
URBAN PLANNING IN GUANABARA STATE, BRAZIL: DOXIADIS, FROM EKISTICS TO THE DELOS MEETINGS

Vera Rezende

Universidade Federal Fluminense

This article looks into the evolution of the Ekistics Theory as formulated by Constantinos A. Doxiadis for the drawing up of a concept of Network. Following the Delos Meetings, this theory, a science of human settlements, subsequently evolved into the idea of human activity networks and how they could apply to different fields, especially architecture and urbanism. Those meetings were held during cruises around the Greek Islands with intellectuals from different areas of knowledge and countries. Moreover, Ekistics theory was used as a basis for the formulation of the Plan for Guanabara State, Brazil, whose launch in 1964 took place a few months after the first Delos Meeting in 1963. The plan was developed for Guanabara State following the transfer of the country's capital from Rio de Janeiro to Brasília in 1960. Carlos Lacerda, the first elected governor, invited Doxiadis, hoping that by using technical instruments devised by the Greek architect and by relying on a foreign consultant, the plan would turn the city-state into a model of administration, apart from political pressures. The article highlights the rationality based on the Ekistics, strongly reflected in the plan, and the fragile remains of other principles detailed during the Delos Meetings.

Keywords

Ekistics, Plan for Guanabara State, Doxiadis, Delos Meetings

INTRODUCTION

The Ekistics Theory was used as a basis for the Plan for Guanabara State, whose launch in 1964 took place a few months after the first Delos Symposium in 1963. These meetings promoted by Constantinos A. Doxiadis, the plan's author, were held during cruises around the Greek Islands with intellectuals from different knowledge areas and countries¹.

The plan was developed for Guanabara State (the former Federal District) following the transfer of the country's capital from Rio de Janeiro to Brasília in 1960². After a debate encompassing the transformations that marked the end of the 1950s³, the selected alternative was to transform the city into a state that lost several of its functions as an administrative center but remained an important service center. The choice was to create a city-state entrusted with the necessary municipal and state resources to face the issues at hand.

Its first elected governor was Carlos F. Werneck de Lacerda, who opted for the plan⁴ and invited Doxiadis⁵ - a Greek architect who had worked in four continents. The governor's choice of Doxiadis stemmed from a wish to turn the city-state into a model of administration that would remain immune to political pressure. However, he was severely criticized⁶ for not seeking recommendation from local technicians.

In 1937, Doxiadis became responsible for the planning sector of the Greater Athens Region and as of 1940 he was in charge of the bodies linked to urban and housing planning in Greece. In 1951, he set up the Doxiadis Associates Office and executed urban plans and regional studies in several countries⁷. In 1958, he founded the Technological Educational Institute of Athens - a research center for global studies and statistics. In 1963, he created the Athens Center of Ekistics, where he deepened the Ekistics Theory - a term he coined in 1942.

Meanwhile, Lacerda hoped that through the technical instrument provided by Ekistics and the expertise of a foreign consultant, the plan (which was scheduled to be concluded by the end of his mandate in 1965) would help establish his image as an efficient administrator. Furthermore, in a context of political instability this was a personal project and a potential contribution to Lacerda's candidacy for the Presidency of the country in 1965⁸.

However, there was an inversion between planning and execution of the works. The plan was a necessary element for organizing ongoing works in housing, road and water and sewerage⁹. These sectors were being boosted, among other things, by cooperation between the USA and Brazil through the Alliance for Progress Program¹⁰ and by other types of financing through the Inter-American Development Bank (IDB)¹¹.

EKISTICS AND HUMAN SETTLEMENTS

The Ekistics Theory drawn up by Doxiadis focused on city growth. "Human settlements are no longer satisfactory for their inhabitants", he said in the introduction of his book "Ekistics: an introduction to the science of human settlements" in 1968. He considered that in contemporary cities there was an imbalance between elements such as transportation, zoning and communication.

In the preface of his "Architecture in Transition" in 1963, the author stated that the decision to publish this book before another one entirely focused on the Ekistics Theory was due to the implications of architecture in current times. According to him, his ideas at the time were aimed at architects and not urban planners. In addition to offering "a new approach" that provided a framework for the architect's work, this theory coordinated other disciplines and assigned architects with a new role (Figure 1):



FIGURE 1 Ekistics and the interface with other disciplines.

