

# **EKISTICS, OR THE SCIENCE OF HUMAN SETTLEMENTS, THROUGH THE PARADIGM OF THE MASTER PLAN OF ISLAMABAD**

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## **Abstract**

*The Greek architect and urban planner Constantinos Doxiadis belonged to the group of professionals and thinkers who challenged the quality of urban environment and living, as it had been evolved up to the mid of the 20<sup>th</sup> century. Doxiadis identified the need for revisiting policies in modern urban planning and he mobilized any available means – theory, practice, education and communication- towards this end. Providing his services as a government’s consultant in several countries of the under-development world during the fifties and sixties, having established solid liaisons with distinguished Institutions in the U.S.A., having a remarkable portfolio of materialized projects with global impact and respectively a remarkable volume of written work, research and publications, having even created an Institute for postgraduate studies on the field, he went further beyond. He declared the necessity for a radical change in urban planning, by means of introducing a new scientific domain in the service of human settlements, that of Ekistics.*

*The proposed paper aims to explore the idea of Ekistics, through its implementation at the Master Plan of Islamabad, or otherwise the City of the Future. Doxiadis was assigned to design the new Federal Capital of Pakistan and he seized the opportunity to launch Ekistics with this project of global magnitude –both Islamabad and Ekistics could be benefited from such a gesture. Ekistics transcended the strict boundaries of urban planning, as social, political and economic factors were also involved. It constituted a holistic approach, which aimed towards the balance of the five primal elements of human settlements, namely Nature, Man, Society, Shells and Networks. And it is not the agenda pursued by means of the modernist functional city that is abandoned, it is rather that changes in the processes followed can be observed.*

**Keywords:** Ekistics, Islamabad, Internationalism, Ecumenopolis

## **Challenging CIAM**

“*Crisis or Evolution?*” (Mumford, 2002, p.248) The works of CIAM 10 in Dubrovnik have been commenced with this question. A question that was addressed by Le Corbusier and by means of a message that he sent, so as to be read in his absence.

A question that practically signified the advent of the Post-CIAM era. The ideals, regarding the Functional City that for a first time have been concretely expressed in Le Sarraz of Switzerland and through the works of CIAM 1, which found their most mature expression on the deck of Steam Ship Patris II and while sailing from Marseille to Athens, were now under questioning. This is to say that the Athens Charter –the epitome of modern urban planning-, or otherwise the outcomes of CIAM 4<sup>1</sup>, were to be severely challenged by the CIAM 10 delegates, who have been already oriented in defining the Charter of Habitat<sup>2</sup>. Le Corbusier was fully aware<sup>3</sup> that a first circle of CIAM's contribution has been completed. Respectively, he was aware that the ends towards which CIAM has been aiming were still to be reached. Therefore, he could not do other than salute "*Long live the SECOND-CIAM!*" (Mumford, 2002, p.248)

Maybe the answer to the Corbusian question should be crisis due to evolution, as the inner criticism that terminated the idea of CIAM meetings signified the comprehension that intellectual circles had to take steps, in order to better respond to the emerging needs of a rapidly evolving society. If it is to be taken under consideration, either the phenomenological approach of Team X (Frampton, 1981), or its respective sensitivity concerning historical and vernacular settings (Goldhagen and Legault, 2000), both viewed in their wider context, it would seem more likely to realise that the actual distance between them and the functional city is not so immense. Anyhow, the functional city was not meant to be an end per se; it was rather the means towards a new socio-economic order and ultimately towards a new mode of living. Considering the initial threefold, namely dwelling, producing and relaxation, as well as its subsequent, which further included the function of circulation, an emerging portrait of life can be perceived.

The idea of challenging and revisiting the dogmatic rationality of the functional city, which has been more than adequately serviced through the CIAM activities,

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<sup>1</sup> The Athens Charter might have been published ten years after the works of CIAM 4 took place, however it constitutes the absolute basis of the meeting's conclusions.

