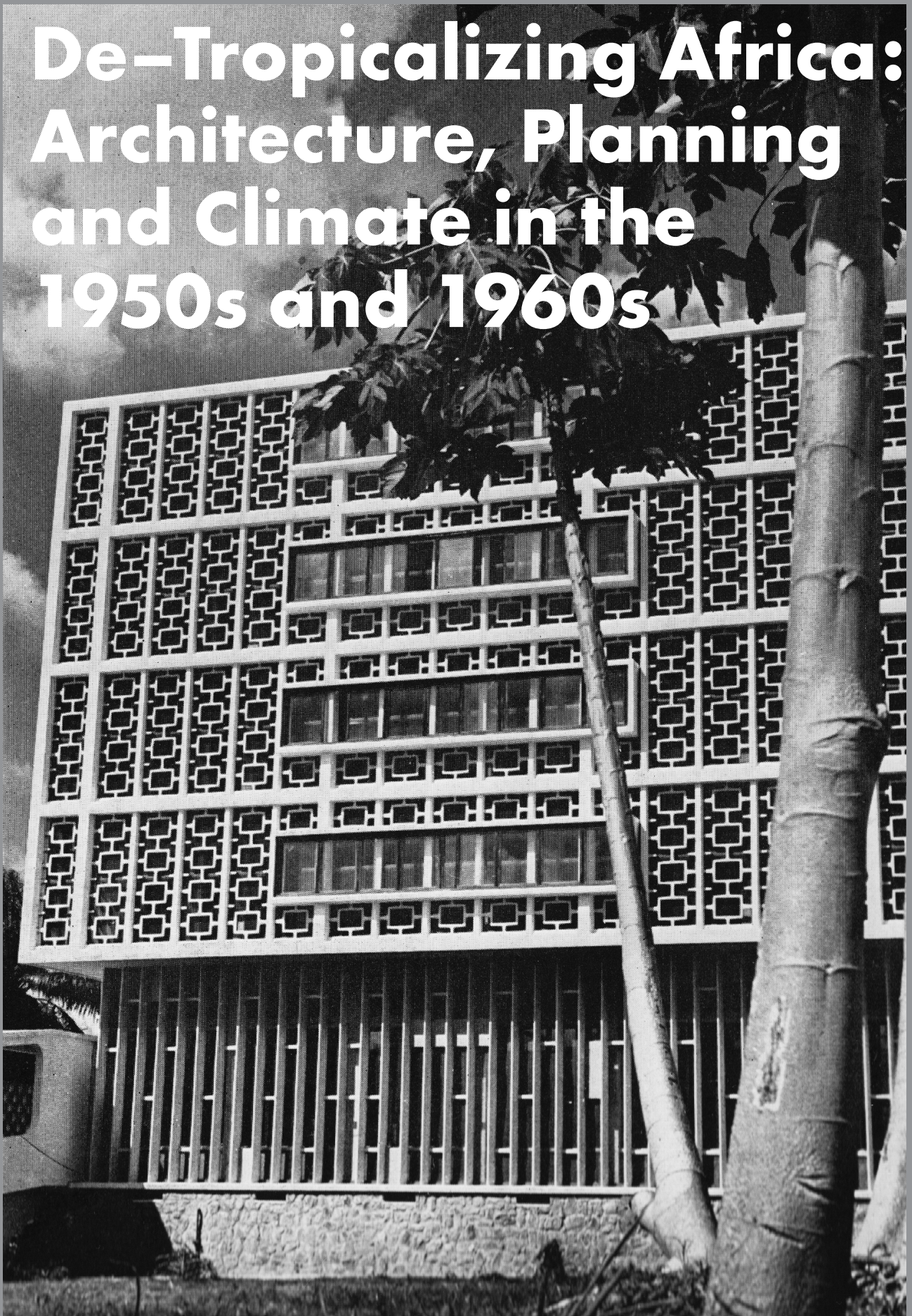


# De-Tropicalizing Africa: Architecture, Planning and Climate in the 1950s and 1960s





In the mid-1950s, British architects Maxwell Fry and Jane Drew were among the leading figures behind the institutionalization of the Tropical Architecture field, contributing to the proliferation of publications, international conferences and establishment of academic centers. During the same time, the global shortage of housing and United Nations' development agendas for the "third world" brought a shift in planning priorities. Focusing in that particular moment, the paper traces the efforts for the de-tropicalization of Africa and planning practice alike, through the research activities of the Athens-based firm Doxiadis Associates and the writings and visions of Greek architect Constantinos Doxiadis.

