LEED certification assigned to environmentally-responsive construction in various degrees, the trend is on the upswing.
"It's actually bringing a competitiveness in the marketplace," he said of the highly sought designation, which is not only responsible but yields a good marketing tool in promoting real estate.

DUPONT AND HIS CUBAN COLLEAGUES INSIDE HEMINGWAY'S HOME

The attention he hopes the work brings has already begun outside of the academic setting. A paper generated from his research was recently accepted for presentation for the Euro-Med-Sec-01 Conference, and it will be published in its proceeding book.

Long before trade relations with Cuba began to recently thaw after nearly 60 years of a U.S.-imposed embargo, architect **WILLIAM DUPONT** has made regular journeys to the Caribbean island nation as part of his university research.

A noted expert in heritage conservation, Dupont is the San Antonio Conservation Society Endowed Professor and director of the university's Center for Cultural Sustainability. For the last few years, his visits to Cuba have centered on preservation expertise sought to preserve the Museo Hemingway, which is Ernest Hemingway's Finca Vigia estate, the place the celebrated novelist once called home.

"I lead a technical team of experts nationally in going to Havana, assisting our Cuban colleagues with their work at Museo Hemingway," he explained. His trips are financed through a mix of private funding sources and foundation grants chanelled through the Finca Vigia Foundation in Massachusetts.

HIS WORK YIELDS A SYMBIOTIC RELATIONSHIP; WHILE HIS CUBAN COUNTERPARTS GAIN FROM HIS EXPERTISE, HE'S ABLE TO RETURN WITH PRACTICAL KNOWLEDGE ON PRESERVATION TECHNIQUES THAT WILL BE APPLIED LOCALLY TOWARD PRESERVATION OF SAN ANTONIO HISTORIC DISTRICTS.

Back home, the student-aided work recently took on exponentially greater significance. In 2015, the San Antonio missions, including the historic Alamo, secured World Heritage status. The milestone was announced at the annual UNESCO World Heritage committee meeting in Bonn, Germany. In gaining the distinction, the missions join an elite list of just 22 existing U.S. landmarks so classified, including the Statue of Liberty, Independence Hall and even such world wonders as the Great Wall of China.

The heritage designations heighten a broader awareness into the importance of historical structure preservation. But in tandem with that goal, Dupont has gained unique perspective into the importance not only of saving brick-and-mortar structures, but the areas around them where people live — a generational living history who have shaped their historic surroundings, and represent a cultural continuum from the past.

"What I train my students to understand is the differences between a 'dynamic' heritage site and a 'static' heritage site," he explains, discerning the difference between the former involving communities of historic places and the latter denoting a preserved site displaying a fixed historic period.

CALLE OBISPO IN HAVANA, CUBA

"A historic museum site in the U.S. is often static. It has a relevance, meaning and value but it doesn't change," he said. "It's a time capsule that helps us inform the present." But inattention to the dynamic surrounding elements could compromise the surviving cultural heritage of a society and invite degradation via displacement of residents or commercial development with negative impact.

"We need to be out in front of these sorts of issues," Dupont said of preserving dynamic attributes. "Intangible heritage is fragile, and by the time gentrification is observed, it's too late to stop."

Asked to give examples of dynamic locales that begat reflective communities steeped in local history needing to be preserved — beyond the obvious ones dotted by historical Missions — Dupont quickly ticks off a list: the historic areas around the city's Westside, including Lerma's Nite Club, an iconic conjunto music venue; and the numerous residential historic districts on the edges of downtown such as Lavaca, Tobin Hill, Government Hill, and Dignowity Hill.

The infectious accordion-based music once echoing from Lerma's, the circa 1940s building at 1612 North Zarzamora, has long been silenced since the club's closure. But the building is no mere structure; rather, it's an outgrowth of the Latino community it reflects.

TOWER BUILDING, PART OF THE FINCA VIGIA ESTATE, CUBA

Despite its listing on the National Register of Historic Places and having set the stage for such seminal musical acts as Flaco Jimenez and Esteban "Steve" Jordan, whose music evokes the culture, the site once was in danger of being razed.

The City of San Antonio recently appropriated $500,000 to save it from destruction, partially attributable to the supporting efforts of Dupont and his students. The building will be saved and the strains of accordion music may once again emanate from its interior again in cultural celebration.

The academic work's importance to the city at large is illustrated in myriad ways. Councilwoman Villagran has invited Dupont to help with planning and participation in symposia about World Heritage issues. The university puts a premium on the work as well, with Dupont's position one of just a handful of endowed professorships in historic preservation nationally.

"That's the sea change happening in the profession now globally," Dupont said. "That we actually have to sustain the cultural fabric of a community, not only the tangible remains of history."