<sup>2</sup> "*Habitat*" is a word used by the French to describe not only the home but also its environment and everything appertaining to it." (Goldhagen and Legault, 2000, p.56)

<sup>3</sup> Le Corbusier prior the last meeting of CIAM takes place insisted in transferring leadership to the younger members of the Congress. (Bullock, 2002, p.145)

should not be considered as an abandonment of the modernist ideals. On the contrary, this turn could be appraised as a turn towards more sophisticated and effective gestures, which could affect the very essentials of human beings either examined as individuals, or as members of the social strata. For instance, it should not be perceived as an abort of internationalism the fact that attention started to be paid in local features and values. The established dialectic relationship between localities and international modernism might have been originated in the fact that architecture transcended the boundaries of the European territory, leaving behind the familiarity of its own culture and roots. Modern architecture was destined to find a quite fruitful field of action in the countries of the developing world, suggesting Africa, Middle East, or South America, claiming its international character not only in theory but also in practice. In order to acquire roots and flourish at the most distant and diverse corners of earth, a kind of mingling with local features appeared to be inevitable. It is not a story of denying internationalism; instead, it is a story of propagating it.

### **Constantinos Doxiadis**

The Greek architect and urban planner Constantinos Doxiadis belonged to the group of professionals and thinkers who severely challenged the quality of the urban environment, as it had been already evolved up to the mid of the 20<sup>th</sup> century. Characteristically, he talked about "*urban nightmares*" (Doxiadis, 1963, p.19), or otherwise "*dystopias*" (Doxiadis, 1968, p.4). Even though, he credited the revolutionary spirit of the Modern Movement's leading figures, such as Gropius or Le Corbusier, for breaking the bonds with academism, yet he considered the goal as a non-fully achieved. To some important extent, he identified as critical factor for the experienced failures the reluctance of his colleagues to transcend the conventional boundaries set by the role of a designer and instead to become master builders (Doxiadis, 1963). Doxiadis did not hesitate<sup>4</sup> to make this leap, as per his own words; "*Personally I often feel like an itinerant master builder of the*

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<sup>4</sup> Doxiadis not only did not hesitate becoming a builder, but instead he considered it a duty and privilege, according to his own words; "*So as to be privileged of building even one step, instead of waiting for others to become builders and keep for myself the role of a well-dressed man climbing up the stair, which was built by others.*" (Filippidis, 2015, p.18-19)

*past, travelling around the world and offering my services.*" (Doxiadis, 1963, p.21). Pakistan, one of the newly emerging countries of the 20<sup>th</sup> century decolonization period, has been a benchmark concerning Doxiadis' global activity<sup>5</sup>.

Pakistan constitutes a par excellence nation-state building paradigm of the preceding century's developing world. The withdrawal of the British imperial forces from the Indian subcontinent in 1947, led to the peninsula's segregation according to absolute religious criteria and therefore to the establishment of two independent nation-states; Pakistan, the land of Muslims' and respectively the Hindus' India. This story of nation-state building included, as expected, political legitimization agendas, developmental policies, social reformation procedures, international alliances making, collective consciousness moulding, as well as modernization opportunities. However, Doxiadis identified in this case, beyond the obvious opportunity for growing his reputation as a consultant of international esteem, a great opportunity for scientific research to take place. The case study for this research was meant to be Islamabad, the new federal capital of Pakistan, the master plan of which was assigned to "Doxiadis Associates", or more accurately was entrusted to Constantinos Doxiadis by President General Ayub Khan.

Islamabad can be considered to be mostly a political project. The idea of creating an ex-novo urban scheme bearing the magnitude of a country's capital city, which was developed according to the most modern trends and internationally accepted standards, acquired a highly symbolic meaning. In fact, it was heralded as the ultimate symbol of national consolidation and progress, or otherwise as a *"historical project on which the hopes and dreams of the Nation depend."* (Doxiadis Associates, 1964, p.1) Doxiadis found himself in charge of a highly ambitious urban project, which was supposed to produce remarkable impact both at national and international level and which also enjoyed complete support from

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<sup>5</sup> As per the memoirs of an architect who was member of the Capital Development Authority and worked closely with Doxiadis, *"Dr. Doxiadis, on the other hand, went from strength to strength and never looked back from the time in 1954, when I first met him in New Delhi at the UN Conference on Low-Cost Housing as a Town-Planner whose reputation had not yet travelled beyond the shores of Greece. Within a space of ten to fifteen years however, he gathered around him a vast empire and had works extending from Vietnam to Iraq, Ghana, Saudi Arabia and various other countries of South America as well as works even in the USA including the role of adviser on the Washington master plan."* (Khwaja, 1998, p.111-112)

the country's political leadership. All efforts and gazes were turned on the Islamabad project, which if taken under consideration along with the fact that it was implemented on a "tabula rasa" basis, or otherwise on a basis of minimizing undesired commitments, it seems reasonable to conclude that Doxiadis has been offered the perfect ground, in order to deploy and communicate his philosophy, regarding modern urban planning.

