Autonomy and Contingency in Urban Contexts

This paper argues for teaching methods that negotiate between contingency and autonomy in response to the demands of designing urban environments, where neither process nor form alone provides complete solutions.

The methods emerged from an extended series of architecture, landscape architecture and urban design action/research studios in post-Katrina New Orleans. Different emphases on technical expertise in design education, which tends to focus on tectonic performance in architecture and on environmental systems performance in landscape architecture, fuel differences with respect to the questions posed by the conference brief. Architecture students tend to see design in more autonomous terms, while landscape architecture students feel tied to contextual processes they don't control. Our methods maintained areas of expertise and worked toward synthetic conversation. Post-Katrina New Orleans provided a valuable opportunity for multi-disciplinary conversation because the level of landscape and urban devastation was so high and so comprehensive. Beyond that, significant gaps in information about infrastructure, hydrology and ecology meant that academic research could provide a valuable service.

Over approximately half a dozen years of teaching and research, we observed consistent trends among the students. In architecture studios, products were oriented toward the development of objects at a high level of formal resolution, and in landscape studios, products were oriented toward the choreography of environmental processes. During the analytical phases of the studios, when students all worked from the same base information, the architecture students made physical models—objects representing a moment in time—as visualization tools; the landscape students made narrative drawings—sequences telling a story across time—as visualization tools. Both directions of work were necessary to understanding the site; each illuminated the other; both informed design projects among all the students; and together, they enabled rich conversations among students when they came together for field work. These differences carried through the design phase of the studios. Architecture students tended to make projects that were highly resolved formally but addressed issues of time and environmental processes as abstractions. Landscape students' projects, driven by scripts for environmental processes, represented time and change effectively but produced less definite forms. Neither contingency nor autonomy provided a full rationale for dealing with urban problems. Our studio methods produced work that was strong in both ways.

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The inherent complexity and multiple audiences in urban design arenas mean that the polarization of contingency and autonomy limits the success of proposals. Every project must have merit in both ideological frameworks. Ten years after Katrina, as we face the impacts of climate change in cities all over North America, the need for multidisciplinary and multidimensional ideas is ever more essential.

BOTH/AND: SYSTEMS THINKING AND AESTHETICS IN URBAN CONTEXTS

The motion for our panel positions systems thinking in opposition to aesthetics and asks us to argue for one or another as a driving force in design. However, our experience over six years of teaching a design-research studio in Washington University's bachelor's and master's degree programmes in architecture and urban design and the University of Toronto's master's degree programme in landscape architecture suggests that systems thinking and aesthetics are integrally connected and cannot be pulled apart. Systems thinking in urban design is not limited to measurable, quantifiable processes. It must also include social and cultural systems, where ideas of beauty and value play a central role in the determination of appropriate design strategies. The contemporary push toward landscape infrastructure (or green infrastructure) is compelling precisely because it considers aesthetic value and public amenity in relation to problems that have traditionally been solved only by equations and data.

Our point of view is grounded in our experience with *Gutter to Gulf*, a multi-year teaching and research initiative that looked at architecture, landscape architecture and urban design problems in post-Katrina New Orleans and its surroundings. *Gutter to Gulf* capitalized on the chance to propose designed landscapes of high aesthetic quality as alternatives to purely functional efforts toward water management by the U.S. Army Corps of Engineers. When the initiative began in 2009, conversations about the city's future focused on the expansion of standard grey infrastructure that was neither environmentally resilient, rhetorically compelling nor inhabitable. Committed to the idea that design could offer better alternatives, *Gutter to Gulf* examined water management questions as a chance to explore the possible relationships between public safety and public amenity. Responding to needs in the community, *Gutter to Gulf* showed how water management questions in the greater New Orleans region could be an engine for urban design. It provided high-quality information about the historical and contemporary contexts in which those questions had to be considered. It developed strategies for resilient design. It used aesthetic value as a means to build support for systems-based, functional projects and as a way to increase the legibility of landscape processes whose invisibility had created significant hazards.

