



Old Accra: Upcycling of Agrowaste

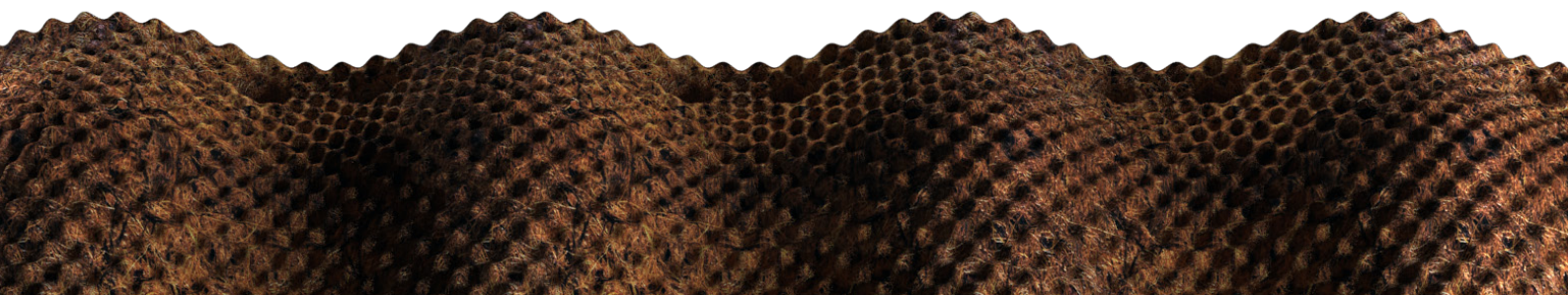
Protoarchitecture for the Chale Wote Festival

[STATEMENT OF INTENT]

For Sub-Saharan African cities like Accra, the challenges of the 21st century are specific – such contexts will continue to experience high urban and population growth rates within shorter periods of time than most of its global counterparts. Such growth will be supported by comparatively young agricultural economies dominated by the historical export of raw materials and import of standardized commodities for urban development. Along the 2.5km stretch of the West African Atlantic Coast, Old Accra's dense informal settlements mask the city's glorious beginning as the economic hub and gateway to Africa. Today, Old Accra is the site of a cultural resurgence led by artists, architects and designers, wherein the materiality of an urban recycling ecosystem has become the language for identity formation, translation and industrial barter.

As part of a wider academic-industrial initiative to propel the upcycling of biomaterial waste from agri-industry towards critical urban development interventions, **Old Accra: Upcycling of Agrowaste** is an interdisciplinary, cross-cultural design-and-build studio that investigates the development of modular proto-architectural structures (canopies, kiosks) made of local waste agricultural by-products. The broader goal is the design of strategies at multiple scales that directly engage both cultural patrimonies and modern-day aspirations to drive architectural and social innovation.

[top image] Chale Wote Festival, Old Accra. 2014
[bottom image] Upcycled Agro-Waste Material. 2015



EXPANDED STATEMENT: BACKGROUND AND PROCESS

“Old Accra: Upcycling of Agrowaste” is part of ongoing interdisciplinary research collaborations initiated across the institute that includes our School of Architecture and diverse units at the schools of Engineering, Science, Business, and Humanities & Social Sciences; and local biomaterial companies such as e2e Materials and Ecovative. Most specifically, the Center for Architecture, Science and Ecology have been partnering with academic and industrial institutions in Ghana and USA since 2012 around agricultural by-product biomaterial processing, fabrication and design innovation.

Every year over 140 billion metric tons of waste from agriculture are produced globally, arguably the world’s most underutilized material resource. This research emerges from advances in industrial ecological management, biocomposite development and advanced prototyping to upcycle biopolymer stock towards clean, affordable building material technologies. However, this studio’s departure from a design standpoint, aims to erode and transform social perceptions and deeply-seated, resistance to ‘low-tech’ material systems; while at the same time confronting the dilemmas of post-colonial economies and the polemics of technological / knowledge exchanges between the “developed” and “in-development” worlds.

Prior to departure to Ghana, the studio will focus on:

- * Context Research: urban development, economy and history of the popular ‘Chale Wote Street Art Festival’ in Old Accra, and Ghana’s agri-industry (contact. Prof. Henry Wellington and former mayor of Accra, Nat Amarteifio)
- * Precedent Research: modular systems and upcycling case studies in architecture, specifically within ‘in-development’ contexts. (contact Mr. Ali Achilles, Director of Ecofibers Gh.)
- * Preliminary Design:
 - Mapping, programming and projective exercises in order to identify the problems and opportunities for the site as well as thesis statements.
 - Design and prototyping of transferable building components (in partnership with e2e Materials and Ecovative) to share with Accra partners.

