Modern Architecture and Urbanism
Histories and Theories

Spring 2010

Editors
Sarah Williams Goldhagen
Eric Mumford
Cor Wagenaar

Nai Publishers
University of Minnesota Press
Contents

3 Grand Plans
  Editorial

6 Rethinking Doxiadis’ Ekistical Urbanism
  Ahmed Zaib Khan Mahsud

40 From Tropical Transitions to Ekistic Experimentation:
  Doxiadis Associates in Tema, Ghana
  Viviana d’Auria

64 Paris Nord: Shadrach Woods’s Imaginary Global City
  María González & Patricio del Real

94 Designing Social Life: The Urbanism of the Grands Ensembles
  Kenny Cupers

122 Dwelling in the Metropolis
  Wolfgang Sonne

147 Abstracts
151 Call for Papers
  Positions #3: Architecture in Mind
  Positions #4: Architectures of Architecture
153 Notes to Contributors
156 Editorial Board
160 Acknowledgements
Ahmed Zaib Khan Mahsud

**Rethinking Doxiadis' Ekistical Urbanism**

City and future are notions that the Greek architect and urbanist C. A. Doxiadis (1913–1975) stretched beyond their previous limits. He developed the spatial concepts of *Ecumenopolis* (representing the future city of the inhabited globe) and *Ecumenokepos* (the natural environment as a global garden), and he promoted their harmonious coexistence at various scales as the embodiment of his vision for urban organization in general. His vision included an unusual combination of theory and practice that Doxiadis named *Ekistics: the science of Human Settlements*. By analyzing Ekistics' theoretical constructions and examining the spatial articulation of his key projects (Baghdad, Punjab University, and Islamabad), this article will probe and explicate the idea of urbanism that Doxiadis sought to advance. Its main argument is that rethinking his urbanism yields a deeper understanding of the dialectical relationship between globalization and sustainability. While not neglecting key generic and local elements and their combinations in his projects as distinctive design themes, the article advances the thesis that the kind of design compatible with such a relationship offers a more dynamic framework for rethinking Doxiadis' Ekistical urbanism.
Ahmed Zaib Khan Mahsud

Rethinking Doxiadis' Ekistical Urbanism

The four decades that have elapsed since the final disbanding of CIAM in 1959 have not yielded a generally acceptable method for dealing with ‘spontaneous’ urbanization, with the result that urban planning as an applied science has grown weaker rather than stronger over the years.

Kenneth Frampton (2000)

The fact that Doxiadis’ projects have been almost completely ignored by architectural historians, critics and architects themselves since the 1970s is symptomatic of the short-sightedness that this profession has developed in recent years.

Wouter Vanstiphout (2005)

Introduction

The idea of urbanism as a scientific discipline remains as elusive as ever. On the one hand, to use Giedion’s words, “the playboy attitude” which lately is associated with starchitecture and its preferred paradigms of blobism and morphism, continues to flourish.1 On the other hand, there are the proliferating urbanism(s) of various disciplines and contexts.2 There is also a century of the kind of urbanism advocated by Ildefonso Cerdà (1867), which, canonized by the Congrès internationaux d’architecture moderne (CIAM) as a modernist discipline, began to follow widely divergent paths after the 1950s.3 Examining the role of urbanism as an applied discipline, this article reconsiders an immensely important yet largely ignored episode of 1950s and 1960s.
Doxiadis’ Ecumene was a self-proclaimed “science” based on his peculiar combination of theory and practice, with which he intended to reinvent modern urbanism and reformulate its agenda.

Doxiadis was an internationally active urban planner and theorist of the 1950s and 1960s who produced an imposing body of work, but his contribution remains obscure. His activities encompassed the founding of a new intellectual discipline (Ekistics) and its eponymous journal (which is still being published), realized projects in more than forty countries, numerous writings, the coining of terms, and the creation of an impressive network of interdisciplinary colleagues. A devout modernist, he claimed to be responsible for giving a certain orientation to the immediate post-CIAM legacy, and he organized, following the model of CIAM, twelve Delos Symposia on urbanism and global futures. He has been acclaimed as a truly “global architect” of the twentieth century, taking his place alongside figures such as Ebenezer Howard, Raymond Unwin, Frank Lloyd Wright, Patrick Geddes, and Le Corbusier, and his firm Doxiadis Associates has been called one of the first global planning enterprises. He also has been seen as a leader in introducing neocolonialism to the developing world through a specific brand of urbanism financed by corporate interests, as a key figure in exporting European urbanism to other contexts (he has been called a mascot in the field of urban planning in the way Jackson Pollock was in the art scene), and as a practitioner whose work furthered the cultural and economic imperialism of the West in developing countries. The literature on Doxiadis presents a paradoxical figure: he is a modernist credited with the construction of probably more urban projects than all of his CIAM colleagues combined, yet he and his work are absent from the canonical histories and their honor role of icons. This absence shows the grossly distorted nature of the historiography of postwar modernist urbanism, which, in a self-perpetuating cycle, fails to focus on one of the most successful—and perhaps the most important—designer, theorist, and planner of his day. This article examines Doxiadis’ particular brand of urbanism and subjects it to scholarly scrutiny. Building upon the recent research of Panayiotis Pyla, which situates Doxiadis’ work as a precursor to contemporary sustainable development, Ray Bromley’s presentation of Doxiadis as a global visionary and promoter of urban development, and my own work tracing the urbanism of Doxiadis’ work on Islamabad as the “city of the future,” I propose a conceptual and theoretical basis for rethinking Doxiadis’ urbanism as built from the dialectic of globalization and sustainability, while at the same time explicating the distinctive yet little-known aspects of his urbanism.

Doxiadis practiced urbanism in the wake of the post-Bretton Woods era, which was characterized by explosive growth and urbanization at scales never witnessed before. It was an era where a certain kind of developmentalism prevailed that sought to expand the market for industrialized modes of production and consumption to the global scale in the guise of spreading prosperity and modernization. Despite the intensifying Cold War environment, this notion was well-received around the world. Specifically, the newly independent nation-states, with their postcolonial ambitions, became hotbeds of developmentalism. Facilitated by the proliferation of international institutions advocating capitalist modes of production that promised accelerated growth, developmentalism ushered in an era of large-scale spatial (re)structuring and transformation of the built environment. These combined processes created a form of globalization whose intensity was most manifest spatially at the metropolitan scale. In Lefebvre’s words, “As this global process of industrialization and urbanization was taking place, the large cities exploded,” creating the problem of how to comprehend the new metropolitan scale and how to deal with it architecturally and urbanistically.