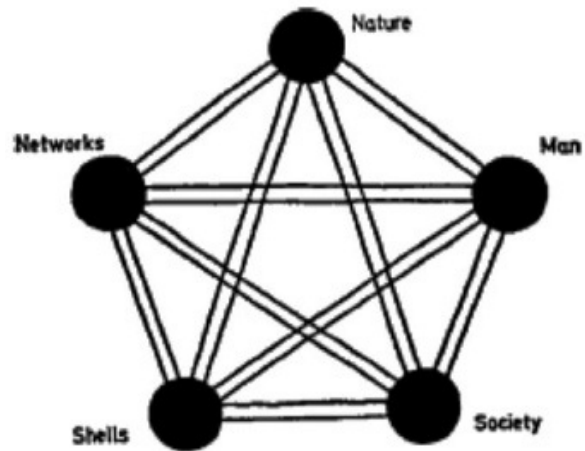


FIGURE 2 The network of 5 elements.

Ekistics (from *oikos* the ancient Greek word for house or dwelling) is the science of human settlements. It combines economics, sociology, political sciences, administration, technology and aesthetics within a coherent group, thus resulting in the creation of a new human habitat¹².

The essential knowledge provided by Ekistics would encourage architects to understand space in an innovative manner. For example, he said that the plan for Greater Mussayb, in Iraq, bore a stronger resemblance to natural calcium carbonate formations than to an architectural product¹³.

The intent to create a type of science was not only present in Ekistics but also in architecture, as it claimed to foresee the ecumenical architectural zones that would prevail in the future of mankind. “He needs to be a scientist and also carry out research”, he would say about architects¹⁴. This assumption was close to the ideals of the International Congress of Modern Architecture (CIAM), which aimed at setting a universal paradigm.

According to Doxiadis, the development of a scientific approach or the elevation of Ekistics to the category of science would provide the necessary international recognition, including from the United Nations. His views on cities were based on man and human unity (“the human sector”), which expanded in a parabolic manner and resulted in Dynapolis. “Dynapolis will not be strangled to death. It will expand in a parabolic manner and gradually adopt a geometrical form based on a rectilinear axis system”.¹⁵

Doxiadis’ principle, which he included in most of his projects from the mid- 1950s onwards, translated into the assumption that a city must grow in a single direction and its inner core must move and expand on the same scale as the city’s growth. He defended this type of growth in opposition to the growth that had occurred in the past (with cities growing in a linear way from the core towards the peripheral areas). The idea of a city without limits was opposed to the traditional linear city, which could only happen in small areas. In the end, civilization would become an ecumenopolis (“a worldwide city”). The idea was based on the biggest scale possible. If data could be controlled, so could cities.¹⁶ Courses on statistical analyses would be indispensable for architectural training. Furthermore, a project should start with precise charts and not artistic drawings.

Despite his connection with the CIAMs, Doxiadis had exceeded the initial modern concepts and drawn up a theory which, according to him, could be applied to any city. He insisted that the real dimension of the cities is not space but time. Basically, a city’s trajectory towards development is more relevant than its shape. However, the ideas of the Athens Charter and of the CIAMs showed limitations due to their attachment to functions (living, engaging

in leisurely activities, working and travelling) and for their failure to go deeper into their interconnections¹⁷. This deepening would lead to the study of networks, during meetings that went beyond the modern functional premises of the last CIAM in 1956.

Ekistics was based on complex settlements and numbers of inhabitants which, with the individual as a starting point, would turn into communities of 30 million people – the ecumenopolis. The hierarchy of the communities was defined according to a logarithmic scale based on five elements: man, nature, society, structures (shells) and the networks. (Figure 2) A sixth element would be defined by the intersection of the other five.

TIME AND PRINCIPLES OF DESIRE AND VIABILITY.

In view of their complexity and of the several factors to be analyzed, the grids would become an instrument that synthesized the relationship between the elements, man (anthropos) and the hierarchized communities conceived by the theory (Figure 3).

Over time, Doxiadis increasingly focused on the study of networks within the cities and between cities, in order to draw up a general theory with a scientific basis that could explain all the settlements and justify the actions carried out in them. The international dissemination of Ekistics was prompted by the Delos Symposium during which intellectuals, and not only architects, were invited by Doxiadis and the Athens Technological Institute to discuss urban networks.

THE DELOS SYMPOSIUM - A WORLD IN A NETWORK

The first Delos Symposium took place aboard the *New Hellas* in July 1963, sailing from Athens for an eight day trip through the Greek Islands. Its goal was to discuss the evolution of human settlements, amid privileged surroundings comprised of classic antiquities and cities.