Gutter to Gulf studied landscape and urban design problems in and around New Orleans for six years. Work produced by the initiative was disseminated in many ways: as base material for planning efforts, policymaking bodies and grassroots initiatives working on the city's future; through scholarly presentations and articles; and through a website that continues to make information about the city's hydrology, hydraulics, and possible future accessible to diverse audiences, including planners, designers, policymakers, and citizens. The initiative has attracted international attention for its clarity and rigour.

This high level of output emerged from teaching methods developed to emphasize the relationship between systems thinking and aesthetics. This meant bridging a divide that often occurs in design education. In architecture, technical instruction tends to focus on tectonic performance, and in landscape architecture, it tends to focus on environmental systems performance. As a result, architecture students tend to see design in more autonomous terms, while landscape architecture students feel tied to contextual processes they don't control. This is not ideal on either side.

NEW ORLEANS AS A CASE STUDY

Post-Katrina New Orleans provided a valuable opportunity for considering the relationship between form and function at multiple scales and across design disciplines. The level of devastation to buildings, landscapes and infrastructure was high. Returning to the pre-storm status quo, which ignored the city's subsided terrain and its location in a major river delta, was neither possible nor desirable from a public safety point of view. The city presented a series of technical questions. The failure of levees and floodwalls demonstrated that problems could not be solved by conventional engineering solutions. Everyday pre-Katrina challenges combined with the catastrophe of the storm revealed the need to address both extreme and low-level flooding. Dealing with water raised issues for architecture, landscape architecture and planning practices. The constant threat of local flooding meant that every piece of ground needed to work toward water management—there was no room for urban designs that were only beautiful. And these technical issues existed in the context of a political problem: many New Orleanians did not understand the city's ecological and hydrological realities, and there was an urgent need for public information about why new solutions were necessary. Because of this knowledge gap, Gutter to Gulf took on the task of demonstrating that high-performance landscapes, which were far more resilient and affordable than additional grey infrastructure, could be not only effective flood control measures but also public amenities that could not be funded otherwise.

METHODS

Gutter to Gulf's teaching methods involved both aesthetic and systems thinking from the first formulations of the studio brief. The studios took on water as a way into the city's myriad design dilemmas. Planning for water raises design issues that are rhetorical—what, for instance, should the image of water be in a soggy place, and how can that image help citizens to come to terms with where they live?—and practical—how does rainwater hit the ground, travel through the city, and make its way to the Gulf of Mexico? Public spaces, which must offer provisions for both amenity from day to day and safety under extreme circumstances, were seen as venues to consider both aesthetic expression and pragmatic performance.

Method 1: The studio carried out research to fill gaps in the available knowledge necessary for urban design.

Research questions focused first on existing structures and institutions for water management, which were almost entirely undocumented and not well understood outside a tiny circle of engineers and administrators. Articulating and explaining existing systems was a necessary first step toward new proposals. *Gutter to Gulf* developed documentary drawings, physical models and animations that explained how water moved into, across, and out of the city and its region. Architecture and landscape architecture students worked back and forth to represent their findings in two and three dimensions. This combination of disciplines and skills allowed the investigation of the city's tectonic, environmental and social performance at multiple scales.

Method 2: The studio verified all research in the field.

Research and documentation were tested against on-the-ground observations in New Orleans and revised to reflect information that could only be obtained by site visits.

Method 3: The studio articulated all research findings through synthetic drawings and models that could be understood by both technical and lay audiences.

Complicated technical information was rigorously described using techniques that were accessible to the many audiences with a stake in New Orleans's future: planners, policy makers, designers, engineers, scholars, activists and ordinary citizens.

Method 4: The studio identified and framed design problems as a critique of the status quo.
Students articulated questions for design that responded to problems they'd discovered in their research. The students' development of their own design briefs was seen as an active step toward design proposals. Students were required to work on existing sites and within existing circumstances, and they were asked to propose critical ideas within real-world models of governance, management and funding. In other words, the studio required all design proposals to operate in the arena of believable fiction.