By Petros Phokaides

### West Africa and the Tropicalization of Modern Architecture

**O**n May 4, 1953, *Life* magazine published a special issue on Africa with the subtitle 'a continent in ferment' that tried to document the state of African countries at a time when "[the] rising tide of nationalism—and perhaps Communism—seemed to take the whites by surprise."<sup>1</sup> Anticipating the end of European colonial rule and filled with racial and cultural stereotypes, this special issue marked the growing global-US in particular—anxieties over Africa's future and its positioning in the cold-war division.<sup>2</sup> Its articles campaigned towards African nations' 'self-government' through the combined effort of 'white and black' as the only way for Africa to pass from 'darkness to light.'<sup>3</sup> The magazine paid particular emphasis to British colonies like Gold Coast (Ghana) and Nigeria that had already shown strong signs of modernization: for example, it exemplified Gold Coast as a "testing laboratory for native self-rule"; celebrating ethnic mixing in marriages and elite parties.<sup>4</sup> In another case, it underlined the importance of educational facilities in Nigeria, such as the University College of Ibadan, which taught "modern medicine and agriculture in a land largely ruled by superstitions and cultivated by the primitive hoe" aiming "to graduate an educated elite, which will make the country more ready for self-rule."<sup>5</sup> The magazine used a photograph from the students' residence building, one of Maxwell Fry (1899-1987) and Jane Drew's (1911-1996)<sup>6</sup> emblematic (tropical) Modern architectural designs, constructed between 1947-1951, to underline that the road to 'self-rule' required social reforms based on westernized education and Modern institutions, in a way hinting to the complex relations between Modern

architecture, planning and the developmental policies of late colonialism in Africa [figure 1].<sup>7</sup>

The British husband-and-wife team of architects, Fry and Drew, had an extensive experience from their practice in the West-African (tropical) climate between 1946-1959 that was disseminated through publications, conferences and academic teaching, positioning them among the leading figures behind the institutionalization of the field of "tropical architecture" in the mid-1950s.<sup>8</sup> Casting a historical perspective on the theme of "tropical architecture," current bibliography has shown the field's deep intertwinement to the transnational colonial history well before its post-war appropriation by Modern architectural culture.<sup>9</sup> In this perspective, "tropicality" is understood as a particular European cultural construction of other geo-cultural regions, with an emphasis on climate, environment and nature;<sup>10</sup> while architecture and the built environment found connections to disciplines that have flourished in colonial contexts such as botany, tropical medicine and tropical geography.<sup>11</sup> Indeed, the first book written by Fry and Drew in 1947 in collaboration with Harry L. Ford, titled *Village Housing in the Tropics*, was an early formulation of planning with response to local conditions and climate which exposes the relations between architecture, climate and hygiene [figure 2]. The book drew from the architects' experience of the rebuilding of a fishing village in Tema, Ghana, and the close study of the particularities of village life they did, only to arrive at a series of planning guidelines along the following (Modern) principles: "good diet, good air, good water, good light, and dry vermin-proof housing."<sup>12</sup> The capacity of architecture and planning to rationalize the use of space and regulate social life was put to the service of late-colonial agendas for raising living standards and welfare; ecological conservation; as well as increased exploitation of colonies' natural resources.<sup>13</sup> After all, the village Fry and Drew helped to rebuild was part of the Volta River Project, a large infrastructural scheme initiated by the colonial Government for the construction of a hydro-

< Figure 1. Maxwell Fry and Jane Drew, Library building, University of Ibadan, Nigeria, 1947-1951. Photo from Fry, Maxwell; Drew, Jane, *Tropical Architecture in the Humid Zone*, New York, Reinhold Pub. Corp, 1956, 219.

electric power plant and a plant for the production of aluminum, which included also the building of a new town and port for Tema.<sup>14</sup>