Doxiadis diagnosed the situation as a global “crisis of human settlements” that needed a “planetary” approach. Perceiving that international trade and finance were leading to global interdependence by creating the world-city he called Ecumenopolis, he began to analyze the socio-spatial ramifications of these trends in space and time, both in theory and practice. The ambition to transform an analytical framework into a self-proclaimed science—Ekistics—led him to seek a methodological underpinning for an overarching synthesis of urban knowledge. This was Doxiadis the modernist. The ideological aspect of his vision, in contrast, brought out Doxiadis the global optimist. He assumed, without specifying just how it would happen, that stimulating growth-based development would diminish the gaps between developing and developed countries, and that their economic integration would transform the differences between East and West, capitalism and communism into some form of a global federalism. His particular blend of scientific optimism, faith in modernization, and a generic approach that he called “global conception with local expression” offered a wide range of professional tools and options. They included national programs and plans for housing, institutions, infrastructure, new cities, the restructuring of old ones, and the reorganization of entire regions. This activity would bring about Ecumenopolis, a prospect which mesmerized international donors and national governments alike. At the same time, Doxiadis’ search for local expression, the specific development needs of each nation-state, and a focus on the spatial logic of practice in developing regions would emphasize the particularity of the context. These views, together with environmental convictions regarding large-scale spatial restructuring and urbanization, led to his dream of Ecumenopeiros as the global garden.
On the trajectory of modern urbanism in the 1950s and 1960s

Doxiadis’ oeuvre is significant because it offers a view of the trajectory of modern urbanism of the 1950s and 1960s. The canonization of the CIAM-based approach to modern urbanism (in the Athens Charter) was subjected to close scrutiny at the beginning of the 1950s by several figures in the profession. It is the critique generated by these figures, specifically by Team 10 and Josep Lluís Sert, that continues to shape the contemporary historiography of revisioning and reconceptualizing modernist urbanism.

This contemporary historiography holds that modernism in architecture and urbanism did not cease to exist during the 1950s and 1960s but, instead, followed widely divergent paths and remained an unfinished project. These claims, based on analyzing and revisiting the theory and practice of postwar CIAM, Team 10, and others, argue for the development of a new framework to reconceptualize modernism in architecture and urbanism and its evolution after the Second World War. Suggestions for developing such a framework include the analysis of the relationship between theory and practice, and specific “meta-projects” examining paradigms of discussion or discourse. However, these attempts to develop a framework for understanding postwar modernist urbanism largely have ignored the immensely important figure of Doxiadis. Although it has often been said that modernism in architecture and urbanism has not been sufficiently studied in the non-Western context, when it comes to bringing Doxiadis into the discussion, indifference reigns, except in perfunctory acknowledgments that emphasize the superficial similarity of his work to that of other members of CIAM.

The construction of a renewed modernism usually focuses on a discussion of the internal critique that marked the end of CIAM, while minimizing the fact that its substance was partially informed by the exportation of modern architecture to the developing world. More than the emerging disdain for the simplistic application of CIAM’s principles, it was the context of the developing world—its sheer scale and the large number of culturally diverse, complex environments that were in transition owing to their postcolonial ambitions—that gave sudden prominence to the concepts of habitat and developmentalism. Both these concepts were central to a reconfiguration of the agenda of urbanism, moving it from its Eurocentric concerns to multi-centric development, specifically to the creation of an urban design language that would enable practitioners to better understand and deal with these other contexts.

Both these concepts—habitat and developmentalism—could be seen as the link between theoretical discussions and the pragmatic characterization of the new context for practice; together they created the illusion of a universal order, prosperity, and a more-satisfactory mode of human association. However, both are modernist constructs that had only begun to radically transform the prewar agenda of modern urbanism, leading to an altered conception of the city as a dynamic entity, as a structure that could accommodate change over time, and as a focus on the scale and rhythms of daily life. Such conceptions underride the emerging agenda(s) of 1950s and 1960s modernism in architecture and urbanism, constructed by a multitude of voices from different contexts, shaping an agenda that replaced the Athens Charter’s hierarchy of functions with a more-complex hierarchy of human association, in the hopes of better dealing with issues of growth, change, mobility, plurality, locality, and context. These architects aspired to develop a new paradigm, but they knew that this required the formation of a new language of design.

Doxiadis, aware of these shifts, grew an active practice in which he consistently tried to blend theory with pragmatism. Rather than inventing anew, he attempted to “adjust and amend modern urbanism,” hoping to emulate the figure of Hippodamus, who, according to Aristotle, was able to understand the experience of his contemporaries and express it in the cities he designed. Doxiadis’ conception of the four-dimensional city, which he called Dynopolis, and how he envisioned its relationship to the surrounding landscape emerged from his theoretical and practical analysis of the many different types of urban organization. Neither decentralized, as were some influential urban models advocated by German theorists, nor a city of towers in the mode of Le Corbusier, Doxiadis’ Dynopolitan urbanism is consonant with the goals of an urban designer such as Sert. It stresses the three-dimensional design of urban environments, maintains a distinctive, even obsessive, focus on dynamic growth over time, and reconceptualizes concepts of the urban core, neighborhood, and human scale along the lines Sert proposed, but with an insistent, synthetic interdisciplinarity. Doxiadis called his theoretically grounded, synthetic approach to urbanism Ekistics, “the science of human settlements.” In part, his contribution was to combine postwar CIAM and Team 10’s notion of habitat with a globally minded developmentalism. Doxiadis’ ambition was to reform the theory and practice of modern urbanism through Ekistics, a perhaps manicual attempt at an overarching synthesis of prewar CIAM ideas, their postwar critique in the ideas of Team 10, and the attempt at Harvard’s Graduate School of Design to marry architecture, city planning and urban design, and landscape architecture—which Doxiadis hoped to combine with knowledge drawn from an even broader interdisciplinary dialogue of urbanism with geography, economics, political science, and the social sciences. This attempt to create an overarching synthesis, ranging in scale from the atomistic to the global, led to the holistic and explicitly anthropocentric nature of Ekistics. Inspired by Gropius’s notion of total space and CIAM’s habitat, Doxiadis also shared the concerns of his contemporaries, such as Sert’s total view, the meta-scientific and supposedly post-political holistic vision of the globe by Ekistics enthusiast Buckminster Fuller, and Team 10’s credo of social, vernacular, and human association. The urbanism that Doxiadis practiced and promoted through Ekistics sought to
create human-scale, pedestrian-based, low-rise, high-density environments that engaged existing urban context, location, and nature.