Method 5: The studio required rigorous demonstration of both
environmental performance and public amenity.
The studio asked each student to respond to the programmatic, formal, ecological and infrastructural implications of the design brief he or she had articulated. Projects addressed both the mechanics and the rhetoric of drainage: the conveyance of water; mechanisms for its storage and absorption; its transformation of ecological systems; its relationship to public space; its legibility in the city; its legal status; and its capacity to increase the ecological and hydrological integrity of the urban landscape. Students were required to develop their projects for both environmental performance—systems thinking—and experiential richness—aesthetic value.

PROJECTS
In defining possible problems for design, the studio looked at landscape types from public infrastructure to civic space to private gardens, and it demanded reckoning with ecological systems from regional to residential scales. This paper will present four *Gutter to Gulf* projects. These projects all present points along a spectrum of attitude about the negotiation between systems thinking and aesthetic value. However, each project deals with both issues in some way.

1. The Canal Recreation Park, Hollygrove Neighbourhood, New Orleans
   Samantha Stein, Washington University in Saint Louis
Ms. Stein's programme created a stormwater management and literacy centre on the site of a large and physically divisive drainage canal.

The project addressed environmental systems by improving pedestrian and bicycle circulation across a major urban boundary; increasing stormwater storage capacity; and constructing wetlands to retain and absorb water.
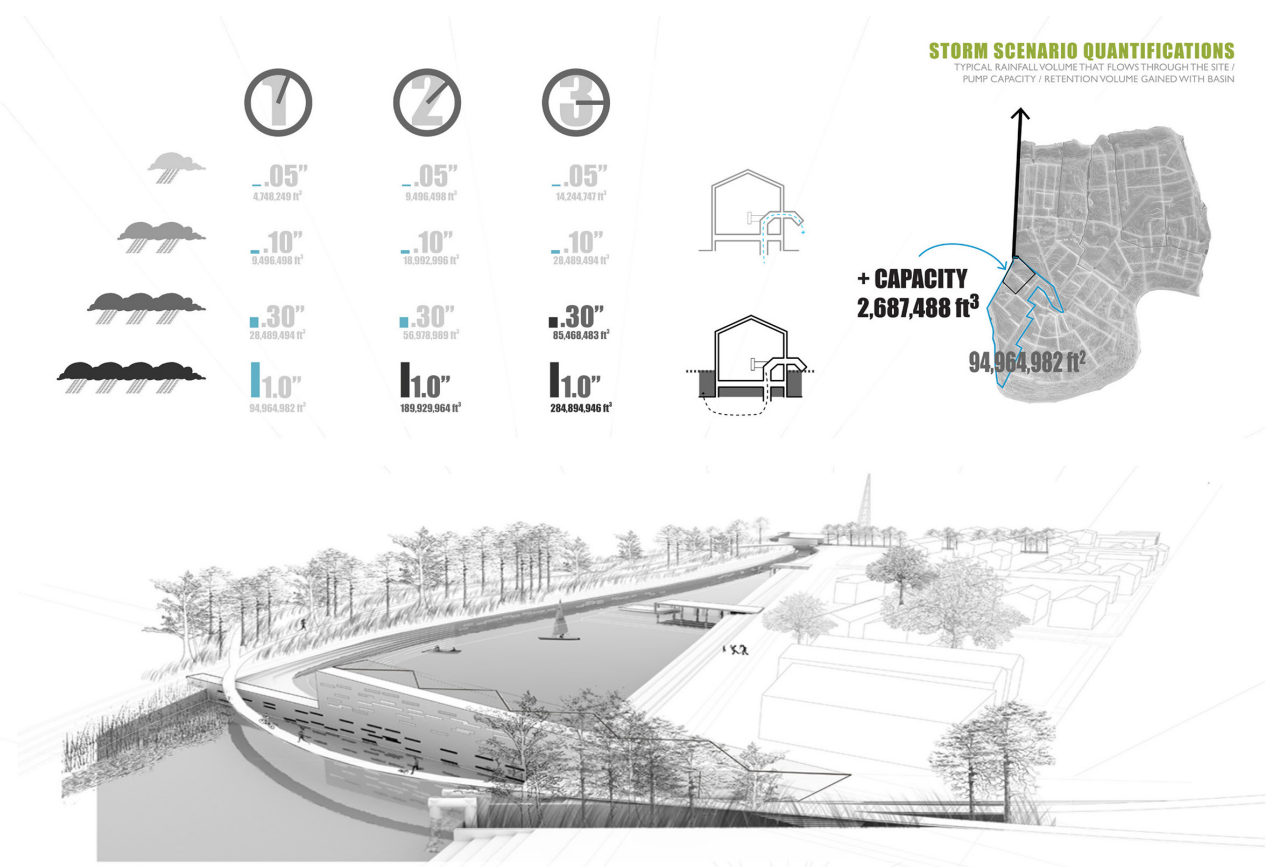
The project addressed aesthetics by transforming a derelict canal into an expansive public recreation and education space. Its formal development transformed a social divider into a social bridge.