The meeting was attended by 34 intellectuals from 14 countries¹⁸. Among them were architects who sought to go beyond the traditional limits of architectural discourse, representatives from the United Nations and specialists in areas such as economics, administration, town planning, sociology, ethnography/anthropology, geography, biotechnology, information, medicine, engineering and law. The predominant nationalities among the participants were United States and British. Despite the proximity of the meeting (July 1963) and Doxiadis' contract (March 1964) for the launch of the plan in Brazil, there were no Brazilian professionals at the first meeting.

The participants included professionals from various fields and with different approaches to reality: Buckminster Fuller (USA)¹⁹, architect; Margaret Mead (USA), anthropologist; Sigfried Gideon (Switzerland), art historian; Walter Christaller (Germany), geographer; Barbara Ward (United Kingdom), economist; and Marshall McLuhan²⁰ (Canada), philosopher and communication expert. Despite having a different academic background to Doxiadis, McLuhan became a big collaborator of the Greek architect in the field of networks and was a pioneer in applying them to information technology. In his invitation to the symposium, Doxiadis mentioned the ideas that were essential for the discussion about human settlements described in his book *Gutenberg Galaxy* in 1962, on the impact of the press on European culture. B. Fuller, another great partner of the Greek architect, was also present at the meeting. Fuller was already applying the concept of networks to a physical dimension and since his first book *Nine Chains to the Moon* in 1938, he had been describing technology as an extension of the human body.

- CHARLES ABRAMS (U.S.A.).**
 Housing Expert and Visiting Professor, Massachusetts Institute of Technology.
- EDMUND N. BACON (U.S.A.).**
 Executive Director, Philadelphia City Planning Commission.
- STEWART BATES (Canada).**
 President, Central Mortgage and Housing Corporation.
- PEDRO BIDAGOR LASARTE (Spain).**
 Director General of Planning, Ministry of Housing.
- A.K. BROHI (Pakistan).**
 Senior Advocate of the Supreme Court.
- C.S. CHANDRASEKHARA (India).**
 Sec. Gen., East Asia Regional Organization for Planning and Housing.
- WALTER CHRISTALLER (Germany).**
 Professor Emeritus of Regional Geography; Vice President, Regional Science Association, U.S.A.
- JACOB L. CRANE (U.S.A.).**
 City Planning Consultant.
- RICHARD LLEWELYN-DAVIES (Britain).**
 Chairman, Department of Architecture, London University.
- C.A. DOXIADIS (Greece).**
 President, Athens Technological Institute.
- LEONARD DUHL (U.S.A.).**
 Psychiatrist, National Institute of Mental Health.
- O.E. FISCHNICH (U.N.).**
 Assistant Director General, Technical Department, F.A.O.
- LYLE C. FITCH (U.S.A.).**
 President, Institute of Public Administration, New York.
- R. BUCKMINSTER FULLER (U.S.A.).**
 Director, Generalized Science Exploration, Southern Illinois University.
- CLIFFORD FURNAS (U.S.A.).**
 President, State University of New York at Buffalo.
- S. GIEDION (Switzerland).**
 Professor of Art History, Zurich and Harvard Universities.
- J. GORYNSKI (Poland).**
 Undersecretary, Ministry of Communal Administration and Housing.
- EIICHI ISOMURA (Japan).**
 Professor of Sociology, Tokyo University.
- BARBARA WARD JACKSON (Britain).**
 Economist and author.
- STURE LINNÉR (U.N.).**
 Director of United Nations Special Fund Programs in Greece, Representative of the United Nations Technical Assistance Board.
- M.S. MAKIYA (Iraq).**
 Principal, Department of Architecture, University of Baghdad.
- EDWARD S. MASON (U.S.A.).**
 Lamont University Professor, Harvard University.
- SIR ROBERT MATTHEW (Britain).**
 Professor, Royal Institute of British Architects.
- MARGARET MEAD (U.S.A.).**
 President, American Anthropological Association; Associate Curator of Ethnology, American Museum of Natural History, New York.
- MARSHALL McLUHAN (Canada).**
 Director, Centre for the Study of the Extensions of Man, University of Toronto.
- WACLAW OSTROWSKI (Poland).**
 Professor of Town Planning, Technical University, Warsaw.
- ALFRED R. OTOO (Ghana).**
 Chief Development Officer, Accra-Tema Metropolitan Area.
- DAVID OWEN (U.N.).**
 Executive Chairman, Technical Assistance Board of the United Nations.
- CHARLES H. PAGE (U.S.A.).**
 Professor of Sociology, Princeton University.
- E. PAPANOUTSOS (Greece).**
 Vice-President, Athens Technological Institute.
- SHAFIK H. EL-SADR (U.A.R.).**
 Undersecretary of State for the Ministry of Housing and Public Utilities.
- CARL SCHWEYER (Germany).**
 President, International Federation of Housing and Planning.
- C.H. WADDINGTON (Britain).**
 Professor of Animal Genetics, University of Edinburgh.
- Sir ROBERT WATSON-WATT (Britain).**
 Center for the Study of Democratic Institutions, Santa Barbara, California.