Doxiadis' distinctive contribution lay in bringing these specific urban concerns into a holistic and global framework, which he achieved through the notion of multiple levels of scale. This is what led The Observer to describe him as "the man who thinks in multitudes," and caused Jaqueline Tyrwhitt to write: "Geddes' contribution was really his comprehensiveness of taking in the whole process of design and including the inner and outer world. Doxiadis' contribution is getting scale into the story," 37 Doxiadis was also more successful than any of his contemporaries in joining modern architecture and urbanism with international development in a post-colonial context. Ekistics transformed the so-called periphery (the West's geopolitical margins) into new centers, thereby providing a new context for modernist architecture and urbanism. 36 Thus, in the process of reconceptualizing modernism through different contexts, disciplines, time frames, and scales in a synthetic approach, Ekistics became emblematic of Doxiadis' renewed modernist ambition. Through a rational and scientific version of urbanism, Ekistics attempted to correct the mistakes of early modernism as well as to, as Pyla writes, "reinvent architects and planners as development experts." 39

Doxiadis' Ekistic urbanism

Participation in the CIAM Athens meeting (1933) as a young architecture student, the study of major German intellectual trends in the 1930s while pursuing his doctoral studies at the TH-Berlin (1937), and serving as head city planner in Athens: all this shaped Doxiadis' initial conception of urbanism as an overarching field. 40 His underground experiences during the war secured him the position of U.S. Marshall Plan coordinator for the postwar reconstruction of Greece, where he developed Ekistics and which he first used in 1942 as a framework for combining a broad range of reconstruction efforts with development. 41 However, it was the establishment of Doxiadis Associates (1952) as "international consultants on development and Ekistics" that led to his fame in the world of urban planning and development. 42

Toward the end of the 1950s, Doxiadis' participation in the processes of urbanization and spatial restructuring in the developing world through his own practice helped him to elaborate his idea of human settlements as a unifying concept. 43 The work of Doxiadis Associates and Doxiadis' theoretical tenets were mutually beneficial in expanding the firm and his own intellectual horizons. According to Winnick, "No matter how engrossed in commercial activities, he made time to refine the doctrines of Ekistics; the philosopher did not permit the entrepreneur to forsake the temple for the agora." 44 Doxiadis founded the journal Ekistics in 1955, which proved beneficial for both his practice and his establishment of Ekistics as a so-called science. 45 The journal showcased diverse urban visions: it showed not only the extensive export of Western urbanism through projects in the developing world but also his musings on historic cities, all as one writer puts it, "in the service of producing a vision of urbanism which was, quite literally, global in scope and universal in ambition." 46 His thriving international practice and the intellectual stimulation of the Delos forums (1963-1974) helped him transform his conception of an urbanism based on human settlements into his magnum opus Ekistics (1968), which set forth a single spatial science extending from interior design and architecture to global spatial organization. 47

Ekistics was an ambitious attempt to outline a scientific, interdisciplinary, and global urbanism meant to combine development with environmental protection. 48 In the tradition of the prewar planners Unwin and Ernst May, Doxiadis was concerned with providing a good urban environment for large masses of people, even when resources were limited. 49 Doxiadis' work differed from theirs in terms of scale, however; Ekistics aimed to shape a postwar global society through mass housing, urban development programs, and the reorganization of entire regions. Moreover, Doxiadis sought to reconcile global demands with local needs, and to allow for alternative ways of perceiving the dynamics of urbanism. 51 This openness greatly expanded Ekistics' intellectual boundaries and further stimulated its universal ambitions. The entire globe became Ekistics' spatial workshop; as Winnick comments, "Against the baldness of Ekistics, American notions of comprehensive planning appeared paltry." 52

Ekistics sought to enlarge the scope of urbanism through a human-settlements approach that represented a holistic conception of the built environment. 53 Improbably, Doxiadis defined human settlements as "territorial arrangements made by anthropos for himself." 54 While differentiating them from natural phenomena, he frequently used biological analogies based on similarities between human settlements and natural systems (fig. 2). 55 He argued that it is within natural (eco-)systems that settlements are made, and that, therefore, human settlements must operate within their constraints. 56 This attitude differed from that of his contemporaries in CIAM and from Fuller's technophilic preoccupations (cities in domes or the proliferation of geoscope projects), and it opened up an urbanism—albeit with a pronounced managerial bent—reader to deal with the then-growing concern about the negative ecological impacts of human activities, especially intensive agricultural production, deforestation, and explosive urbanization. 57 Through his holistic concept of human settlements, Doxiadis demonstrated how urban development impacts the natural environment at both local and global levels. 58 He predicted that population growth would stabilize in twenty centuries and that after 2100 the world would be 97 percent urban. He termed this projected global urban system Ecumenopolis (fig. 1). 59 To cope with such a destiny, dominated by a largely urban world and the need to protect the global ecosystem against the onslaught of rampant urbanization, he conceived Ecumenopolis as a global garden. In this sense, Ekistics represented an intoxicating mix of futurology, urbanism, and environmental protection that was supported by a large amount of data and graphic illustration. It has been argued that by virtue of its connections with science, Ekistics was ultimately a framework for conceiving a coherent form of developmentism, and that through its preoccupation with taxonomy and comprehensiveness Doxiadis established a managerial attitude toward architecture and urbanism. 60 I would argue that Ekistics is more a
Doxiadis’ urbanism is a curious mix of pragmatism and idealism, a vision of what he calls an anthropocentric Entopía. Neither successful practice, nor utopia, nor dystopia, Entopía (in place) was the benign face of his urbanism. Entopía is thus a middle ground promoting what Doxiadis believed was feasible: a universal democratic society consisting of communities which were not aggregations of structures and infrastructures but rather organic human settlements capable of growth and change. Such a society ought to have freedom of choice, and therefore one should not attempt to produce definitive plans for cities or city-states all at once, but, instead, flexible and adaptable frameworks whose designs were informed by a more-complex understanding of the interrelationships of the elements, forces, and processes involved. This approach was set forth in the diagrammatic representation of his vision of design synthesis. Recalling Leonardo’s classical human figure, he depicted this vision with several circles—one each for the five senses, the mental realm, and the soul—which, according to Doxiadis, depicted a dynamic understanding of the human-environment interaction (fig. 3). Moreover, the diagram represented a reconceptualization of the human scale; it attempted to encapsulate McLuhan’s view of global consciousness as the new human scale. Doxiadis’ own notion of scale was subject to limits imposed by the laws of physics. CIAM’s abstract notion of scale was based on “the way that the cycle of the twenty-four-hour day could shape urban form.” However, Doxiadis’ diagram represented a moving, walking, talking, sensual anthropos who was not a fixed or complete entity, utterly distinct from Le Corbusier’s literal anthropometrics of the Modulor system. Inherent in its diagrammatic abstraction, one detects an aspiration for a design process that is alterable and generative, capable of being influenced and changed, i.e., a dynamic framework, where the movements of both anthropos and the machines that animate the experience of life are the basis of design synthesis. Despite the merits of this dynamic framework, it would be a great exaggeration to qualify it as truly scientific.

