

Columbia University
Graduate School of Architecture, Planning and Preservation
Advanced Studio VI, Spring 2016

Critic: Kunlé Adeyemi, Adjunct Associate Professor (kunle@nleworks.com)

Industrialization in African Water Cities Abidjan, Côte d'Ivoire



“Industrialization is not a luxury for the region but a necessity,” claimed Nkosazana Dlamini Zuma, Chairperson of the African Union Commission, during the 2013 Annual Meeting of the Economic Commission for Africa held in Abidjan, Côte d’Ivoire. The conference, entitled “Industrialization for an Emerging Africa,” involved numerous nations’ Ministers of Finance, delegations, and UN representatives, who all agreed that the continent’s economy should shift from a reliance mostly on exporting raw materials to industrialization producing value-added goods and services. A structural transformation of the economy was called for.

That being said, industrialization is hardly a new phenomenon in the continent. Shaped by 19th-Century colonialism, Africa was cast as producer of raw materials and consumer of manufactured goods in the international division of labor until the transition toward independence in the 50’s and 60’s. Although the promise of industrialization was strong under the newly elected leaders, it was based on mass production of standardized commodities that strived to induce the flow of capital from north to south, facilitated by trade policies that favored foreign investment. As the world’s market fluctuated due to oil crises and resurgence of protectionism in

¹ Abidjan, Côte d’Ivoire

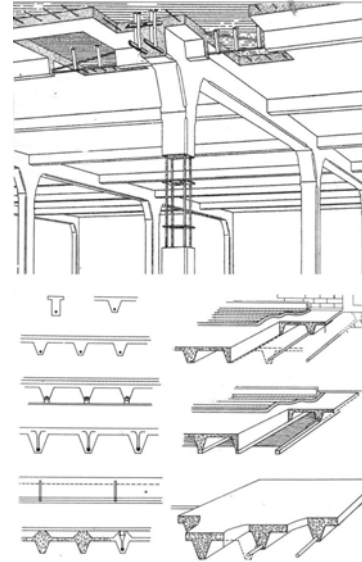
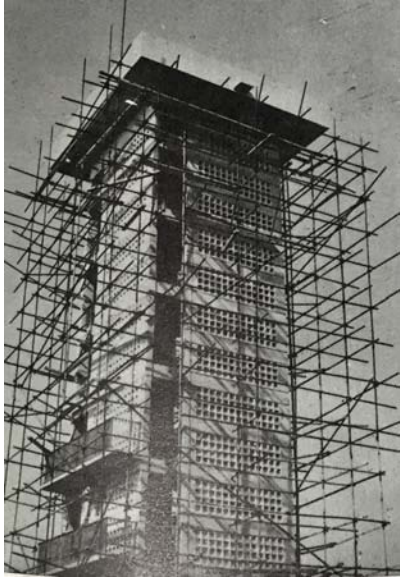
North America and Western Europe, along with multiple political turmoil and coup d'états in Africa, this strategy has proven unsustainable and contradictory. With the rhetoric of industrialization regaining currency in today's Africa facing rapid urbanization and climate change, it is crucial to examine what paradigm is at play and its socio-political and environmental consequences. This studio will examine the notion of industrialization particularly in the production of architecture, infrastructure and urbanism with the goal of creating new building systems or improving existing ones to add social and economic values to the society through strengthened productivity, capacity, and quality.

Objective & Approach

The population of Abidjan, Côte d'Ivoire's economic center and main port city, is expected to increase 53% between 2010 and 2025, from 4.1 million inhabitants to 6.3. It will become the 5th most populous city in Africa, covering an area of 54,000 hectares, of which 8,700 are lagoon areas. After a decade of political instability with the most recent civil unrest ended in 2011, the city's construction sector has experienced significant growth with an increasing amount of infrastructure and low- to middle-income housing projects underway. With growing demand for construction materials, there are needs for further developing the building materials industry in Cote d'Ivoire and allocating its resources more efficiently. We will explore the challenges and opportunities presented by the country's local industries along with its environmental, economic, social and political implications. Throughout the semester we will be in touch with local partners, organizations, and government agencies to guide our research.

The studio will begin with a study on Côte d'Ivoire based on NLE's African Water Cities Project (AWC) documentation project² that explores the impacts of urbanization, housing shortages, lack of resources and climate change on African cities and communities situated in or along water. NLE conducted initial macro scale investigations of economic and population growth, revealing that the fastest growing African cities are also the most vulnerable to climate change. The "Top 20 Potential African Water Cities" identified by NLE include Cairo, Lagos, Luanda, Abidjan, Cape Town and Dar es Salaam. Some of these fast growing cities are also home to the largest groups of poor informal settlements, in which several have begun to show evidence of adaptation to climate change. The AWC Project responds to these issues by looking at cities and settlements that face these contemporary challenges by learning from existing strategies and inventing new adaptive modes of building. The studio will build upon AWC and explore the convergence of rapid urbanization and climate change in Côte d'Ivoire, with the aim of understanding the social, economic, infrastructural and environmental challenges and opportunities that shape the development of the city and its surrounding settlements.