2. La Boucherie Hunting and Camping Ground, St. Bernard Parish
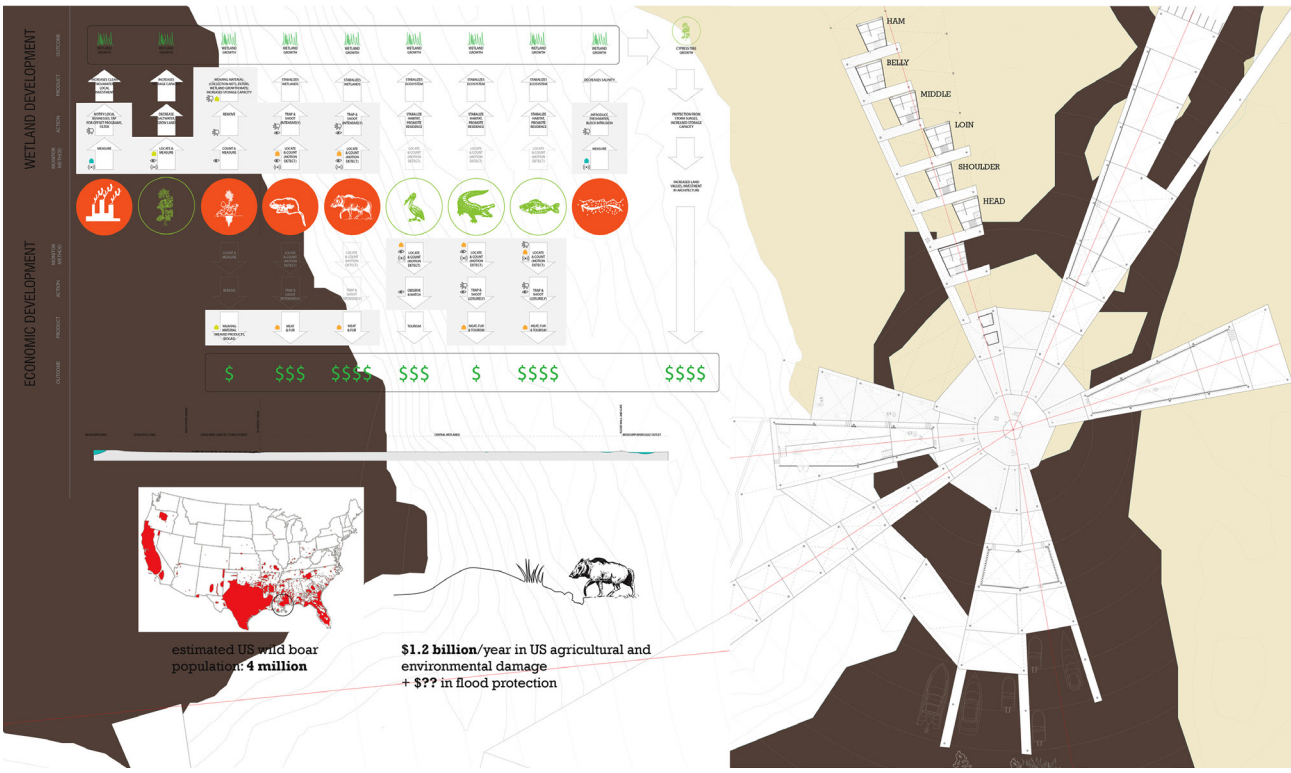   **Lauren Harrison, Washington University in Saint Louis**
Ms. Harrison's programme created an eco-resort downstream from New Orleans in a threatened wetland essential to regional flood control.