The construction of Doxiadis’ Ekistics theoretical framework was based on a conception of the city as a complex system consisting of five elements (nature, anthropos, society, shells—by which he meant the built environment—and networks), which can be influenced by five forces (economic, social, political, technical, and cultural/aesthetic), and differentiated into fifteen spatial units (from atomistic to global). Together these components form a complex three-dimensional model (fig. 3). To clarify the resulting interrelationships, Doxiadis introduced the concept of multiple levels of scale—a significant contribution to urbanism—and developed the Ekistics Grid as a tool for analysis (fig. 4, top). The ordinate was defined by the five elements and the abscissa by his favored taxonomic scheme—adopted from Christaller—the logarithmically scaled fifteen spatial units. Maneuvering the grid, Doxiadis showed how, ascending the ladder of urban scale, the functions of settlements—and therefore the composition and dimensions of their elements—undergo change. As settlements increase in size, shells become taller, bulkier, and more
The Ekistical framework, in the form of the Anthropocosmos model, offered Doxiadis a vehicle for analyzing and understanding urban landscapes as complex matrices of mutable and evolving networks of information.

Employing large amounts of statistical data and graphical analysis of urban structures (including their growth, expansion, and mutation) became the norm in Ekistical theorems and projections. For example, he used the relationship between the growth of global built-up area (Ecumenapolis) to its remaining open spaces (Ecumenokepos, conceived as twelve ecological zones) to prove the known fact of the limits of Earth's habitability. Moreover, through a procedure involving continually changing variables and values, Doxiadis' model offered the possibility of a multidimensional analysis of the dynamic relationships between the five elements to prove the complexity of urban organization.

Through Ekistical analysis, Doxiadis concluded his study of urbanism by arguing that there are more than 33 million ways (the inter-relationships between elements, forces, and spatial units; fig. 3) of looking at the way we live or organize our habitation. This type of analysis helped Doxiadis establish his synthesis for the design of Entopia: a morphogenetic interface of "networks" and "shells" in a dynamic relationship with nature and society in the form of a four-dimensional framework capable of existing at various scales.

Scale and time remain central to the development of Doxiadis' approach to synthesis. While Ebenezer Howard and Le Corbusier focused on cities of tomorrow, Doxiadis focused on the dynamics of growth and change, incorporating them each into the design problems of scale and time, which, in turn, led to his concept of Dynapolis.

This concept is both descriptive and prescriptive—as are most of his other concepts—showing his peculiar blend of theory and practice. He applied the concept of Dynapolis at the metropolitan scale in an attempt to introduce a new way of design and planning.

Considering cities growing organisms, Doxiadis qualified "the optimum speed of growth" of the city and its "relationship to the total space around it" as the central questions for development practice, which he called plan-making.

From Baghdad to Islamabad and beyond

Design as plan-making is a medium of reflection and reformation. This process is discernable in Doxiadis' practice—the devising of a certain metropolitan structure—which under-girded the theoretical formulation of Ekistics (1968) and its eventual reformulation as Entopia (1974). In the case of Baghdad (1958), Doxiadis' concept of Dynapolis was still in its embryonic
stage, further evolving as he grappled with the rapidly expanding city. Baghdad’s population had tripled in the preceding three decades, reaching close to a million by 1958, when Doxiadis was appointed to prepare a master plan. His ambition was to create a physical structure that would integrate ongoing building projects and provide a comprehensive framework for the expansion of a modern metropolis.77

Doxiadis set the figure of three million inhabitants over the next six generations as the scale and time for the physical structure, with the Tigris River as the central axis, framed by an elongated rectangle (fig. 5). Doxiadis’ master plan incorporated existing major roads and suggested the opening of new ones in order to link the metropolis with the larger regional hinterland.78 The road network formed the grid as a structure for accommodating residential enclaves that Doxiadis called community sectors, and the commercial districts were placed along linear spines capable of gradual expansion. While the later development of Dynopolis would prescribe unidirectional growth, in Doxiadis’ Baghdad plan not only is it two-directional (along the Tigris), but it also has three growth spines oriented toward the southwest and one toward the northeast. All six forms of directional growth were to emanate from the old city. A fusion of the historic and modern areas was foreseen; the rectilinear grid was carefully adjusted to the old city fabric and was to be more orthogonal in the subsequent development of the residential, commercial, and industrial areas.