² NLE Adapting Coastal African Cities to the Impact of Climate Change 'African Water Cities Project, available for download <http://www.nleworks.com/publication/test-2/>



The second phase will consist of case studies on industrialization and building systems best practices, with case studies from other relevant regions, India, Singapore, China etc. We will analyze local materials, building techniques, traditional crafts, technologies, labor, and logistics to understand the range of building systems and the network of agencies involved. We will analyze various building components and systems. And critically interrogate the resource allocation, design, manufacturing, transportation, installation, and usage of these components.

In addition to looking for opportunities within the building process where new cultural, social and economic values can be generated, we will explore concepts such as circular economy and green economy in this context, addressing the life cycles of materials. Each student is expected to develop prototypes of scalable solutions showing the transformation of materials to building systems through people. The prototypes, drawing from local knowledge and global intelligence, should address a particular urban condition with identified users and intentions. The goal is to devise new spatial and production strategies that tackle broader issues of climate change, rapid urbanization, and social equality.

NLÉ has been invited to participate in the 2016 Venice Architecture Biennale. Outstanding works in the studio may be included in the exhibition..

Kinne Travel

The goal of our travel to Abidjan between March 7 and 11 is to observe, document, and learn from people and the environment. During the trip we will meet with Ivorian architects, economists, and planners to further understand the current urban development in Côte d'Ivoire.

Studio Structure

Phase 1: 2 weeks

Research on Abidjan / Groups of 2

- Unpack the issues of rapid urbanization and climate change in Cote d'Ivoire registered under seven topics; Demographics, Economics, Socio-politics, Infrastructure, Morphology, Environment, and Resources (DESIMER)

Phase 2: 3 weeks

Case study of industrialization and building systems in different global regions/
Groups of 2

- Investigate the resource allocation, design, manufacturing, transportation, installation, and usage of building components: wall systems, flooring, roofs, envelope, structural and mechanical systems.

Travel to Abidjan: 1 week

Observation, fact finding and documentation / Groups of 3 or 4

- Site visits, workshops, meetings and community engagements. Groups will identify and document key challenges and potential opportunities in the development of Abidjan in different sectors ranging from small-scale products to large-scale infrastructure.

Phase 3: 3 weeks

Prototype Design / Choice between Independent Work or Groups of 2

- Design and development of pre-assigned prototype structures. Specific structures will be identified as outcomes of field trip.

Phase 4: 2 weeks

Industrial Scale System Design / Choice between Independent Work or Groups of 2

- Develop scalability, illustrating process cycle of procurement, fabrication, transportation, assembly, and disassembly, where needed. Solutions should aim to demonstrate the socio-economic, environmental and resource capacities for industrialization in Cote d'Ivoire, as a potential model for other African water cities.

Selected Resources & Reference

NLÉ, Shaping the Architecture of the Developing Cities, "Makoko Floating School Project Report", April 2010

available for download <https://www.dropbox.com/sh/xps3t2gln49wpdz/IIIcPAqMFS>

NLÉ, "Adapting Coastal African Cities to the Impact of Climate Change", African Water Cities Project, 2011.

<http://www.nleworks.com/publication/test-2/>

UN Habitat

<http://unhabitat.org/urban-initiatives/initiatives-programmes/africa-urban-agenda-programme/>

Cities and Climate

Change: <http://www.unhabitat.org/content.asp?cid=10192&catid=550&typeid=24&subMenuId=0>

Adjaye, David, and Peter Allison, ed. "Cote d'Ivoire" in Adjaye Africa Architecture: A Photographic Survey of Metropolitan Architecture. London: Thames & Hudson, 2011.

<https://drive.google.com/file/d/OB2hD6Wfffs8QTXphTkhrlVfTOE/view?usp=sharing>


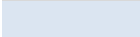
Alonso, Pedro and Hugo Palmarola, ed. Monolith Controversies. Hatje Cantz, 2014.

Lauber, W..Tropical Architecture: Sustainable and Humane Building in Africa, Latin America and South-East Asia. New York: Prestel Publishing, 2005.

World Bank Abidjan Urban Development Project, 1976, 1986

<http://www.worldbank.org/projects/P001117/abidjan-urban-development-project?lang=en&tab=documents&subTab=projectDocuments>

	week 1	22-Jan	first studio meeting
1	week 2	25-Jan	presentation
		28-Jan	
	week 3	1-Feb	
		4-Feb	pin-up
2	week 4	8-Feb	
		11-Feb	pin-up
	week 5	15-Feb	
		18-Feb	
	week 6	22-Feb	
		25-Feb	
	week 7	29-Feb	Mid-term
		3-Mar	
	week 8	7-Mar to 11-Mar	Travel to Abidjan
	week 9	14-Mar to 18-Mar	Spring Break
3	week 10	21-Mar	
		24-Mar	
	week 11	28-Mar	
		31-Mar	pin-up
	week 12	4-Apr	
		7-Apr	
4	week 13	11-Apr	
		14-Apr	
	week 14	18-Apr	
		21-Apr	pin-up
	week 15	25-Apr	
		28-Apr	
	week 16	3-May	
		4-May	final review
		11-May	grades due
		14-May	end of year show

 Kurlé in New York
 skype meetings between 13.00 - 15.00