The project addressed systems by intervening in a wetland species mix. Its culling of the wild boar population helps to maintain wetland soil and plants and so preserve hydrological function. In addition, it creates an economic engine by offering local food for sale, a tourist venue and attendant jobs.

The project addressed aesthetics by formalizing the vernacular Louisiana hunting landscape. It assigns designed spaces to local practices such as shooting, butchering, cooking and eating, and it mobilizes elements of folk architecture in a contemporary resort. It derives specific forms directly from site processes and programme systems.

STORM SCENARIO QUANTIFICATIONS
TYPICAL RAINFALL VOLUME THAT FLOWS THROUGH THE SITE / PUMP CAPACITY / RETENTION VOLUME GAINED WITH BASIN

+ CAPACITY
2,687,488 ft^3

94,964,982 ft^2

1

WETLAND DEVELOPMENT

ECONOMIC DEVELOPMENT

estimated US wild boar population: **4 million**

$1.2 billion/year in US agricultural and environmental damage
+ $?? in flood protection

HAM
BELLY
MIDDLE
LOIN
SHOULDER
HEAD

2

Figure 1: Canal Recreation Park

Figure 2: La Boucherie

3. Corridor, Lafitte Corridor, New Orleans
Juan Robles, University of Toronto

Mr. Robles's programme created a public recreation space in an underused, derelict canal space that divides the city and neighbourhoods in New Orleans.

The project addressed systems by connecting an isolated canal to the city's drainage system, thus increasing storage capacity, and by planting the canal's edges with wetland species, thus retaining and transpiring water. Also, the wetland species, bamboo, are harvestable and constitute an economic engine for the city.

The project addressed aesthetics by creating a linear public space to connect iconic (and isolated) New Orleans landscapes. The formal development of recreation and social spaces offers not only a wide variety of venues and experiences but also adds to the project's hydrological function and biodiversity.

4. Rice Farm, Hoffman Triangle Neighbourhood, New Orleans
Adam Bobbette and Karen May, University of Toronto

Mr. Bobbette and Ms. May developed a programme for cooperative, community based rice farming in a very poor, very subsided neighbourhood whose economic and hydrological problems had not been adequately addressed by top-down planning processes after Katrina.

The project addressed systems thinking by identifying sites for rice farming. This agricultural practice retains water, aiding in flood control. Beyond that, the project bolstered social infrastructure by providing food security and an income source in a poor neighbourhood. Developed as a case study, it could be scaled and transferred to other areas of the city.

The project addressed aesthetic value through the creation of public rituals and practices. Building on longstanding community traditions, the rice fields offer a chance for citizens to come together and work toward the rebuilding of their neighbourhood. In this project, scripts and scenarios were more important than particular formal propositions.

CONCLUSIONS

Over approximately half a dozen years of teaching and research, we observed consistent disciplinary differences with respect to the balance between systems thinking and aesthetic value. Among our architecture students, products were oriented toward the development of objects at a high level of formal resolution, and among our landscape students, products were oriented toward the choreography of environmental processes. During the analytical phases of the studios, when students all worked from the same base information, the architecture students made physical models—objects representing a moment in time—as visualization tools; the landscape students made narrative drawings—sequences telling a story across time—as visualization tools. Both directions of work were necessary to understanding the site; each illuminated the other; both informed design projects among all the students; and together, they enabled rich conversations among students when they came together for fieldwork. These differences carried through the design phase of the studios. Architecture students tended to make projects that were highly resolved formally but addressed issues of time and environmental processes as abstractions. Landscape students' projects, driven by scripts for environmental processes, represented time and change effectively but produced less definite forms.