Doxiadis’ design of the community sector—an adaptation of the neighborhood-unit paradigm—placed the key social facilities within walking distance (fig. 6).79 Favoring pedestrian circulation predetermined the size and dimensions for each plot, road, and public area in the sector, helping to preserve a human scale in the ever-growing metropolis. The small pedestrian squares he designed with ten to fifteen houses (the “gossip square”), hamams and mosques, covered markets with a roof shape reminiscent of traditional souks (“orientalist nostalgia”), courtyards in the standardized house types with reinforced concrete screens on facades that imitated the traditional wooden window screens—these squares were reinterpretations of formal vocabularies that showed his awareness of local climate and his cultural sensitivity, even if they were the products of a rational methodology of housing.80

Doxiadis’ master plan sought to reinvent the old city as an efficient modern capital, a symbol and an instrument of modernization, through a combination of local and generic elements.81 The old city, the Tigris River, the existing road pattern, “gossip squares,” climate, certain traditional typologies and architectural elements, as well as the regime’s postcolonial ambition for modernization, were the local contextual elements. The grid, linear spines for the future growth of the central areas (Dynopolis), and the community sector (a prototype for many of the cities he subsequently designed) represented the generic dimensions of the plan.82 Doxiadis’ new urban plan, with its attention to the old city center and its spatial qualities, as well as other local elements, marked a shift in the urban planning of developing countries from a colonial to a postcolonial attitude. On one hand, it was a change from the colonial practice of urban planning (e.g., British treatment of the Indian subcontinent,
Fig. 5
Constantinos Doxiadis, Baghdad master plan, 1938.
Source: © Constantinos and Emma Doxiadis Foundation.

Fig. 6
Constantinos Doxiadis, sector plan in western Baghdad, 1938.
Source: © Constantinos and Emma Doxiadis Foundation.
the plans for cantonments and civil lines) that usually disregarded the existing city and its local context altogether. On the other hand, it revealed the hybrid conditions of the postcolonial context in which new regimes were aspiring to modernize while still preserving their traditions. Doxiadis’ more pragmatic moves, which are evident in the incorporation of the old city as a starting point and in the insistence on including local features in the aesthetic component of the planning, were, in part, efforts to provide legitimacy and bring coherence to the standardization inherent in his evolving notion of the metropolis. This became his basic strategy, as can be seen in his subsequent master plans for Khartoum, Beirut, Caracas, Karachi, Washington DC, and Islamabad. 83

In the case of the new campus for Punjab University (Lahore, 1958–59), Doxiadis’ Ekistics approach of reconciling the global with the local produced an architectural synthesis that would provide new vistas for urbanism. Moreover, the plan seems to have anticipated some of the ideas praised in the Berlin Free University project by Candilis, Josic, Woods (1964). The problems of the Lahore project and its context were, in Doxiadis’ words, “the most complex ever handled” in terms of creating “an operating pattern the dynamics of which could satisfy” an incremental building program, the incorporation of tradition, and local climatic conditions through “the adoption of a modular reference pattern on which the incorporated sequences would eventually unfold.”84

Doxiadis’ plan established the existing Bari Doob canal as the central axis, with the academic complex and student housing on each side, and staff accommodation above the former (fig. 7). Both scale and time—incremental growth of the detailed program—were translated into an architectural framework using a system of orthogonal axes; the “direction of addition” (for each new department) was parallel to the canal, and perpendicular to that is the “direction of expansion” (for the future internal expansion of each department) (fig. 8).85 Their intersection formed the central square emanating the pedestrian circulation as an interior, while the vehicular access at the periphery formed an exterior. The interior of the academic complex was adorned with finely grained courts and patios, and the exterior was left as a surrounding green area in tribute to the countryside that once surrounded the city. A linear, semi-covered walkway constituted the central spine of the academic complex and was paralleled by the esplanade along the canal. Their interconnecting pathways, squares, and the variety of courtyards formed a coherent system of public open spaces. This system offered a variety of spatial experiences thanks to its linking public, semi-public, and private realms to covered, semi-covered, and open spaces. Moreover, the built-up volume presented a continuous ground-level city (accommodating the administrative and common functions); individual departments were located on top, with a variety of open spaces in between, which overlap and correlate functions rather than separating them. Doxiadis’ translation of the dynamics of growth and circulation by means of an architectural language into an “operating geometry of the pattern employed” produced a coherent synthesis. It was a synthesis that employs a system of open spaces, building heights of one to four stories, and arcades—producing a framework that accommodated
programmatic complexity, allows for systematic additions without compromising the complex's overall aesthetic qualities, was conducive to social intercourse, and preserves human scale.36

The Bari Doab canal, climatic conditions, aesthetic preferences, a mosque, and incremental growth are the local elements in the Punjab University plan. Furthermore, building volumes above the ground level form a continuous city in the academic complex, which was claimed as a reinterpretation of traditional architecture, revealing Doxiadis' eclecticism.37 The generic dimension of his synthesis was the invention of an operating pattern of space that was intended to create a sense of locality within a global framework for growth and change. The horizontal, multi-courtyard pattern, which was homogenous in layout and consists of a systematic repetition of simple elements, allowed for future programmatic changes while evoking Pakistani vernacular architecture. This pattern is one that the planner can generalize, since it permits the construction of low-rise, high-density, programmatic complex housing types in a variety of contexts, while at the same time preserving human scale and maintaining aesthetic cohesion. The repetition provides the framework, both conceptual and spatial, for different possibilities of habitation. Both framework and habitation are notions which offer new layers of analysis in architecture and urbanism.38

Islamabad, which represents Doxiadis' vision of a city of the future—a metropolis for three million inhabitants by the year 2000—is comprised of the new capital, a national park, and the existing city of Rawalpindi (fig. 9).39 Doxiadis integrated these three by enlarging the scope of the system of orthogonal axes of Punjab University to the metropolitan scale. The two central axes—one (south-east-north-west) derived from the preexisting Grand Trunk Road and crowned by the grand mosque, and the other (south-west-north-east) reflecting the physical structure of the landscape, with the capital complex at its end-formed what Doxiadis called the urban nucleus (fig. 10). External boundaries were adjusted to the natural landscape features, and two more axes were generated, thereby forming a skeletal frame of four axes with the existing city of Rawalpindi contained within, the new capital area located in the north, and the large national park in the north-eastern section.40