FIGURE 4 All the participants at Delos One.

Delos One (July 6 to 13, 1963) resulted in the Declaration of Delos. According to the document, over the following 40 years the world population would reach 7 billion people at a growth rate of 2%, while the urban populations were increasing by 4%. The document described necessary actions that needed to be taken by national and international institutions:

“a- to establish a new discipline of human settlements; b- to carry out basic research of the most far-reaching kind; c- to bring together specialists from other relevant disciplines to work together on projects in this field; d- to work out new methods to train the men who will take over leadership and responsibility in the sphere of action;...i- to attract some of the best young minds into this new area of research, development and practice”²².

ABRAMS, CHARLES American lawyer and housing expert.	LASUEN, SANCHO JOSE-RAMON Spanish economist.
BACON, EDMUND N. American architect and city planner.	LLEWELYN-DAVIES, (LIFE BARON) RICHARD British architect.
BROHI, ALLAH BUKHSH K. Pakistani lawyer and statesman.	MAKIYA, MOHAMED S. Iraqi architect and town planner.
CLARK, COLIN GRANT British economist.	MATTHEW, SIR ROBERT H. British architect.
COLE, ALBERT M. American lawyer and congressman.	MEAD, MARGARET American anthropologist.
CRAIG, A. OLUMIDE Nigerian architect and planner.	MEIER, RICHARD L. American research scientist.
DOXIADIS, CONSTANTINOS A. Greek architect and ekistician.	MEYERSON, MARTIN American city planner.
DUHL, LEONARD J. American psychiatrist.	MODESTO, HELIO Brazilian architect and town planner.
FITCH, LYLE C. American economist and administrator.	NIELSEN, WALDEMAR A. American economist.
FULLER, RICHARD BUCKMINSTER American designer and engineer.	RILEY, JOHN WINCHELL American sociologist.
GORYNSKI, JULIUSZ Polish architect and administrator.	SHARON, ARIEH Israeli architect and town planner.
GOTTMANN, JEAN French geographer.	SMIRNOVA, OLGA VASILIEVNA Russian architect and city planner.
ISOMURA, EIICHI Japanese sociologist.	TRAPÉNZNIKOV, KONSTANTIN IVANOVITCH Russian architect and city planner.
JONES, EMRYS British geographer.	TUGWELL, REXFORD G. American political scientist.
KOESTLER, ARTHUR British (naturalized) journalist and author.	WADDINGTON, G.H. British biologist.
	WARD, BARBARA, (LADY JACKSON) British economist and author.

FIGURE 5 Hélio Modesto among participants of Delos Two.

The missionary character of the participants was evident and the actions were launched through the recognition and expansion of a specific field and through the recruitment of new collaborators towards an international or planetary effort.

The second Delos Symposium, which took place a year later, drew up recommendations for the United Nations-UN regarding the recognition of human settlements as an independent sector and the allocation of funds to tackle the growing urban crisis²³. This meeting was attended by Brazilian urban planner Hélio Modesto, the coordinator of the Doxiadis Plan in Guanabara State and director of the Executive Committee for the Urban Development of Guanabara State - CEDUG, created to monitor the plan's execution on an institutional level. (Figure 5). Modesto's participation in drawing up the preparation process allowed him to see the need for applying the Ekistics Theory.

The third Delos Symposium discussed the need to think about changes on a global scale: "technology could provide the necessary resources to create new and better standards of urban living"²⁴. The fourth meeting was focused on mobility, fast transport systems and on the transport grid as a planning tool. In this meeting²⁵, the participants embraced Doxiadis' claim that the networks were the newest element to settlements and therefore, would radically change the future.

The fifth meeting discussed urban development. Although Doxiadis' technical planning could be criticized for distancing itself from social issues, in this event the debate included the need to consider the imbalances between nations and cities and the rural areas. It was necessary to create opportunities "to make the dream of a better urban life come true"²⁶. The sixth meeting confirmed a worsening in urban conditions and the need to establish a

science of human settlements²⁷. However, the first Delos Symposium mentioned it as a necessary discipline rather than a science. Brazil was represented by Carlos Chagas, the Unesco Ambassador in Paris, who did not have the same technical credentials as some of the other members. His participation in the meeting took place during the military dictatorship and soon before the enacting of Institutional Act nº 5 - AI-5²⁸.