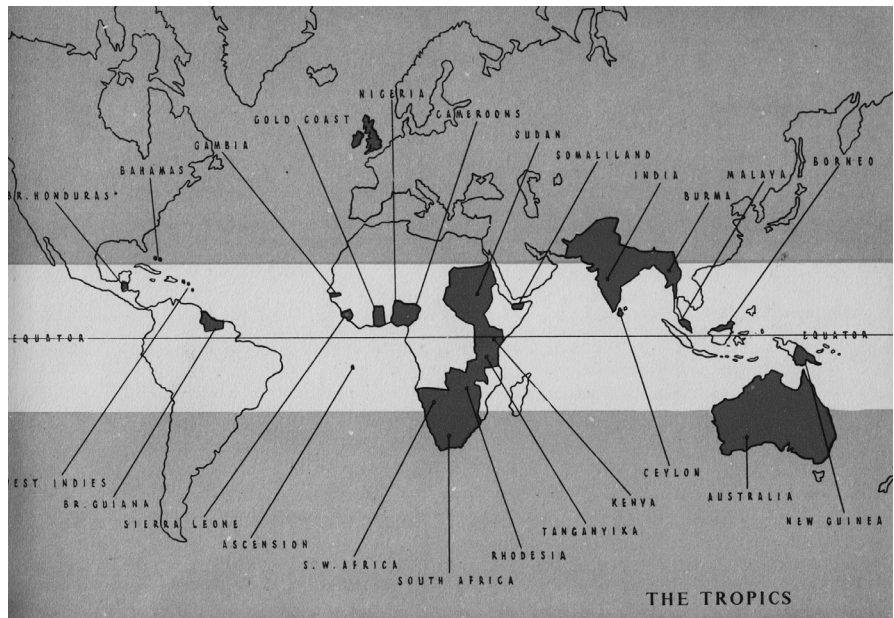
Fry and Drew's work in West Africa presupposed a European-Western supremacy over local knowledge and local architectural tradition, which resulted in a reciprocal *tropicalization* of Western Africa and Modern architecture alike.<sup>15</sup> This process was manifested through a significant number of educational and commercial commissions they completed between 1946 and 1959.<sup>16</sup> In these, the theme of designing "in the tropics" developed to an architectural practice and language predominantly Modern, that used building layouts, Modern material and construction details, architectural devices and furniture in order to regulate the impact of climatic elements (sun

movement, air flow, humidity, temperature, solar reflection etc.) in the urban space, the buildings and the users. Through this work, their understanding of architectural design suitable for the tropics was considerably elaborated, internationalized and canonized<sup>17</sup> as the title of their second book, *Tropical Architecture in the Humid zones* that was published in 1956, suggests [figure 3].<sup>18</sup> During this period, between 1951 and 1954, Fry and Drew were also involved in the planning of the new capital of Punjab at Chandigarh in collaboration with Le Corbusier and Pierre Jeanneret.<sup>19</sup> In 1953 they participated in the International Conference of Tropical Architecture at the University College in London, while in 1954 they began teaching at the Department of Tropical Architecture that was established in 1954 at the Architectural Association

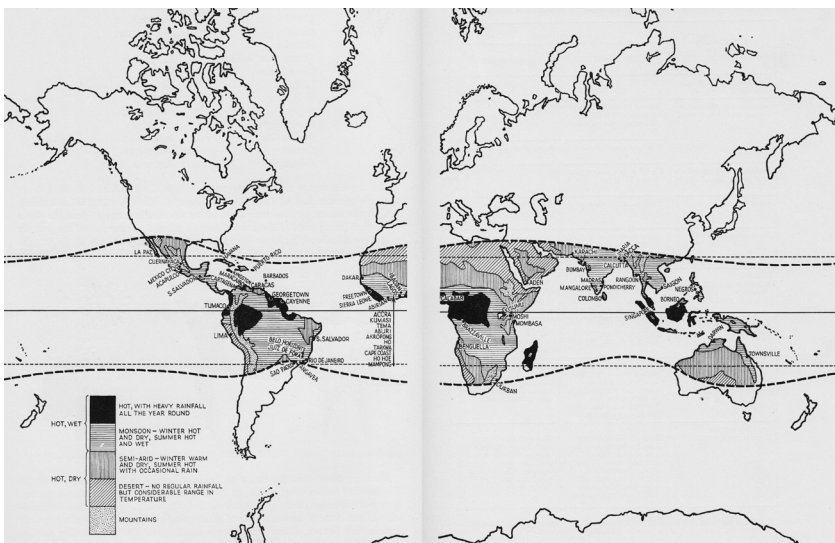
Figure 2. The Tropical region and the British Colonies. Image from Drew, Jane; Fry, Maxwell; Ford, Harry L., *Village Housing in the Tropics: With Special Reference to West Africa*, London, Lund Humphries, 1947.

Figure 3. The Tropical Zones. Photo from Fry, Maxwell; Drew, Jane, *Tropical Architecture in the Humid Zone*, New York, Reinhold Pub. Corp, 1956, 32-33.

Fig. 4 The cover of the *Ekistics Journal* with **Backminster Fuller's** Dymaxion Map. *Ekistics*, December 1957. Constantinou A. Doxiadis Archives © Constantinou and Emma Doxiadis Foundation.