For cohesion in the early stages of development, both the new (capital complex) and the old (Rawalpindi) become the starting points for the linear cores of Doxiadis' twin-foci Dynopolis as they were extended in space and time over the plain toward the southwest (fig. 9).41 On the skeletal frame and the cores Doxiadis laid a grid of 2,100 by 2,100 yards, as the "modulus" and "building block" of the metropolis.42 This oversized grid—marking Doxiadis' sector for 30,000 to 60,000 inhabitants, which he claimed to have derived from an analysis of the historic cities (representing their average diameter)—was intended to provide historic continuity in the modern metropolis.43 The distinctive design feature of this sector is the spatial variety he achieved—integration and overlapping of the civic amenities and housing with the natural ravine system—in an economical and ecological way (fig. 11).44 All the citywide functions—commercial (which are particularly stressed),
residential, industrial, administrative, and even recreational—are grouped together at various scales in multiple linear spines capable of gradual extension, with their programmatic complexity regulated by the fixed size of the sector. The size and scale of the sector rationalizes the movement of both pedestrian (within) and vehicular (outside) traffic in terms of time, generating a different conception of “center” and “periphery”; both the sector (polis) and the city (metropolis) are traversable from their respective center and periphery in the same amount of time (ten to twelve minutes) on foot or by car, and the highways are designed without traffic lights or level crossings, enabling automobiles to travel at a speed of 100 miles per hour.95

Doxiadis’ plan combined various elements—generic and local, historic and modern, center and periphery—by first separating these elements and then reintegrating them.96 In the plan he also reconceptualized the relationship of center to periphery in the organization of urban areas. In both Howard’s garden city and Le Corbusier’s modernist city, center and periphery were organized in the classical sense.97 In Doxiadis’ plan, the center and periphery were meant to grow interdependently in a linear and specific direction. That was the premise of his Dynapolis model. The plan advanced an urbanism that neither adhered exclusively to the logic of the conservative garden city, green belt, and neighborhood-unit paradigms, nor to the radical kind of CIAM urbanism with its strict separation of functions and zoning based on isolated towers surrounded by parks. It also rejected the notion of a linear city.
Designed as a framework, the Islamabad plan illustrated the active unfolding of a city's development, and promoted an urbanism that is low-rise, high-density, and mixed-use in a thick mesh continually extended into, but in a dynamic relationship with, the surrounding landscape.

Analogously, Islamabad's plan can be seen as a typological enlargement of the idea of a house and a garden: it is the combination of two opposites—a city and a park of almost equal size, one solid and the other void—in which a dynamic relationship is promoted through a dual strategy of juxtaposition and layering. Islamabad, as Doxiadis' city of the future, is significant since it led to the conception of Ecumenopolis and Ecumenobeiros as metropolis structures displaying the distinctive form of urbanism that Doxiadis succinctly presented as his ideal in the illustration of Entopia (1974, fig. 12). Here is a future metropolis Athens, a vast agglomeration structured by the penetration of nature into a variety of sectors. The old parts of the city are preserved, the new parts are kept in scale with the old, industry is located under a large park, and transportation is routed into conduits below greenways. Entopia has transcended capitalism's cathedrals of commerce and has become a thick mesh with only community centers, in the midst of the sector, soaring above everything else. Obedient to Aristotelian tenets, the city is humane, comprehensible, and in harmony with nature, a place where a visitor at home can coexist with more puritanical social and religious groups across the street. According to Doxiadis, "In this city we can hope that man, relieved of all [the] stresses that arise from his conflict with the machine, will allow his body to dance, his senses to express themselves through the arts, his mind to dedicate itself to philosophy or mathematics, and his soul to love and to dream."

**Dialectical frameworks**

Doxiadis' approach to urbanism adhered to a notion that he called "global in conception and yet local in expression," which aimed at producing a "universal human style." In the guise of reconciling global imperatives with local aesthetic preferences and an incremental mode of development, Doxiadis' urbanism attempted to adopt prewar modernism to postwar conditions in a way that explicitly challenged earlier models of urbanism. Its generic dimension—multiplication and repetition of elements to address the issue of growth, elements which are first dissociated and then reconfigured—and its sensitivity toward local conditions characterized his practice. He made twofold use of Ekistics: first, as an approach to knit together a variety of projects from local to global in scale (providing a framework for facilitating the work of the operations of Doxiadis Associates) and, second, as an interface between his absorption of wider urban knowledge and the development of his own brand of urbanism.

Despite its claims to a global approach, Ekistics became a problematic concept both in dealing with the complexity and dynamics of urbanization at a global scale. Doxiadis' vastly ambitious approach, with its scaling up of the design process to deal with national and global levels, ultimately led to the evaporation of its content. His search for an all-purpose elixir, and his flight from the mainstream, placed Ekistics at the crossroads of several disciplines.
which in the end left it sidetracked. This is probably why Doxiadis has been ignored in the historiography of modern architecture and urbanism, despite the fact that his oeuvre constitutes a powerful challenge to modernism in its no-holds-barred engagement with nation-building, identity, culture, international politics, development, and the environment.101

The distinctive aspect of Doxiadis' urbanism was his attempt to reconcile the Athens Charter's putatively deductive method and the Charter of Habitat's inductive approach.102 Doxiadis' urbanism grappled with growth and development as matters of scale, programmatic complexity, and human association. In formulating a specific metropolitan structure, such as those found in his plans for Baghdad and Islamabad, he developed a framework with the ambitious goal of guiding coherent growth over a period spanning as many as four to six generations.103 This framework was informed by a synthesis of his urban knowledge, and was best embodied in his illustration of Entopia, which represented the city as a thick, four-dimensional mesh adjusted to the surrounding landscape, with a variety of juxtaposed housing types and with solids and voids interlocked, all planned in a way that preserved the human scale needed to foster human association (fig. 12). This transformation of modern urbanism is marked by the three-fold synthesis of: 1) the historic and the modern city, generating the notion of the “historic city as a body of design knowledge”;

2) various scales of human association, producing the notion of “multiple scalarity”;

3) nature and the city, breaking apart classical notions of urbanity.