The discussion about networks continued during the eighth Delos Symposium; “The development of a global network is a historic process that will have no end”, as well as the need for a global technological conscience²⁹. From then on, networks became the official theme of the meetings, as they were considered to be the most important element in the settlements. The ninth meeting stood out for denouncing inequality in less industrialized countries in its “Declaration on the state of emergency in human settlements”. By the end, the participants committed to the mission of building a new order of human settlements, at the risk of having witnessed the problems and “crossed to the other side of the street”, ignoring them³⁰.

Carlos Lacerda, former governor of Guanabara State and responsible for hiring Doxiadis in 1964, took part in the tenth meeting in 1972. At the time, Lacerda had had his mandate removed by the military regime³¹ and was no longer in public office. The Declaration of Delos Ten reaffirmed former warnings: “Measures must be taken to prevent the uncontrollable expansion of metropolitan areas”. The networks were also reaffirmed as necessary invisible elements to be researched, in opposition to the urban planners’ practice of focusing on visible and dense shapes.

Delos Ten introduced environmental concerns into the agenda³². This took place one month after the United Nations Conference on the Human Environment, held in Stockholm in 1972³³, thus reflecting the symposium’s willingness to tackle issues of international concern. In 1974, Delos Eleven put forward the proposals for a letter to be discussed at the United Nations Conference in Vancouver, in 1976: the rights to housing, equality, dignity and the need for a scientific approach to solve the settlement problem. Ekistics was the proposed solution. The document also called for a commitment by the United Nations, which was drawn up during Delos Two, ten years before, towards tackling bad housing conditions in settlements from small villages to large cities.

The quest for a science was clearly expressed: “Ekistics’ conception and sophistication as a scientific and systematic approach would enable the development of a model for human settlements”³⁴. This would occur through the classification of land zones according to their degree of human intervention, and of settlements according to their dimensions, structure and function. The goal was to draft a Human Settlement Letter. This required the development of a particular vocabulary, as the new discipline “that integrates and connects several ancient and new sciences” should have a common language to facilitate communication between different types of knowledge and cultures.

Finally, in 1975, the twelfth and last Delos Symposium was held two weeks after Doxiadis’ death. The declaration “Trend is not fate. There is hope in action” spoke about equal rights and opportunities in human settlements; the rights to the land as a social product and to the environment³⁵. The social issues continued to resist to technical instrumentation.

Carlos Lacerda, who at the time of the Doxiadis Plan was state governor, also attended this last meeting. Brazilian participation in the 12 meetings had been rare and was restricted to the second, sixth, tenth and 12th Delos.