### **Introducing Ekistics**

Doxiadis identified in the weaknesses of modern urban planning the source for a series of acute social problems and respectively he appraised as defining factors, in regards to any potential solutions the emergence of three basic phenomena, namely the unprecedented global population increase, the advent of machine's dominance, as well as the gradual shift of interest in masses (C.A.D.A., Pakistan v.16, DOX-PA 29, 1959). In other words, after interrelating the existing social malaises with poor urban planning, a reversed process seems to prevail, which suggests the pursuit of social reformation on the basis of sound planning practices, following a deep understanding both of current needs and future demands. Otherwise and according to the terminology introduced by Doxiadis, Ekistics –the science of human settlements- could drive humankind to a deserved prosperous future.

Ekistics (from oikos, the Greek word for a house or dwelling) is the science of human settlements. It coordinates economics, social sciences, political and administrative sciences, technology and aesthetics into a coherent whole and leads to the creation of a new type of human habitat. (Doxiadis, 1963, p.96)

In more detail, Ekistics constituted a holistic approach, which aimed towards the balance of the five primal elements<sup>6</sup> of human settlements, namely Nature, Man,

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<sup>6</sup> The five ekistic elements can be defined as follows "*Nature: the total natural environment which provides the basis for the creation of settlements and the context in which they function. Anthropos: the inhabitant, as an individual. Society: the systems of interactions between Anthropoi. Shells: the structures which shelter Anthropos, his functions and activities. Networks: the natural and man-made connective systems which serve and integrate settlements, such as roads, water supply and sewerage systems, electrical generating and distribution facilities,*

Society, Shells and Networks. Practically, these five elements constitute the fragments of two broader divisions of human settlements – the content's and the container's (Doxiadis and Papaioannou, 1974). This is to say that human beings, either perceived as individuals or as social entities, shape the habitat's content, while all of the rest elements –both natural and man-made-, define the container. Nevertheless, "*The essential nature of settlements results from the fusion and interactive balance between their container –or physical structure- and their contents –or Anthropos.*" (Doxiadis and Papaioannou, 1974, p.7) As a key factor, in terms of defining the level and nature of achieved balance, can be highlighted the nexus of potential correlations that are being created among the diverse ekistic elements and the relevant scientific disciplines –economic, social, political, technological and cultural. As per Doxiadis, if all the potential combinations are to be calculated, then we come across with the amazing number of more than thirty-three million alternatives (Kyrtis, 2006). The ultra-dynamic character of human settlements is depicted by means of the "Ekistic Grid", which constitutes a valuable working tool both at the levels of analysis and planning.

In fact, the "Ekistic Grid" becomes a visual testimony of Doxiadis' perception, regarding human settlements. This is to say that the latter are interpreted as systems and more accurately as systems identical with that of life (Doxiadis and Papaioannou, 1974). This kind of radical interpretation is expected to offer a fresh insight and to open new paths in the field of urban planning, which after being systematized, it can be scientifically analysed, its main features easily captured and processed and ultimately controlled. Following Doxiadis' vocabulary, it can be read "*Human settlements are a great deal more than static, built up areas. Settlements are processes, systems in a continuous state of flux...*" (Doxiadis and Papaioannou, 1974, p.7). And at this point, it can be introduced the leading parameter, in terms of maintaining habitats' dynamic state, which is no other than the one of time. For the present analysis, regarding the urban planning methodology of Doxiadis, the factor of time possesses a paramount position.

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*communications facilities, and economic, legal, educational and political systems.*" (Doxiadis and Papaioannou, 1974, p.9)

According to him, *'the analysis of settlements cannot be separated from the fourth dimension, that of time.'* (Doxiadis and Papaioannou, 1974, p. 7)