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in London. Assuming a role of experts in transnational “networks of tropical architecture”<sup>20</sup> they rearticulated the social agenda of tropical architecture as one that aims:

*[to solve] the problem of people in a state of change and movement [...] in such a way as to create social organisms that will satisfy and outlast the developing circumstances.*<sup>21</sup>

Instead of reading the above quote as an affirmation of a planning agenda that supported the colonized societies’ road to independence, Fry and Drew’s work might be better understood in the prolonged suspension and the ambivalence of late-colonial thinking as the colonial era drew to a close. This ambivalence is perhaps most exposed in their search for “an aesthetic in the tropics”. In their book’s epilogue, Fry and Drew explained that “[the] key to aesthetics in the tropics appears to be a dramatic ascent on the definite and the artificial: the creation of order” where tropical climate, nature and tradition can have an influence as long as “[it] remains an influence rather than something to copy.”<sup>22</sup> In the tropical aesthetics, tropical Africa was still represented as natural, timeless and exotic.

### **Ekistics, Development and the de-Tropicalization of Planning**

The proliferation of publications and the organization of international conferences in various cities made “tropical architecture” an internationally established research field in the mid-1950s, while a gradual shift in planning priorities was also becoming evident.<sup>23</sup> In 1954, an international conference of United Nations (UN) Housing and Community Improvement, was organized in New Delhi, India, by the South-African architect Jacqueline Tyrwhitt (1905–1983).<sup>24</sup> It brought together some of the leading figures of the “networks of tropical architecture” with other protagonists of the international planning arena, among many others.<sup>25</sup> This meeting’s aim was to align architectural and planning priorities of the time to the new global urgency of housing shortage, as it was expressed in the United Nations development agendas for the so called ‘third world.’<sup>26</sup>

The priorities discussed and set in that conference were revisited by Tyrwhitt and Greek architect and town planner Constantinos Doxiadis (1914–1975) through a close collaboration initiated after their meeting in India.<sup>27</sup> Tyrwhitt accepted Doxiadis’s invitation and became the main editor of the *Tropical Housing and Planning Monthly Bulletin*. The bulletin was a compilation of extracts and digests from various sources prepared for internal circula-

tion, especially for “those in the field, distant from libraries and periodicals” in order to keep Doxiadis Associates (DA) (the planning firm founded by Doxiadis in Athens in 1951) informed and prepared for the firm’s international assignments which proliferated in the end of 1950s.<sup>28</sup> After two years of continuous production it was agreed for the bulletin’s “circulation [to] be increased on an exchange basis to include such university departments, research institutes or other similar bodies.”<sup>29</sup> The first issue published in October 1957 was considered a journal with the title: *Ekistics: Housing and Planning abstracts* [figure 4].<sup>30</sup> The new title associated the journal to Doxiadis himself and the theory of ‘Ekistics’ which he coined in the mid-1940s as “the science of human settlements”<sup>31</sup> and was accompanied with the exclusion of the term “Tropical.”<sup>32</sup> *Ekistics* journal’s renouncement of a tropical focus, was aligned to Doxiadis’s campaign towards a scientific planning theory and international practice that had also an ideological end: by avoiding any associations to ‘tropical networks’ and their imperial/colonial background, the journal was in line with shaping a global and ‘apolitical’ profile for Doxiadis and Doxiadis Associates that was most welcomed in the postcolonial world.<sup>33</sup> This also meant keeping a distance from other political-ideological affiliations and cold-war polarizations.<sup>34</sup>

Ekistics’s distancing from ‘Tropical’ tradition was not only expressed in ideological terms. Doxiadis himself was, after all, skeptical with the homogenizing effect of the use of the term in planning:

*“I would not like to speak in general about tropical climates because there are many types of tropical climates and our behavior should not be always the same. Our attitude should be the same, but not our solutions.”*<sup>35</sup>

On the one hand, this skepticism towards “tropicalism” was reaffirming the importance of studying thoroughly local climatic differences, something that was rehearsed throughout the firm’s projects in the Middle East.<sup>36</sup> On the other hand it was expressing a suspicion against generalizing models of visualizing climatic conditions that also appeared in a research study for Africa in 1960.<sup>37</sup> The study for a “Transport Plan for Africa,” which was funded internally by DA, criticized the “regularity of appearance of the main climatic zones” which in the end failed to account for “microclimatic differences [that] may result in a description of local conditions totally different from that suggested by the mere reading of a general climatic map of the whole continent” [figure 5].<sup>38</sup> All in all, these observations aimed to show that “except for deserts and permanent snows” all other climatic zones can be habitable,