Tentative Travel Itinerary & Schedule [March 9-19]

The trip will be planned and organized with the support of Ashesi University, industrial partners and other cultural institutions (AccradotAlt, ANO and the Nubuke Foundation)

- Day 01 - Travel from NYC to Accra, Ghana
- Day 02 - Arrival / preliminary exploration through Old Accra
- Day 03 to 07 - joint studio (*)
- Day 08 - critical review and public presentation
- Day 09 - TBD
- Day 10 - Return to USA.

(*) The joint-studio will include: A) Morning: visits to three key urban grass-root recycling hubs in Accra and document ongoing projects, their materiality, processing constraints and opportunities (contact: Mr. Nii Teiko Tagoe, Ga Mashie Redevelopment Authority, DK Osseo-Asare, LowDo Design); B) Afternoon: design charrette and workshop with local actors in Old Accra by the Ga-Mashie Redevelopment Authority; and C) Evening: cultural activities.

Upon return from Ghana design will be revised according to critical inputs and a full-scale prototype will be fabricated and assembled for Final Review / Exhibition. Once the studio is finalized, design instructions (and eventually components) will be sent back to Ghanaian partners for the fabrication and installation at Old Accra’s ‘Chale Wote Street Art Festival’ in August 2016 (contact: Dr. Sionne Neely or Mr. Mantse Aryeequaye, founders of AccradotAlt)

BUDGET

Int'l Flight (12 STUDENTS AND 2 FACULTY)	\$ 15,400
Lodging (to be provided by local partners)	\$ 0
Local Transportation	\$ 1,500
Prototyping / exhibition materials	\$ 3,100
TOTAL	\$ 20,000

Old Accra 2014



[APPLICANTS BACKGROUND]

The PI has practiced architecture in South America and United States. A Fulbright scholar, his projects include collaborations with disfranchised communities in both regions. Currently an Associate Professor of Architecture, he has been developing a particular focus in contemporary craft, initiating design studios on incremental housing, post-development contexts; hands-on workshops in contemporary craft (ceramics, weaving); and informal urbanism seminars. At his school, he has been director of the semester-abroad program in China and is developing a similar program for Latin America. He has been granted visiting research fellowships at the Hypermedia Studio/UCLA, Cranbrook Academy of Art, and the European Ceramic Work Center in the Netherlands. In his native country, he was Academic Director of a graduate program in new media; Editorial Director of an online magazine dedicated to art, technology, and social issues. He earned a Diploma in Architecture from Universidad Nacional de Cordoba, Argentina; and a Master of Architecture from Cranbrook Academy of Art, where he later served as Guest Department Head & Architect-in-Residence. He has been recognized by JAE/ACSA for his scholarly writing. In 2006 he was selected finalist of the YAP / PS1 competition and exhibited at MoMA. In his native country, the applicant developed projects (some still active) to participate in the creation of alternative ways of manufacturing, commercialization, distribution and employment; helped develop awareness about the management of the collective good; and collaborated in the development of alliances and networks to allow rural and urban disfranchised communities to influence in the political decision making process. His work has been included in the several publications, among them "Design Revolution: 100 projects that are changing people's lives" (Thames & Hudson, 2009).

The Co-PI is a doctoral candidate from Ghana whose research over the last four years has focused on the development of high performance building integrated material systems from waste agricultural by-products in conjunction interdisciplinary collaborators and manufacturing partners including, Ecofibers, e2e materials and Ecovative. Her work has secured funding from NYSERDA, through the NEXUS clean energy accelerator program and a fellowship from the school of Humanities, Arts and Social Sciences. She obtained a bachelor's degree in architectural studies and African politics from Tufts University, Boston where her thesis research on the evolution of Brazilian architecture in Old Accra was published into a book by the Brazilian Embassy, Ghana. She has worked for Joe Addo Studio and Adjaye Associates and served as the branch director for ArchiAfrika, the largest group architects and urban design professionals on the continent. Her work has been included in several publications and conferences, including 'Heritage as Asset for Inner-City Development' Book commissioned by Erasmus University, Rotterdam and at the Union of International Architects Congress, 2014.

[STUDIO GOALS]

The pedagogical approach in this cross-cultural design studio model constructs avenues of exchange, iterative development and cooperative knowledge for all stakeholders, moving away from colonial paradigms of engagement and education between African and American institutions. By engaging innovative local industry within Old Accra's context with emerging global biomaterials research, a design framework for the development of transatlantic knowledge economies is developed in the face of projected urban ecological challenges. The exposure and immersion of students within the context of Old Accra provides a critical contextual basis to develop informed decisions for design innovation and engage informal political, cultural and economic structures for appropriate technology solutions. **Old Accra: Upcycling of Agrowaste** is proposed as a key milestone within the university's long-term development platform for evolving alternative understandings and design practices of development, moving beyond the confines of technocentric framings of sustainable building performance and engaging in-situ social and cultural patrimonies to meet and sustain ecological innovation.