### **Implementing Ekistics at Islamabad**

Summarizing, Doxiadis had been offered the empty plains of Potwar Plateau in Northern Pakistan, neighbouring the existing city of Rawalpindi, so as to implement his ekistic theory and create Islamabad, the first fragment of the city of the future<sup>7</sup>, or otherwise the first fragment of a universal system of life. In other words, a capital city was about to be established, which would be consistent in terms of economic, social, political, technical and cultural factors, while it would maintain its functionality in the infinity<sup>8</sup>. Alternatively, Islamabad was about to emerge, following two of the Ekistics' principles, namely the *"Unity of Purpose"* and the *"Four Dimensions"*. Equally respected were supposed to be the other two principles, which complete the ekistic theory, suggesting the *"Hierarchy of Functions"*, as well as *"many Masters and many Scales"*<sup>9</sup>. Therefore, Islamabad was meant to be a coherent system of life, which could be perpetually growing and evolving, while maintaining its initial virtues and functional competence, through a series of hierarchically ordered and highly integrated sub-systems. The basis for materializing the above mentioned ideal has been the introduction of *"Dynapolis"*. Doxiadis again introduced this kind of urban development pattern, which presupposed a linear and simultaneously parabolic model of expansion both of the residential and the city's central functions. The existence of a modular human community, which could be perpetually reproduced, constituted the key parameter for the materialization of the Dynapolis model. For Islamabad the Class

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<sup>7</sup> Islamabad was considered to be the first materialized fragment of *"Ecumenopolis, the inevitable city of the future"*. Ecumenopolis, a term also introduced by Doxiadis, signified the unified global human settlement, the implementation of which has already been initiated, while its completion was estimated to take place in the year 2100. (Doxiadis, 1968)

<sup>8</sup> *"The only way to envisage our goals in size is to relate size to time. Our goals, expressed in size, must be dynamic. Our new city must become the Federal Capital not for today, not for tomorrow, but from now on and as long as the government of Pakistan feels that it is the best place for a capital."* (Doxiadis Associates, 1960, p.416)

<sup>9</sup> More information on the four principles of Ekistics –Unity of Purpose, Four Dimensions, Hierarchy of Functions, many Masters and many Scales- can be found in page 317 of *'The spirit of Islamabad'*, in Ekistics; Abstracts on the problems of science of human settlements, ed. by Doxiadis Associates (vol.12, No.73, 1961), p.p. 315-335.

V human community was defined as its modular and the southwest direction as its only possible way towards expansion.

In more detail, the creation of Pakistan's federal capital presupposed the formation of a metropolitan area, which included the area of Islamabad with distinguished national features, the area of Rawalpindi destined to maintain its regional character and the National Park, corresponding and serving both Islamabad and Rawalpindi, by means of retaining agricultural functions, as well as special functions with either cultural or educational orientation. For the development of Islamabad, a narrow triangular<sup>10</sup> area had been reserved, strictly defined from the one side by the Margalla Hills and from the other side by Rawalpindi and the National Park, leaving only the southwest direction unbounded. Respectively Rawalpindi had absolute boundaries from all three sides –Islamabad, National Park and Soan river-, while again the southwest edge had been kept free to expansion. Both urban schemes, namely the existing Rawalpindi and the created ex-novo Islamabad, were designed so as to evolve in parallel and in a complementary manner, following the Dynapolis model. It worth to be noted that this kind of unlimited future development appears to be feasible, only by means of absolute limitations at the stage of planning. According to the inspirer of this urban model:

The proper name for the city of the future is Dynapolis, the dynamic polis or city, which in contrast to the static polis or city of the past will possess the characteristics of dynamic development built in it. Thus this city will be able to develop freely and naturally along a planned and predetermined course. (C.A.D.A., DOX-PA 77, 1960, p.134)

Since human settlements are identified as systems of life, then it seems perfectly reasonable the idea of human community to be the ideal of any urban planning process. Anyhow, it was towards social reformation that urban planning aimed, which was not irrelevant with architecture's socialization<sup>11</sup>. One of the

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<sup>10</sup> Additionally, the selected triangular area secured the coherence of scale at all stages of urban development.

<sup>11</sup> *"This is because the architect must now build for the masses, creating architecture for everybody and not for a certain leading class alone. At the same time, he has to build much larger numbers of houses and buildings."* (C.A.D.A., DOX-PA 115, 1961, p.38)

fundamental principles, regarding the creation of the federal capital is highlighted here below.