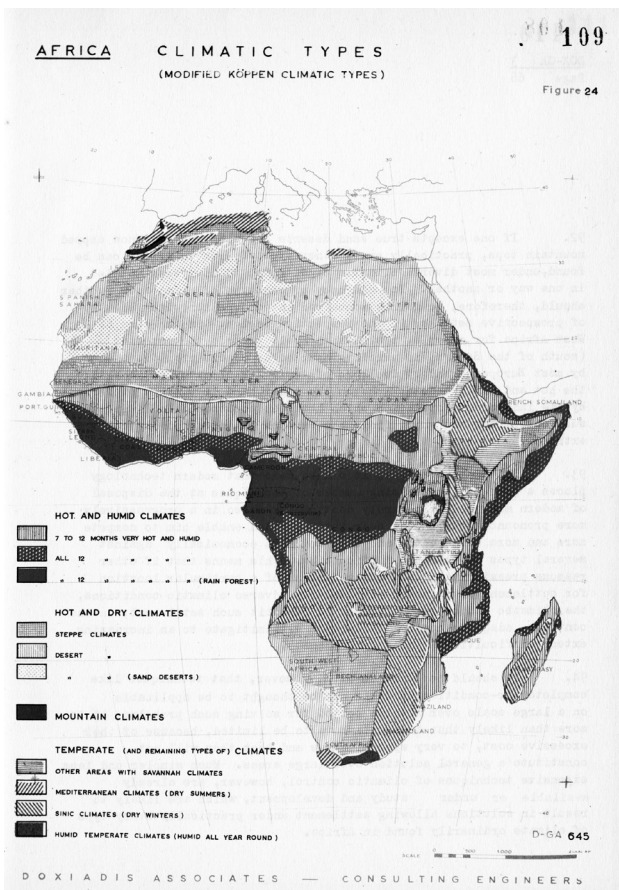


Figure 5. Doxiadis Associates, Climatic types of Africa, DOX-GA 3, March 1962 (Archive Files 23285), Constantinós A. Doxiadis Archives © Constantinós and Emma Doxiadis Foundation.

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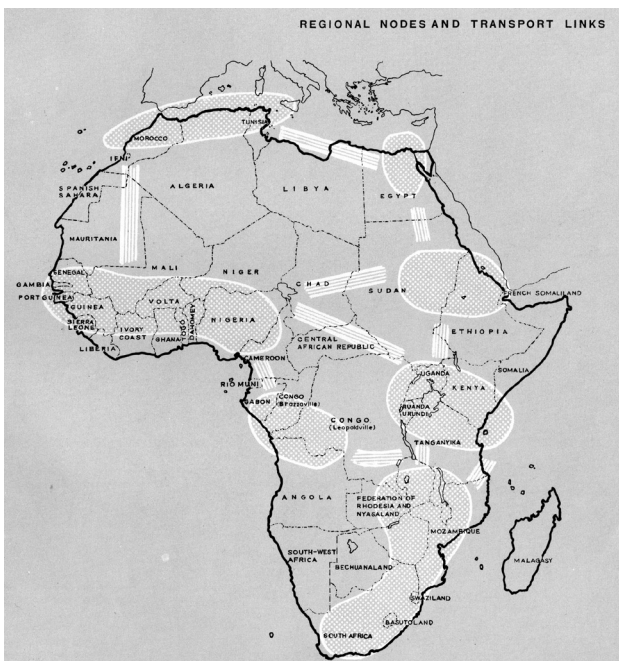


Figure 6. Doxiadis Associates, African Transport Plan, DA Monthly Bulletin n° 63, February 1964, Constantinós A. Doxiadis Archives © Constantinós and Emma Doxiadis Foundation.

as “adequate control techniques” exist from the most technologically developed to the most “simpler and less expensive” ones to counter “several types of climatic difficulties”.<sup>39</sup> The study further suggested that the impact of climate would be even less noteworthy for infrastructure constructions (highways, airports). By considering the impact of climate in human settlements in Africa, the study was consciously pulling apart one of the many (partly fabricated–partly physical) layers of developmental restraints on continental level: e.g. the production patterns developed to serve the former colonial metropolises; the untapped natural and human resources; the geographical and physical characteristics; all the way to national borders and administrative structures that were just being built. Sidestepping these restraints and ignoring the importance of others: such as the various countries’ geopolitical and cold-war affiliations; internal religious and other cultural tensions; DA proposed a continental transport plan (based primarily on highways and complemented by secondary transport infrastructure such as railways and air-connections) as the backbone of new urbanization and productive patterns “in such a way as to bring an equilibrium between the continent’s population, space, and resources” [figure 6].<sup>40</sup> By creating for Africa “a single balanced pattern within itself and with the rest of the world”,<sup>41</sup> the plan was not only simply aligning to international development agendas which aimed to turn the newly emergent nations of the “third world” into productive economies;<sup>42</sup> it was combining global ambitions with a vision for ‘expediting’ development:

*“[...] Africa must decide which stages of development must be avoided so that a degree of development may be reached as soon as possible that will allow Africa to become truly independent and to compete with the family of the United Nations for a better future”.*<sup>43</sup>

Echoing Walter Rostow’s theory,<sup>44</sup> Doxiadis developmental vision for “Building a new [and independent] Africa,” further exposed the geopolitical assumptions behind the plan. Despite Doxiadis’s efforts to “de-tropicalize” Africa, by challenging its imperial past and the impact of climatic or other restraints impeding the utilization of its own resources, the vision placed a high-level of confidence in large-scale planning and its power to achieve a balance between modernization and nature,<sup>45</sup> and its power (as well as the planner-expert’s) to anticipate the creation of even more stressed relations between international and local forces, between modernization and existing social and cultural particularities, between city and nature and between body and climate.

## Notes

- Alexander Campbell, "Africa: A Continent in Ferment", *LIFE* (Special Issue), vol. 34, n° 18, 1953, 9-13.
- Estimates for rapid population increase in Africa emerged as early as the 1940s raising global fears for the endangerment of "wildlife and habitat" and scenarios for urban conflicts "along racial and class lines". See Hodge, Joseph M., *Triumph of the Expert: Agrarian Doctrines of Development and the Legacies of British Colonialism*, Athens, Ohio University Press, 2007, 255.
- Alexander Campbell, "Africa: A Continent in Ferment", *LIFE* (Special Issue), vol. 34, n° 18, 1953, 10.
- Ghana (Gold Coast) was from 1953 the first African country that had a British Government with a native Prime Minister, U.S.-educated Kwame Nkrumah.
- "An Educated Elite for Nigeria", *LIFE* (Special Issue), vol. 34, n° 18, 1953, 71.
- Maxwell Fry was an active member in Modern Architecture Research (MARS) Group, a British section of the *Congrès International d'Architecture Moderne* (CIAM). He and Jane Drew, also a graduate of the Architectural Association, met during their work for the planning of MARS London Plan.
- For British land development policies see Hodge, Joseph M., *Triumph of the Expert: Agrarian Doctrines of Development and the Legacies of British Colonialism*, Athens, Ohio University Press, 2007, 207-253. See also Crinson, Mark, *Modern Architecture and the End of Empire*, Aldershot, Hants, England, Ashgate, 2003. (especially Chapter 6: "Dialects of Internationalism: architecture in Ghana, 1945-66", 127-156).
- Hannah Le Roux, "The networks of tropical architecture," *The Journal of Architecture* 8, n° 3, 2003, 337-354. And Hannah Le Roux, "Building on the boundary—Modern architecture in the tropics", *Social Identities* 10, n° 4, 2004, 439-453. And for developments of the "tropical architecture" discourse in other parts of the world see Olgyay, Victor; Olgyay, Aladar, *Design with Climate: Bioclimatic Approach to Architectural Regionalism*, Princeton, NJ., Princeton University Press, 1963. And Givoni, B., *Basic Study of Ventilation Problems in Housing in Hot Countries: Final Report*, Haifa, Building Research Station, 1962.
- Jiat Hwee Chang, Anthony D. King, "Towards a genealogy of tropical architecture: Historical fragments of power knowledge, built environment and climate in the British colonial territories", *Singapore Journal of Tropical Geography* 32, n° 3, 2011, 283-300. And Iain Jackson, "Tropical Architecture and the West Indies: from military advances and tropical medicine, to Robert Gardner-Medwin and the networks of tropical modernism", *The Journal of Architecture* 18, n° 2, 2013, 167-195.
- Daniel Clayton, Bowd Gavin, "Geography, tropicality and postcolonialism: Anglophone and Francophone readings of the work of Pierre Gourou", *L'Espace géographique*, 2006/3, vol. 35, 208-221.
- Chang Jiat-Hwee, "Building a (Post) Colonial Technoscientific Network: Tropical Architecture, Building Science and the Power-Knowledge of Decolonization", Duanfang, Lu (ed.), *Third World Modernism: Architecture, Development and Identity*, New York, NY, Routledge, 2011, 211-235.
- Drew, Jane; Fry, Maxwell; Ford, Harry L., *Village Housing in the Tropics: With Special Reference to West Africa*, London, Lund Humphries, 1947.
- Beinart, William; Hughes, Lotte, *Environment and Empire*, Oxford, Oxford University Press, 2007, 285.