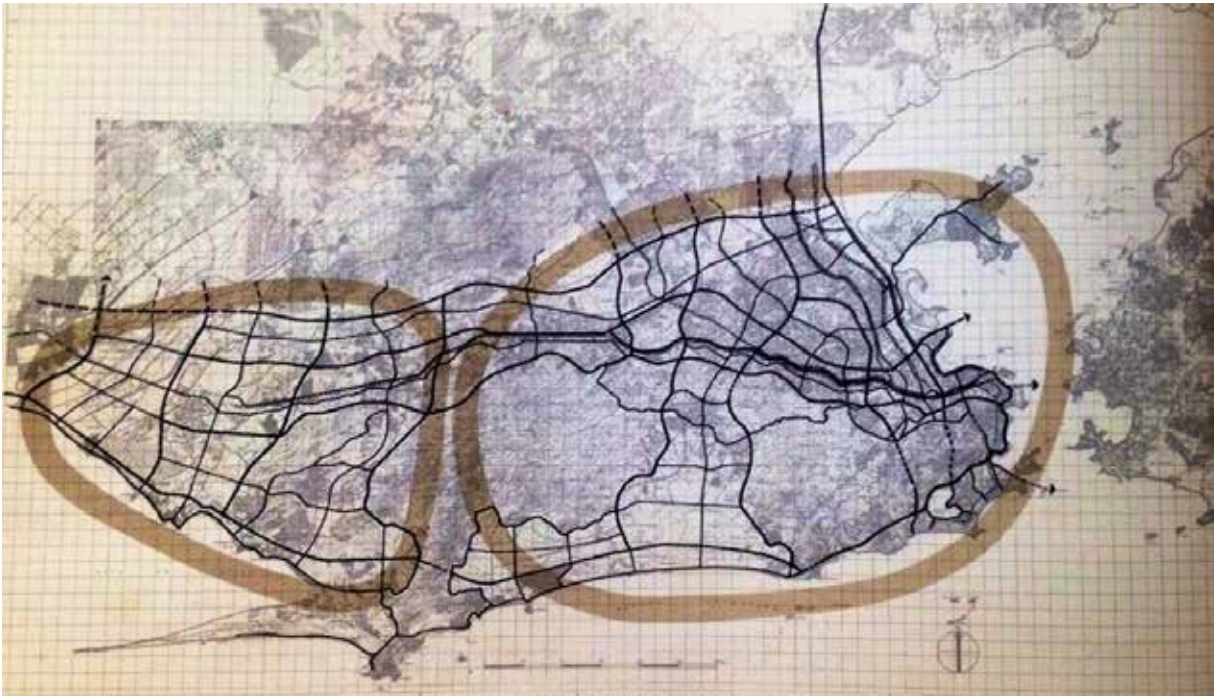


FIGURE 6 Guanabara State: two class VII communities.

EKISTICS THEORY IN GUANABARA STATE

The Doxiadis Plan defined the needs of the new state within a 35-year timeframe and based on an estimated population of 8.4 million inhabitants by the year 2000. In 1964, the Executive Committee for the Urban Development of Guanabara State - CEDUG was created to develop the plan. CEDUG was comprised of Brazilian technicians responsible for collecting and interpreting statistical material for the consultancy office in Athens.

The plan's methodology followed a technical rationality approach to determine insufficiencies and quantify the areas' needs: central functions, industry, recreation and leisure, housing, transport and road system and public services. The transformations were guided by an action plan through solution modeling and the identification of areas that could be subjected to interventions. The plan offered a set of alternatives that considered economic and social factors in the analysis of the state in macro, meso and micro scales. Meanwhile, its proposals were less ambitious and had a more quantitative and physical approach.

While many of the ideas debated at the Delos Symposium were present in the diagnosis, the same cannot be said about the proposals. In fact, the plan stated that the solutions for the city could not be applied on a local level, as it was necessary to investigate centrifugal and centripetal forces that were beyond the city-state and yet still acted on it. However, this pursuit of development through function and the optimization of space led to an imbalance between the diagnosis and the proposals. Furthermore, the ideology behind planning in Brazil at the time pointed towards urban, metropolitan and regional planning that included integration between the various levels. However, by being restricted to the city-state, the plan ended up distancing itself from this premise.

The city would be structured into hierarchized and self-sufficient communities that would carry out certain functions, based on standards established by Ekistics. This was justified by interdependency between the human settlements, in which the larger ones would act as a center for the smaller ones and in turn, be served by other much larger settlements³⁶. The communities' division ranged from class I, which holds 10 to 15 households,

to class IX, the megalopolis. By the year 2000, Guanabara State would have created two class VII communities, each one with 2,000,000 to 4,000,000 inhabitants. (Figure 6) The metropolitan area would be an agglomeration similar to the class VIII community, with a population of around 14,000,000 people³⁷.

The structure formed by the communities with its hierarchized functions was like a “strait-jacket” for the city. Meanwhile, the proposals for the neighborhoods of Copacabana and Mangue (microscale) had been separated from the group for having an essentially physical nature.

Thus, despite the complex theory drawn up by the author and the use of projection and analysis instruments, the result was the applying of established concepts and ready-made solutions – a contradiction in the methodology, as mentioned by Madanadipour about the Doxiadis plan for Teheran³⁸. According to him, despite its wider approach and the collection of a large quantity of data, this type of planning fails to consider the city’s needs. The analyses resulted in a type of manual that could be uniformly applied anywhere, whatever the country or region.

The fact that the Greek team had developed the plan in Athens, amid occasional visits to Brazil or consultations with Brazilians in Greece, partly explains the gap between plan and object of study³⁹. The State’s team was entrusted with the collection of information and data for analysis. After spending one month in the consultants’ offices in Athens in 1964 and attending the second Delos meeting Modesto, the Technical Director at CEDUG, ended up acknowledging a few years later that the plan used complicated tools to justify pre-established proposals.

In the diagnosis, for instance, the classification of sub-normal housing was done according to universal standards. It considered that favelas (slums) were the result of the availability of unoccupied land and of the low-income population’s lack of resources and tendency towards living near the areas where the jobs were. Thus, the diagnosis ended up omitting a crucial issue: the lack of land access mechanisms for the poor due to high land prices, especially in urban areas.