Planning aims at creating integrated human communities and not just conglomeration of houses. People live in communities, where they must satisfy the great variety of their needs and desires. The community should therefore always be the unit of planning and include residences, places of work, residential facilities and all services necessary for healthy and pleasant living. (C.A.D.A., DOX-PA 29, 1959, p.3)

Therefore, if the community was meant to be the unit of planning<sup>12</sup>, then it could be assumed that a predefined social tissue was intended to be materialized through a properly designed urban tissue. The master plan of Islamabad had been utterly based on a series of autonomous human communities of various scales, which were, nevertheless, in an absolute and hierarchical manner interrelated – as specified by the ekistic principle, concerning the hierarchy of functions. This sequence of hierarchically ordered communities resulted to the already mentioned Class V human community, which presented the higher level of complexity and constituted the most extended area under the dominance of the human scale. This is to say that Class V human community, which was defined in spatial terms by means of a 2x2km square terrain and which could be fully accessible on foot by its inhabitants, without any real dependence on the machine, constituted a static, however autonomous and of a highest order integrated system of life, which became the modular for the development of Islamabad, or otherwise the city's sector.

The classification of human communities in Islamabad took place according both to their size and functions. More precisely, class I constitutes the elementary community, which derives from the coexistence of 10-25 families. A community classified as Class II, consists of approximately 75 families, or in other words of 3-5 communities specified as class I. Following, community class III, numbering

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<sup>12</sup> Further, on the interrelation between the new capital city's physical and social features, "*The basic principle that should be observed in the structure of a residential community is that its physical pattern should be in complete accord with the social organization of the human group that is expected to settle in them.*" (C.A.D.A., DOX-PAK-LH38, 1966, p.3)

600-700 families, is the outcome of several class II communities' coexistence. In its turn, class IV community, with an indicative population of 7.000-10.000 people, derives from the gathering of some class III communities. Finally, 3-4 class IV communities organized together create a community class V –numbering from 20.000 to 40.000 people- which, as already mentioned, constitutes the "*self-contained and self-supported with respect to everyday life*" (Doxiadis Associates, 1964, Bulletin 64) nucleus of the city. In complete analogy to size ordering, function ordering follows. More specifically, each distinct type of community shares a common functional element; for example, class II shares a playground for the children, class III an elementary school, for a class IV community the secondary school and a central market are the connecting elements, etc. The interdependence of diverse functional entities becomes evident, nevertheless, remains to be underlined the intention for "*their grouping and structure*", which "*should be rationally programmed and implemented*". (C.A.D.A., DOX-PA29, 1959, p.12)

The following notes of Doxiadis, which correspond to one of his visits in India, provide a clear aspect of his vision, regarding urban planning objectives and instruments.

For hours we wander into these housing schemes. They have been built during the last twelve years. They are all characteristic of the same spirit. I could say that their defects are the following: a) there is no creation of community spirit at all. There is no interconnection of the different buildings. On the contrary they look as being thrown on a vast land with no order. There is no formation of a social pyramid. No neighbourhoods, no communities. (C.A.D.A., India Notes, 1955, p.35)

The urge for implementing master plans with the idea of social pyramid being well kept in mind, signifies a lot. In fact, a strong commitment to social structuring is unveiled, which expectedly will take place on a basis of the proper spatial arrangements. Considering again the Islamabad case, as the ultimate criterion, in order that the social pyramid to be portrayed, had been defined the one of income –its objective features render it a highly efficient instrument. In more detail, all

human communities of Islamabad were organized, in accordance with a pattern of income status. To give an example and in reference to sector I9, four categories of income groups it was decided to coexist. The lower income group –classified as type A- corresponded to the 30% of the community’s total population, while a percentage of 40% had been reserved for inhabitants belonging to income group type B. Respectively, 20% of the population would be originated from type C income group and the rest 10% would correspond to the financially stronger members of the community (Doxiadis Associates, 1962, p.354). The lower was the complexity of the community, the less was the intermixing of diverse income groups –social integration was absolutely predetermined.