By eliminating isolated high-rise structures, employing strict zoning, and allowing the coexistence of old and new parts of the city, Doxiadis' urbanism brings the historic city to the fore as the context for modern urbanism. Attempts to preserve human scale and recover the intimacy of life in the sprawling metropolis were reflected in his design of new sectors that mimicked the historic city in scale (fig. 13). The historic city's attributes contributed to the design of individual sectors, mainly in terms of the sophistication of the design of public space and the relationship of solids to voids. Public space was conceptualized and designed as a system, composed of interconnected paths, streets, courts, squares, plazas, esplanades, and other open spaces, all separated from vehicular traffic and including a range of housing types. Variety was produced through the treatment of pedestrian connections, the number and density of positive spaces, and their varying degree of enclosure by the surrounding buildings. Moreover, the closely knit public spaces and their scale corresponded to that of the building volumes, and their coordinated interaction gave a fuller, more-satisfying articulation to the architectural space of the city. Unlike the modernist city, where void prevails, Doxiadis articulated a balance between solids and voids, favoring a low-rise city—but not a low-density city. This notion of design is derived from an analysis of the historic city—which mainstream modernism considered irrelevant, an anti-model. It obviously retains its relevance, exhibiting concerns that Doxiadis shared with some of his contemporaries (such as Sert, Bacon, and Kahn) and anticipating the return of “history” as championed by Aldo Rossi and Colin Rowe.104

Conceptualizing a system by which to vary scales in settlement design is
another hallmark of Doxiadis' urbanism. In the case of Islamabad, this is demonstrated through the integration of three infrastructures as spatial design grids: Eco (the preserved natural ravines forming the diagonal open space system), Social (the pedestrian network across the city), and Formal (the 2,100-yard grid as mobility, utility, and green corridors; fig. 14). Their three-way integration allowed the overlapping of multiple scales (differing in function and size) of the metropolis, correlating the ordinary (housing) and extraordinary (civic, monumental) elements of the city, resulting in a kind of urban system that displayed considerable coherence. Unlike the modernist city, in which zoning dominated, Doxiadis' urbanism correlated different housing types through variation of size and texture of the building fabric. For example, the central core in Islamabad becomes more finely grained as it penetrates the residential sector (fig. 11). Moreover, each housing type is correlated with the others through the provision of common features such as courts, patios, and semi-covered areas, and their volumes correspond to the incremental increase in scale from the residential to the civic and monumental parts of the city. A precise system of sizes and dimensions, determined through the use of a modulus, regulates the production of scale in both built-up and open spaces. Their coordination through the synthesis of levels of scale results in an enlarged design vocabulary, which is needed to ensure coherence at the metropolitan scale and in its regional setting. 105

Owing to his belief that the "integration of nature and city enhances the citizen’s sense of well-being," Doxiadis' urbanism promotes their systematic integration. In the case of Islamabad, he goes beyond adjusting the city to the surrounding landscape. His use of an eco-grid (fig. 14) as part of the public open-space system adds certain positive attributes: it brings nature into close proximity to the residential areas; produces ventilation corridors; places extraordinary elements (i.e. central community buildings) in the residential sector; promotes coherence in landscape and townscape, both with each other and with the more-distant surroundings; adds variety to the architectural treatment of the metropolitan area; makes nature omnipresent and accessible within the city; and establishes a system of urbanization in which nature and infrastructure are interlocked in a framework that avoids garden suburbs and satellite towns. Combining the natural landscape's topographical and ecological elements in a way that complements the system of open public spaces attempts to harmonize landscape and townscape. Doxiadis contended that all this would also help to secure the city's economic future. Adhering neither to the earlier notion of green belts nor to the idea of skyscrapers situated in unarticulated open green spaces, this way of conceiving the city within the framework of nature and, specifically, bringing nature inside the city, also breaks with classical notions of urbanity. 106

Doxiadis' urbanism reconceived city design through its premises of the "plan as a process" and the "open space system as the focus of design." 107 These are necessary to achieve spatial coherence in the projected development of the metropolis, so that the aesthetic balance achieved in the early stages is not destroyed when additions are made. Doxiadis provided for the internal expansion of each element of the city (and for the addition of new elements)
economic growth and development. Doxiadis’ urbanism, then, resolves the often mutually incompatible impulses of sustainability and globalization into a dialectical framework that informs his design practice. Such a framework, even if it takes the form of a “master” master plan (continuing the approach of CIAM), produces a provisional synthesis of nature and infrastructure within which the building volumes and open spaces develop in a way that attempts to ensure the dynamic coexistence of nature, culture, and ecology. This is a synthesis in which open space and the built environment, the local and the global, the historic and the modern, the process and the end state are all continuously interacting. In short, this synthesis deals simultaneously and coherently with the speed of development and the ease of development.

Rethinking Doxiadis’ urbanism through this dialectical framework potentially offers insights into how to deal with “spontaneous” urbanization, and in how to build a greater awareness of environmental and development concerns. His thinking combines a number of different fields—architecture, landscape, ecology, land use, and urban and regional planning—to create a precisely articulated framework for design synthesis. In its attempt to transcend the focus of modernist urbanism on the building and form, his synthesis shows the capacity of an open spatial structure (the landscape dimension) to act as a framework that facilitates a coherent urbanization process. In its generic approach, grounded in a spatial logic that attempts to reconcile global development and local cultures, it treats the notion of sustainability as a major factor, not just an afterthought. This new awareness is different from mainstream modernism and different from the contemporary “bio-centric polemics” and from “corporate brand” notions of sustainability governed by economic criteria. Rather, Doxiadis’ urbanism analyzed the spatial dimension of development and environmental protection in a way that led to the vision of a parallel coexistence of Ecumenopolis and Ecumenokepos and their coordinated action. This pairing, besides stimulating significant ideas such as global ecological balance and the carrying capacity of systems, brought the global ecosystem to the forefront as the ultimate framework for urbanism.

The twin conception of Ecumenopolis-Ecumenokepos as a dialectical framework for globalization-with-sustainability also yields significant potential in terms of contemporary design. In the wake of the growing tensions between the concerns of the developed countries regarding sustainability and the desire of poverty-stricken countries for rapid economic development, the need for a dialectical framework for globalization and sustainability is greater than ever before. Renewed optimism in the possibilities of such a framework resonates in current trends such as landscape urbanism, New Urbanism, and other green design agendas. Simultaneously ameliorative, reconciliatory, and regenerative, Doxiadis’ complex and dynamic framework offers many more urban and environmental design strategies to generate alternative yet broadly relevant forms of development.

2. Each discipline has a specific view of urbanism: the economist, the geographer, the political scientist, the sociologist, and even the architect and urban planner, all offer different methodological interpretations of what urbanism means to be. In terms of contexts, there are European, American, Islamic, Asian, and so on, versions of urbanism.