CONCLUSION

In addition to strengthening the idea of a world shaped as a network, another three aspects emerged in the development of the Ekistics Theory during the Delos Symposium. First, an emphasis on technical instrumentation, statistical surveys and the construction of grids. Secondly, that the theory must be acknowledged as a science, so that international resources could be raised for the implementation of the settlements. And third, the social issues. Although this subject was initially discussed in relation to the crisis in human settlements, it subsequently became an important issue about which action proposals were drawn up – a sign of the great contribution to the theory by participants from outside the architecture field (anthropologists, geographers, historians, philosophers, etc.).

Thus, social issues were placed side-by-side with technical questions and with the obsession with the network system that formed the basis for the idea of housing on a global scale. The continued efforts for Ekistics to receive scientific status was a constant feature in the Delos meetings, as this idea was based on the premise that human settlements were susceptible to systematic research. Was Ekistics a science or a set of instruments for knowledge and action? Doxiadis had already discussed this issue years before the meetings:
... as long as Ekistics and regional science use the laws of broad application, both can be described as science. If they lose this quality or fail in this regard, then they cannot be called a science⁴⁰.

The death of Doxiadis in 1975 and the subsequent interruption of the events could have contributed towards the discipline not receiving the recognition sought by its author. Furthermore, in the 1970s quantitative methods started being challenged by social issues and planning went on to include the participation of residents and their inputs about their problems.

Throughout the Delos meetings, the main vehicle for the dissemination of the theory and of the meetings (including the publication of articles by the participants) was Ekistics, a magazine that Doxiadis created in 1955⁴¹ in partnership with urban planner Jacqueline Tyrwhitt, editor and member of the Delos planning committee. The Ekistics publication was itself a networking instrument.

Regarding the Doxiadis Plan, it was delivered in 1965, at the end of the Lacerda Administration, following the Military Coup in 1964. By the end of that year, the State was being administered by elected governor Francisco Negrão de Lima, and due to administrative discontinuity, political opposition between Lacerda and Negrão and economic problems, the plan was not implemented. It basically became a data archive about Rio de Janeiro.

On the other hand, as the plan had been drawn up between 1964 and 1965 it did not benefit from the subsequent discussions at the Delos Symposium. These debates, which occurred between 1963 and 1975, were based on the Ekistics' technical instrumentation and had become more aware of social and environmental issues. In view of its composition, of the participation of members from diverse fields and of the themes discussed, the Delos Symposium was the biggest contribution Doxiadis has left to the debate about human settlements in the 1960s and 1970s.

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No potential conflict of interest was reported by the author.

Notes on contributor(s)

Associate Professor, School of Architecture and Urbanism, Graduate Program on Architecture and Urbanism, Universidade Federal Fluminense - UFF, Brazil, 1989 - present. Ph.D. in Urban Planning and Environmental Studies, Universidade de São Paulo- USP, Brazil, 1995.M.S. in Urban Planning, COPPE- UFRJ, Brazil, 1982. Urban planner, Department of Urbanism, City of Rio de Janeiro, 1975-1992 and Department of Planning, State of Rio de Janeiro, 1994-1998. Research in Progress: "The Production of Urbanism in the City of Rio de Janeiro", which catalogs and analyzes documents related to urbanism in the city (articles, books, plans and projects).

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Image sources

- Figure 1: Doxiadis, 1962.
- Figure 2: Doxiadis, Ekistics, 1970.
- Figure 3: Doxiadis, Ekistics, 1970.
- Figure 4: Report of the First Symposium, the Declaration of Delos, July 6-13 1963.
- Figure 5: Report of the Second Symposium, July 14-21 1964
- Figure 6: Doxiadis, 1965.

Endnotes

- 1 This article resulted from a research carried out by the author on primary documentation of the Doxiadis Plan for the State of Guanabara and the Delos Meetings, in order to cross ideas and proposals in the two sets of documents. The bibliography lists the fundamental titles and authors.
- 2 Rio de Janeiro city became Guanabara State on April 21, 1960, according to the 1964 Constitution and Law no. 3,752, of April 14, 1960.
- 3 The change of capital and the situation of "the free city" received many suggestions, among which the incorporation of neighboring municipalities to Guanabara State. *O Globo*. July 19 (1958): 3. The solution found was the creation of a state without municipalities. *O Globo*, December 5 (1960): 6.
- 4 The contract was signed in March 1964 between Guanabara State and the "Doxiadis Associates" office, to the amount of US\$700,000.00.
- 5 Doxiadis was born in Greece in 1913 and died in 1975. He graduated in Engineering and Architecture at the Athens Technical University in 1935 and received a PhD from Charlottenburg University in Berlin, Germany.
- 6 The newspapers voiced the indignation of local technicians and the controversy regarding the President of the Engineering Club, giving emphasis to the words "Doxiadis, go home". *Diário da Noite*, January 15 (1964).