### **From the functional city to the functioning system**

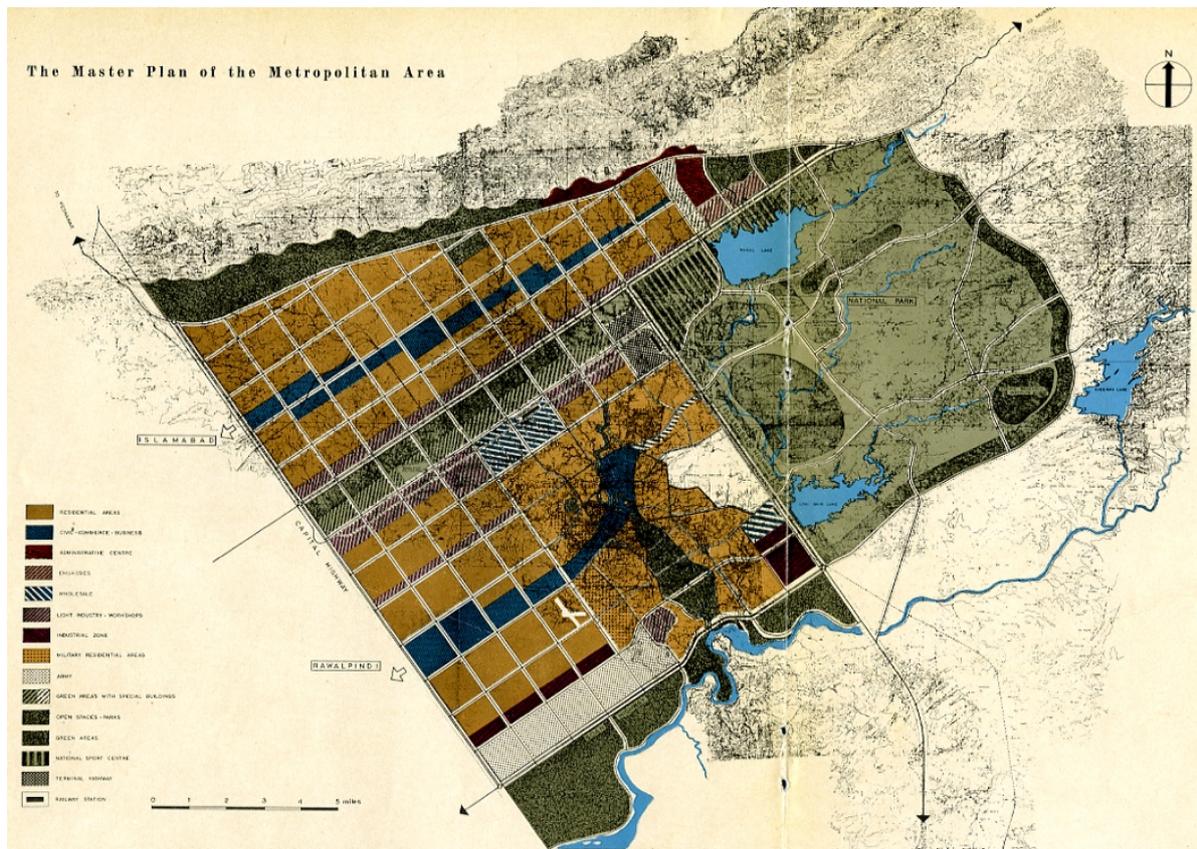
The human settlement of Islamabad, or otherwise the system of life of the Pakistani capital city, was created on the basis of the Ekistic philosophy. The latter constituted a multidisciplinary approach, which included extensive and exhaustive layers of analyses and respectively a highly disciplined layer of synthesis. The methodological approach of the Islamabad master plan offers a kind of confirmation on that. Both its social and urban tissues have been fragmented to the maximum possible extent, in order to be afterwards unified into a coherent whole, providing an ultimate level of control. Pakistan needed at that time to acquire a strengthened middle social class, as it was passing from the agricultural era to that of intense industrialisation and Islamabad, by means of its shells and networks, became the proper field for the desired social strata to flourish.

The ideal of the functional city, which constituted the cornerstone of CIAM manifesto, should not be appraised as an element completely detached from any humanitarian context. On the contrary and despite any failures of modern urban planning, as expressed through the CIAM rhetoric, the aim of social reformation was on the top rank of the modernist agenda. The idea of social equality and humankind’s well-being went along with the propagation of the functional city and more precisely it was considered that the viability of the former depended on the successful implementation of the latter. Both privileges and responsibilities