- For an extensive analysis of this project see Viviana d'Auria, Victor Kootin Sanwu, "Between Development and Experiment: The Volta River Project's (Un) settling Communities", *Urban Knowledge: Its production, use and dissemination in Cities of the South*, 2010, 93-110.
- Fry wrote in his memoirs: "We looked around to architectural precedent but there was none. [...] We were fated to make a new architecture out of our own love of the place and our obedience to nature, and to make it with cement and steel; asbestos sheets, wood above the termite line, glass, paint, some stone later, and not much else". RIBA Archives, Fry & Drew Papers, Box 22 Folder 2 (MF Memoirs), 186/15. Cited (footnote 35) in Viviana d'Auria, Victor Kootin Sanwu, "Between Development and Experiment: The Volta River Project's (Un) settling Communities", *Urban Knowledge: Its production, use and dissemination in Cities of the South*, 2010, 101.
- Rhodri Windsor Liscombe, "Modernism in Late Imperial British West Africa: The Work of Maxwell Fry and Jane Drew, 1946-56", *The Journal of the Society of Architectural Historians*, 2006, 188-215. And Ola Uduku, "Modernist architecture and 'the tropical' in West Africa: The tropical architecture movement in West Africa, 1948-1970", *Habitat international* 30, n°3, 2006, 396-411.
- In this book, they drew their examples from all over the world, showcasing architectural projects and buildings from various (tropical) contexts. Using temperature measurements and solar trajectories and the images of Modern buildings designed "in the tropics", the book was ultimately, promoting a Modern "tropical" architectural aesthetic. See Fry, Maxwell; Drew, Jane, *Tropical Architecture in the Humid Zone*, New York, Reinhold Pub. Corp, 1956.
- Much of the content of the 1956 book was recycled in the next book, Fry, Maxwell; Drew, Jane, *Tropical Architecture in the Dry and Humid Zones*, New York, Reinhold Pub. Corp, 1964.
- The design of a new capital in Chandigarh was an emblematic nation-building project promoted by the India's Prime Minister Nehru after the country's independence in 1947. For an account on Fry and Drew's projects in India see Iain, Jackson, "Maxwell Fry and Jane Drew's Early Housing and Neighbourhood Planning in Sector-22, Chandigarh," *Planning Perspectives*, 28.1, 2013, 1-26. And Scheidegger, Ernst; Casciato, Maristella; Nievergelt, Cerena; Von Moos, Stanislaus, *Chandigarh 1956: Le Corbusier, Pierre Jeanneret, Jane B. Drew, E. Maxwell Fry*, Zurich, Scheidegger & Spiess, 2010.
- Hannah Le Roux, "The networks of tropical architecture", *The Journal of Architecture* 8, n° 3, 2003, 337-354.
- Fry, Maxwell; Drew, Jane, *Tropical Architecture in the Humid Zone*, 24.
- Fry, Maxwell; Drew, Jane, *Tropical Architecture in the Humid Zone*, 253.
- International conferences on "tropical architecture" also took place in Paris (1931) Mexico (1938), Lisbon (1952), Washington (1952) and London (1953). See Vandana, Baweja, "A Pre-history of Green Architecture: Otto Koenigsberger and Tropical Architecture, from Princely Mysore to Post-colonial London." PhD diss., The University of Michigan, 2008.
- Jaqueline Tyrwhitt was a key member of the International Congresses of Modern Architecture (CIAM), a United Nations (UN) advisor and professor at Harvard Graduate School of Design (GSD). Shoshkes, Ellen, *Jaqueline Tyrwhitt: A Transnational Life in Urban Planning and Design*, Farnham, Surrey, Ashgate Pub. Limited, 2013, 155-156. And "Mary Jaqueline Tyrwhitt: In Memoriam," *Ekistics*, vol. 52, n° 314/315, Sep-Oct / Nov-Dec, 1985.
- In the conference participated the German-born architect and planner Otto Koenigsberger (1909-99); the British architect George Anthony Atkinson (1915-); Maxwell Fry and Jane Drew; the American urban housing planner Charles Abrams (1902-1970); the Greek architect and town planner Constantinos Doxiadis (1914-1975) and many more.
- The housing shortage was clearly underlined in Doxiadis's conference presentation: "It is estimated that there is a world shortage of between 100 to 150 million houses needed in the world...Thirty million houses are estimated to have been destroyed during the war... Furthermore, the number of houses being built yearly throughout the world is far below that required...Thus humanity is already fighting a losing battle of a growing population versus housing construc-