C. A. Dovis Jokad, Ekistics: An Introduction to the Science of Human Settlements (London: Hutchinson, 1968), 44-56 and glossary of terms. For etymology of Ekistics, see the journal’s front and back covers. For publications and projects, see Alexandros-Andreou Kyriazis, comp., Constantin A. Dovis Jokad. texts, Design Drawings, Settlements (Athens: Barnes Publishing, 2006), 405-493; and also see www.archive.dovis.org. For Dovis Jokad’s relations with prominent figures in the field, see Panayota Psila, "Ekistics, Architecture, and Environmental Politics, 1945-1976: A Preliminary of Sustainable Development," pp. 18-19; and Ray Bromley, "Towards Global Human Settlements: Constantin Jokad as Entrepreneur, Coordinator, Builder and Visionary in Urbanism: Impacted Exported, ed. Josefa Sarr et al. (New York: John Wiley and Sons, 2003), 316-340. For CIAM reference, see Eric Mumford, "The CIAM Discourse on Urbanism: 1920-60" (Cambridge, Mass.: MIT Press, 2000), 267. Moreover, the Delos symposium (1963-1974) included participants such as CIAM veterans: Jokad and Tywitt, other architects/planners such as Buckminster Fuller, Sir Robert Matthew, Charles Abrams, Jacobson, Edmund Bacon, Kenzo Tange, Hassan Fathy, development experts such as Edward Maoun, anthropologist Margaret Mead, economists such as Brian Ward, David ReMine, Steward Bates, communication guru Marshall McLuhan, geologist Conrad Waddington, sociologist Eliosi Isenam, and so on. Many of the participants, including Jokad, emphasized the parallels between the 1920 CIAM and the Delos Symposium. The Ekistics issue on the Delos Symposium included in its appendix the CIAM Charter of Athens with the subtitle: "Outcome of a similar effort." Ekistics 16, no. 93 (October 1963): 263-266.


6. For example, the premise of Ockman’s book is in this period the preordained he’s been revisited; see Joan Ockman, Architecture Culture 1943-1968: A Documentary Anthology (New York: Rizzoli, 2000), 13. More recently, Mumford has explained such a reformation of modern urbanism during this period in the American context as "Urban Design," see CIAM, Architec for Urbanism: CIAM Architects and the Formation of a Discipline, 1937-69 (New Haven: Yale University Press, 2009).

7. For example, the premise of Ockman’s book is in this period the preordained he’s been revisited; see Joan Ockman, Architecture Culture 1943-1968: A Documentary Anthology (New York: Rizzoli, 2000), 13. More recently, Mumford has explained such a reformation of modern urbanism during this period in the American context as "Urban Design," see CIAM, Architec for Urbanism: CIAM Architects and the Formation of a Discipline, 1937-69 (New Haven: Yale University Press, 2009).
Human settlements is explicitly "anthrocentric" and "interdisciplinary," and Doxiadis preferred it near the form city, which leaves out such settlements as towns, villages, neighborhoods, and hamlets, as well as metropolitan, megalopolis, conurbations, and others. Moreover, human settlements is endeavors to denote cities, urbanization, housing, cities and towns, and it was being studied in a number of new disciplines such as planning, urban and regional science, urban sociology, urban studies, etc. See Doxiadis, Ekistics and Alexander R. Lemann, "Human Settlements: the Second Definition," Housing Science 4, no. 4 United States: Ferguson Press, 1980: 283-296.


Doxiadis, Ekistics and Lemann, "Human." 56

Ibid. 57


Pyla, "Ekistics," 52.


Mahdu, "Constantinon," 431-432.

For McLuhan's notion of human scale, see Pyla, "Ekistics." For CIAM's, see Mumford, Defining, 40.

For "Anthropos" being gender: age-free, and as more appropriate term than "Man / Human," see Doxiadis, Building, 38.

Doxiadis, Ekistics, 364-380 and Building, 45-55.

Tyrwhitt, "The Ekistics Grid."

For influences on Doxiadis' formulation of the grid, see Pyla, "Ekistics," 46-51.

Doxiadis, Ekistics, 31-41 and Building 55.


For the concept of network, see Wiley, "Network," 71.

Doxiadis, Building, 244-258.

Gattegno Natale, "Building in the Inevitable City of the Future" (paper at "Space and Progress"; see note 7).

Doxiadis, Ekistics, 31-41.

Doxiadis, Building, 52.

See note 37.


Ibid. 79


Ibid. 81

Ibid. 82

Mahdu, "Constantinon," 229-331.


The academic complex included seven faculties, thirty-two departments, and several schools / colleges, research units, teaching areas, administrative and other support faculties, etc.

DA, "The University" and Mahdu, "Doxiadis." 87

Ibid. 89

Ibid. Hashim Sarkis, Case: La Corbusier's Venice Hospital and the Mat Building Revival (Munich: Prestel Verlag, 2001). 89

For the conception of "city of the future" as a theoretical project of urbanism with the aid of Ford Foundation during the planning of Islamabad, see Mahdu, "Constantinon," 138-149. DA, "First notions on the development of the federal capital area," DOXPA 74 (Feb. 1960): 32-34.


DA, "Islamabad," 408, 252. Mahdu, 93

Constantinon," 220-223, 244-266.

DA, "Constantinon," 229-266.


Doxiadis, Building, 297-307.

Doxiadis, Ekistics, 317.

See note 12.

Mahdu, "Constantinon," 12-17, 451-453.

The generic elements, as identified in his practice, includes all the concept of Dynasty—a gradually widening and extending city through linear spines of various housing types—as a rational and universal system for the era of explosive growth and urbanization, appropriate for any country / location; the preservation of human scale in the modernizing and expanding built environment; a) an architectural style that is global in conception and yet local in expression; d) rationalized reproduction of the historic city in the form of the sector; and e) the correlation of scale levels in urban organization. Whereas the elements of locale includes the existing city, traditional hypoligies, local climate, natural topography and ecology, and socio-economic and political conditions, etc.

A figure that corresponds to his forecasted global population stabilization representing the scale of his optimistic urban settlement of the future, see note 61.


Tyrwhitt, DOXIDAS, Mahdu, "Constantinon," 343-387, 445-447 and "Representing."


Islands as "A place for rest in a restless city... An Oasis within a Metropolis." Von Eick, cited in Alison, Smithson, Team 10 Meetings 1959-84 (Delft: Technische universiteit Delft, 1991), 78.