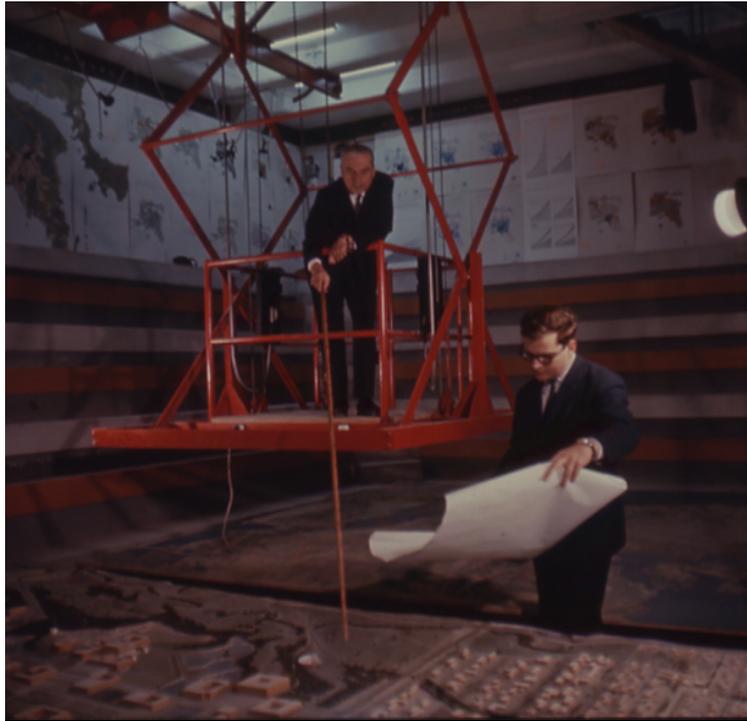
sourcing from the advent of the Machine Era concerned all members of the social strata, or otherwise everyone who *"have chanced to be touched by the sun"* (Le Corbusier, 1943, p.xix), as characteristically is referred in the introduction of the Athens Charter edition of 1943. This is to say that solely the shift in interest from spatial associations to human associations, as it was urged by the younger members of CIAM, did not actually signify a reorientation, in terms of pursued goals. Anyhow, the impact of the Machine Age could not be disregarded; mass production activities in order to be viable required a competent audience –both in terms of quantitative and qualitative features-, which at that moment did not exist, but needed to become existent. The creation of a shared culture at a global scale –where culture is comprehended as synonymous to mode of living- appeared to be the key factor. And the vehicle in order to create the required social content was considered to be the creation of the proper urban container both in the CIAM and post-CIAM period.

Accordingly, Doxiadis might have challenged the modernist functional city, however, he did not turn his back at the modernist ideals. On the contrary, he might be considered as one of the dedicated supporters both in theory and practice. His interpretation of the human settlement as a kind of system offered a fresh insight, in regards to the way of approaching urban planning. This is to say that it can be identified a shift in interest from the objective itself to the procedure that should be followed, so as the final end to be achieved. This kind of highly systematized and scientific approach, which included multidisciplinary research, analysis and synthesis at various levels, permitted the efficient management of complex and exceptionally changeable conditions. The idea of fragmenting all kind of involved parameters before their synthesis into a unified whole –which as per Doxiadis' perception was expected to reach the limits of a universal urban settlement-, implied the deep understanding and knowledge of these parameters and ultimately their control at the maximum possible extent. In a sense, Doxiadis' philosophy aimed to keep the path of dreaming wide open, or otherwise the path heading towards the ideal accessible, while by means of a reasoned methodology, protection against utopias was to be attained. Therefore, even though his gaze was focused on the path leading to humankind's future, equally and

simultaneously he was attentive with the very essentials that secured the system's function. That is why he urged that "Our primary duty is to understand that we must start preparing programs instead of plans" (C.A.D.A., DOX-PA29, 1959, p.2)



**Figure 1.** The Master Plan of the Metropolitan Area, including Islamabad, Rawalpindi and the National Park. In yellow colour the city's sector (Class V community) is indicated, while in blue colour the city's central functions (the so-called Blue Zone) can be seen. The southwest direction of future expansion is also portrayed.



**Figure 2.** Constantinos Doxiadis inspecting a model of Islamabad at his office premises in Athens. (Source: Constantinos A. Doxiadis Archives, © Constantinos and Emma Doxiadis Foundation)



**Figure 3.** Aspect of a neighbourhood's centre in Islamabad. (Source: Constantinos A. Doxiadis Archives, © Constantinos and Emma Doxiadis Foundation)



**Figure 4.** Aerial view of two sectors in Islamabad (G6-1 & G6-2). (Source: Constantinos A. Doxiadis Archives, © Constantinos and Emma Doxiadis Foundation)

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