- tion..." "Types and Densities of Housing Accommodations," *Trip in India in 1954*, 24965, Constantinos A. Doxiadis Archives. (Doxiadis Archive)
27. After meeting again in the next couple of years in Athens and London. Shoshkes, Ellen, *Jaqueline Tyrwhitt: A Transnational Life in Urban Planning and Design*, Farnham, Surrey, Ashgate Pub. Limited, 2013, 183-185.
  28. Tyrwhitt explained later: "It is now two years since Dr. C.A Doxiadis started to finance the compilation of a monthly collection of abstracts from current publications on planning and housing for the use of the members of his organization—particularly those in the field, distant from libraries and periodicals". Editorial, *Ekistics*, Oct., 1957, iii.
  29. Ibid.
  30. Another change in the journal's title took place in 1962 when the subtitle was changed to *Ekistics: Reviews on the Problems of Human Settlements*.
  31. Doxiadis published an 'undeground magazine' during World War II, titled *Regional Planning and Ekistics* which presented surveys of Greece's war damages and plans for its reconstruction. Jeannie Kim, "The oracle of Athens: Constantinos Doxiadis and the study of human settlements", Staub, Urs; Geiser, Reto (ed.), *Explorations in Architecture: teaching, design, research*, Swiss Federal Office of Culture, Boston, Birkhauser, 2008, 90-91. The term 'Ekistics' derives from the greek noun "[oikos]" which means "home" and the verb "[oik]" meaning, "settling down." See "Glossary of Terms" in Doxiadis, C. A., *Ekistics: An Introduction to the Science of Human Settlements*, London, Hutchinson, 1969, 516.
  32. Tyrwhitt (indirectly) addressed this change in title in her editorial from the first *Ekistics* issue: "To some extent we shall continue to be most concerned with the problems of housing and planning in the warmer climates partly because we think the biggest jobs are yet to be done in such areas. But we shall be increasingly alert to developments throughout the world." The use of the phrase "warmer climates" makes the exclusion of the term "Tropical" suggestive of something more than a broadening of the journal's geographical focus. Editorial, *Ekistics*, Oct., 1957, iii.
  33. Doxiadis's claimed neutral profile, was welcomed both by Iraq's Development board which wanted to underline its western and (non-communist) aspirations, see Panayiota Pyla, "Rebuilding Iraq, 1955-58: Modernist Housing, National Aspirations, and Global Ambitions," *docomomo Journal* 35, September 2006, 73; and by the Government of Ghana in its non-aligned positioning, see Viviana d'Auria, "From Tropical Transitions to Ekistic Experimentation: Doxiadis Associates in Tema, Ghana", *Positions: On Modern Architecture and Urbanism/Histories and Theories* 1, 2010, 40-63.
  34. In the Journal this was expressed by including abstracts ranging from "Cooking and Fuel Economy in Low-Cost Tropical Housing" from the British Department of Scientific and Industrial Research, and "The Expansion of all Types of House Construction" from the Soviet Union. *Ekistics*, October 1957.
  35. Extract from a manuscript titled "*Building urban environments in tropical climates*" prepared by Doxiadis in 1966 for Architectural Review. "Building urban environments in tropical climates," 1966, 16793, Doxiadis Archive.
  36. See also Panayiota Pyla's critique on the limitations in the use of climatic elements in the housing program in Irak. Panayiota Pyla, "Back to the Future: Doxiadis's Plans for Baghdad", *Journal of Planning History*, 7, n° 1, 2008, 3-19.
  37. "Transport Plan for Africa," DA Projects: Africa V.1-Reports (1961-1963), 23285, Doxiadis Archive.
  38. "Transport Plan for Africa," 23285, Doxiadis Archive, 66.
  39. "Transport Plan for Africa," 23285, Doxiadis Archive, 68.
  40. DA-Monthly Bulletin n° 63, February 1964: Towards an African Transport Plan, Doxiadis Archives.
  41. Ibid.
  42. Escobar, Arturo, *Encountering Development: The Making and Un-*

*making of the Third World*. Princeton, NJ, Princeton University Press, 1995.

43. Extract from Doxiadis's article translated to English that was first published in German in *Der Architekt* n° 6, June 1966, and then in the Swedish magazine *Arkitektur* in 1970. "Building a New Africa", 2779, Doxiadis Archives.
44. Doxiadis here refers to the development stages of the theory of Walter Rostow, See Rostow, Walter W., *The Stages of Economic Growth: A Non-Communist Manifesto*, Cambridge, Cambridge University Press, 1960.
45. Panayiota Pyla, "Planetary Home and Garden: Doxiadis's Environment-Development Politics", *Grey Room* 36, summer 2009, 6-35.

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