Despite the varying relationships between form and function in individual projects and across disciplinary boundaries, the Gutter to Gulf studios insisted systems thinking and aesthetic values remain in constant dialogue. We see this as an ideological position. Choosing systems thinking as the only priority assigns too much responsibility to data and not enough to culture. Choosing aesthetic values as the only priority absolves designers of the need to address basic problems of existence. Both/and is more difficult than either/or. We believe that the technical and cultural responsibilities of design make this ambitious

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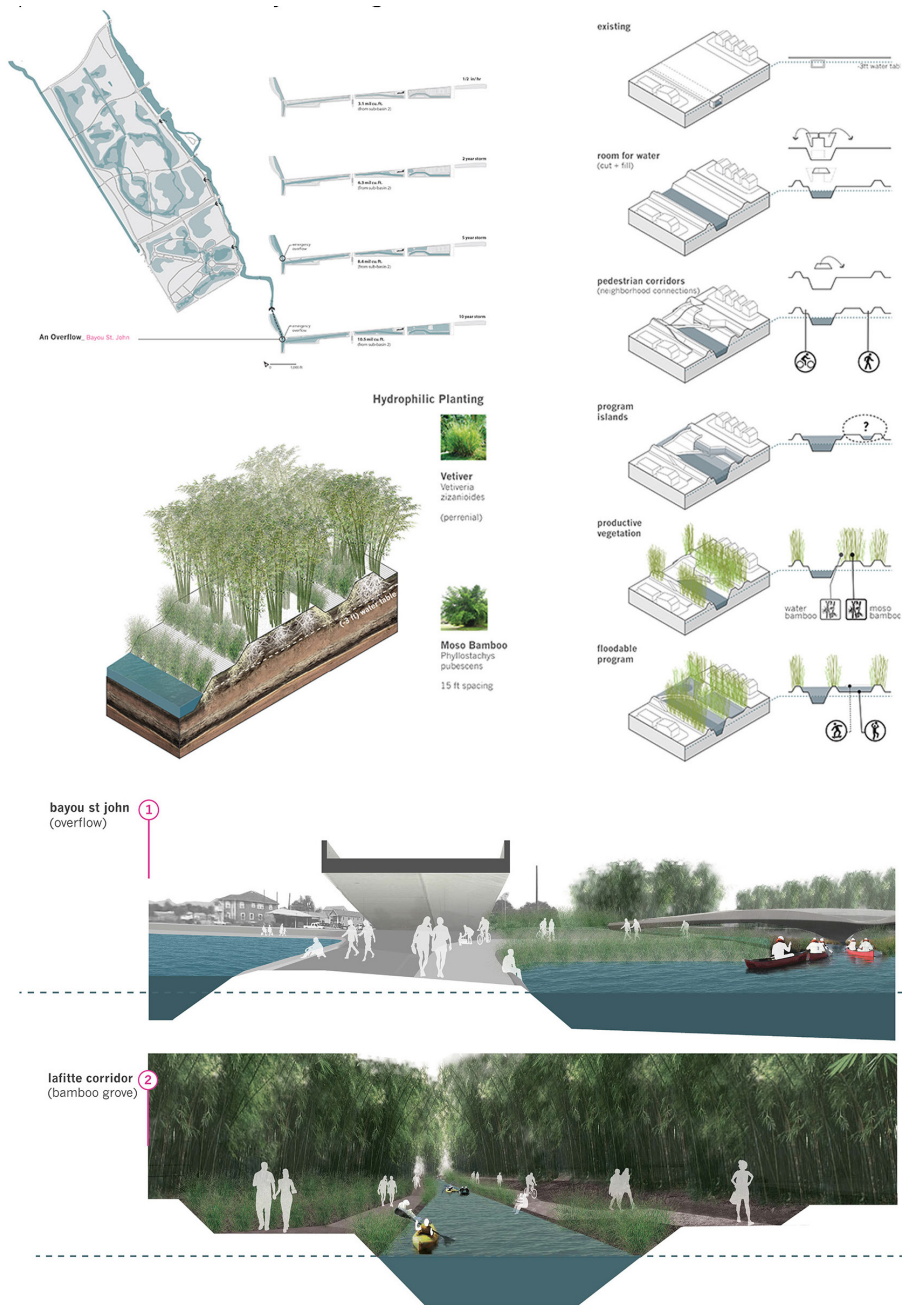
goal a necessary struggle whose importance extends far beyond New Orleans. The inherent complexity and multiple audiences in urban design arenas mean that the polarization of performance and beauty limits the success of proposals: every project must have merit in both ideological frameworks. Ten years after Katrina, as we face the impacts of climate change in cities all over North America, the need for multidisciplinary, multidimensional and synthetic ideas is ever more essential.
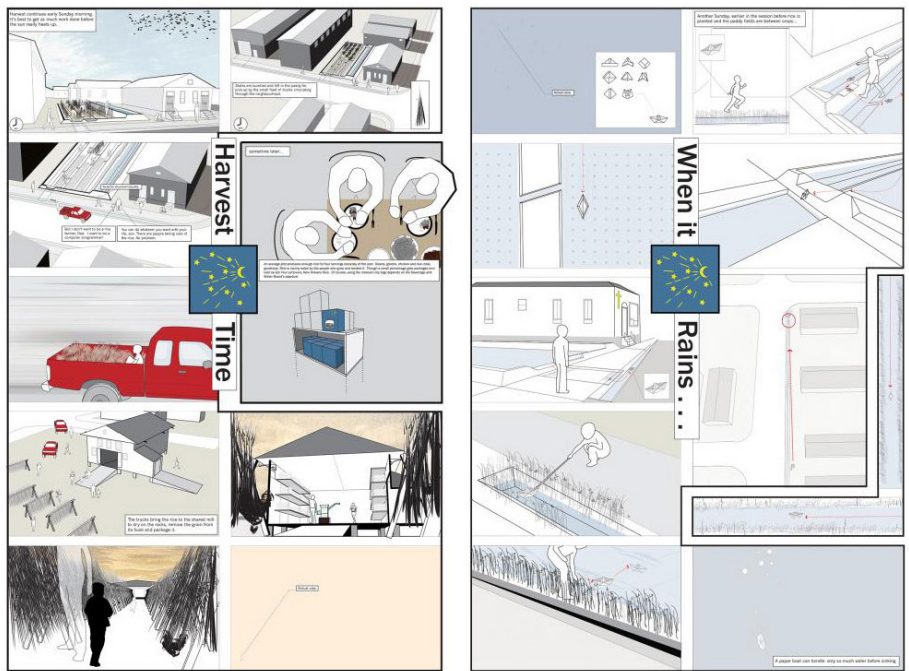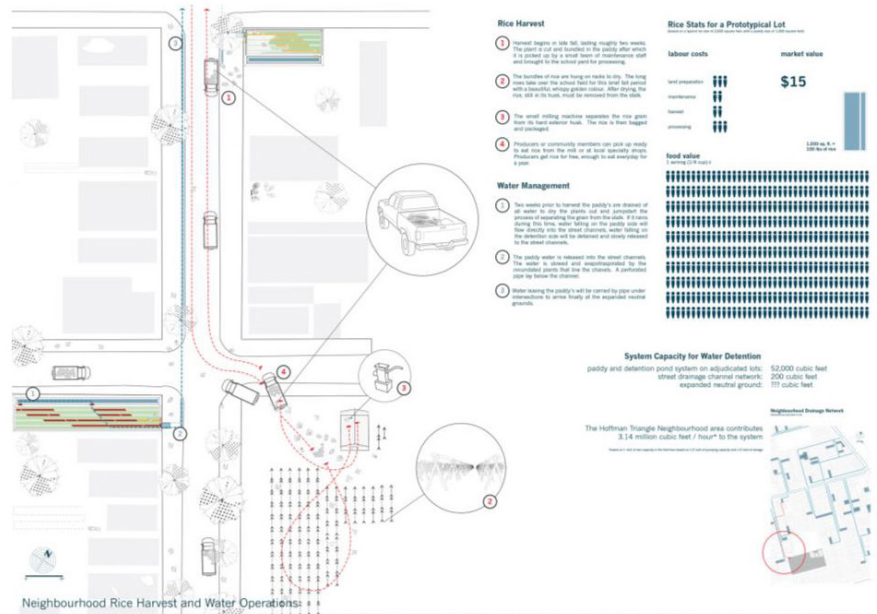
Figure 3: Lafitte Corridor

Figure 4: Rice Farm