- 7 Projects and plans developed 1955-1975 for capital cities: Washington D.C. Islamabad, Baghdad, Greater Khartoum, Riyadh and Stockholm.
- 8 The elections were not held due to the Military Coup in 1964 in Brazil.
- 9 In order to put an end to the water supply problems, he built the “works of the century”, the Rio Guandu Duct, comprised of 36km tunnels and ducts.
- 10 In 1961, soon after the Cuban Revolution of 1959, President Kennedy created the United States Agency for International Development (Usaid), an operative institution of the Alliance for Progress Program
- 11 Lacerda was received by President Kennedy in 1962. At the time, he came into contact with the study drawn up by Doxiadis for Washington DC, which we believe might have influenced his choice.
- 12 C. A. Doxiadis, *Architecture in transition*. (New York: Oxford University Press, 1963), 9.
- 13 *Ibid*, 10.
- 14 *Ibid*.195.
- 15 According to the author, the idea of “dynapolis” was implemented in some cases: in Khartoum, in Sudan, in an existing city and in Islamabad, the capital of Pakistan, where it was applied to a new city. *Ibid*, 103.
- 16 M, Wigley, “Network Fever” Grey Room 04 (Cambridge: Grey Room Inc. and MIT, 2001), 82-122.
- 17 Doxiadis. *Ekistics: an Introduction to the science of human settlements*.
- 18 Greece, USA, United Kingdom, India, Pakistan, Germany, Poland, Iraq, Japan, Spain, Switzerland and Canada. (Delos One, 1963)
- 19 Richard Buckminster Fuller (1895 – 1983) United States architect, author and inventor of the Geodesic Dome.
- 20 Herbert Marshall McLuhan (1911 - 1980), Canadian philosopher and communication theorist. He created the term “Global Village”.
- 21 Delos One, 1963.
- 22 *Ibid*.
- 23 Delos Two, 1964.
- 24 The participants included British historian Arnold Toynbee and Japanese architect Kenzo Tange. Delos Three, 1965.
- 25 Delos Four 1966.
- 26 Delos Five, 1967.
- 27 Delos Six, 1968.
- 28 Institutional Act n 5 - AI-5 was enacted in December 1968. It restricted political rights and launched a series of arbitrary actions. It lasted until December 1978.
- 29 Delos Eight, 1970.
- 30 Delos Nine, 1971.
- 31 Lacerda had his mandate removed by AI-5 in December 1968.
- 32 Delos Ten, 1972.
- 33 The Conference (June 5 to 16, 1972) was attended by representatives from 113 countries and 250 NGOs and UN bodies. It produced the first Declaration on the Human Environment.
- 34 Delos Eleven, 1974.
- 35 Delos Twelve, 1975.
- 36 Doxiadis, “On Linear Cities”, 35-42.
- 37 Doxiadis Associates. *Guanabara, um plano para o desenvolvimento urbano* (Rio de Janeiro: Secretaria Municipal de Planejamento e Coordenação Geral, CEDUG, 1967), 1155-1181.
- 38 Getting to know the object through extensive research but applying ready-made solutions to it would create a gap between knowledge and action. A. Madanipour, “The limits of scientific planning: Doxiadis and the Tehran Action Plan”. *Planning perspectives Journal* 25 (2010): 496.
- 39 Direct contact between the teams took place through the visits of four members of CEDUG to Athens: twice in 1964 and twice in 1965. M. Sosa, “A Guanabara de Doxiadis e a Havana de Sert. *Ekistics e Urban Design, novas direções na ruptura do CIAM*” (PhD diss, Universidade Federal do Rio de Janeiro, 2008). (Sosa, 2008)
- 40 Doxiadis, “Ekistics and Regional Science”, 12.
- 41 Titles: 1955, *Tropical Housing & Planning Monthly Bulletin*; 1956, *Tropical Housing & Planning Monthly Information Bulletin*; in 1957, *Ekistics: Housing & Planning Abstracts*; 1959, *Ekistics: Abstracts of the Problems and Science of Human Settlements*; 1961, *Ekistics: Reviews on the Problems and Science of Human Settlements*; 1965, *Ekistics: The Problems and Science of Human Settlements*.