



An investigation of urban process and mass housing estates development through topographical formations in urban peripheries: A case study of Famagusta, Cyprus

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ABSTRACT

Problems in mass housing estates in Famagusta, Cyprus, have been an issue for research on urban planning and policy interventions for many years. Neighbourhoods were designed featuring modernist residential tower blocks and suburban row houses with insufficient green areas and no consideration of either the climatic features of the built site or of urban planning, regulations or law. This study discusses ongoing, uncontrolled construction trying to change the contemporary urban environment, based on the features of housing and urbanism. It investigates whether the natural landscape and extensions to topography have played decisive roles in the construction of mass housing estate developments and uses of the rural periphery of the city. The study develops a base case of urban transformation models representing the morphological characteristics of buildings from three distinct construction eras (the 1970s, 1990s and 2010s). The information collected is enriched and verified by a site survey. Through three case studies, the types of buildings in each era are analysed and evaluated in relation to a number of environmental factors, including an analysis of the different context layers, to ascertain the existing strength of the urban block development configurations as well as to evaluate their shortcomings under the threat of urban sprawl. The findings not only provide ground research for developing urban retrofit scenarios but also employ sustainable planning tools based on those urban processes.

1. Introduction

This study considers the practical applicability of several theories on sustainable urbanism approaches, within the research context of large-scale mass housing estates in general and within the context of Famagusta and its urban agglomerations in particular. The study context is unique in addressing challenges of the coastal city of Famagusta's purpose-built residential buildings, urban renewal, neighbourhood approaches, implementation of sustainable conservation measures, housing policies and comparative research, especially considering the lack of contextual research which has been published with respect to all of these issues (Ozarisoy and Altan, 2017a). For review, the relevant literature was collected from similar case studies from other European countries. Many researchers have previously published on mass housing estates, so the relevant research topics include comparisons of estates in several countries, explanations of different applications of urbanism in mass housing estates, analyses of the upgrading and planning of existing residential building stock in 29 European estates and explanations of the varied implementations of the notion of sustainable urbanism and the planning of mass housing in seven distinctive world

cities (Murie et al., 2003; Kempen et al., 2005; Rowlands and Kempen, 2009).

Many other studies have compared estates within specific countries. The selected examples were based on a study of European Union members, a study seeking to understand the planning process of mass housing estates in five western European countries and examinations of mass housing design principles in eastern European countries (Urban, 2012; Czischke and Pattini, 2007; Whitehead and Scanlon, 2007). One study also analyses purpose-built residential buildings in 15 countries throughout all parts of Europe (Schwedler, 1998). It is interesting to note that the planning and design processes of mass housing estate development and policy-making decisions are strongly related to examining the topographical formation features and characteristics of existing residential buildings, particularly in European countries. In addition to the above-mentioned studies, some researchers have focused on policies or implementation strategies for improving occupants' well-being as well as on the energy efficiency and energy performance of existing residential building stock (Poel et al., 2007). At the same time, one study analyses applicable urban planning schemes for upgrading environmental design aspects during the early design stages of

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estates across Europe (Galvin and Sunikka-Blank, 2013), while another study compares urban renewal programmes in nine countries and also focuses on northwest European implementation of sustainability design principles for mass housing estates (Hens, 2010).

A territorial approach to activities having to do with the economy and the mass production of housing involves a territorial economy versus an urban economy (Ascione et al., 2015). This ideology studies the complex processes between man-made activities and the eco-cultural landscape on a globalised scale. In such a context, the geography becomes crucial, and the notion of territory describes the relationship between the cultural landscape and urbanisation processes. Another approach is related to the logic of urbanisation processes which yield large-scale mass housing estate developments. For Thomas (2009), the construction of gated developments and segregated societies raises issues through the transformation of urbanisation processes on a national scale related to territory authority and rights. It is also important to note that in the eco-cultural landscape approach, the study of such uncontrolled urbanisation processes becomes central. Yet the aim is not to reveal changes to eco-cultural landscapes but to use this concept as a hypothetical tool by which to investigate another way of reading the contemporary urban environment in Famagusta and its unplanned urban agglomeration regions. This approach becomes crucial in urban planning and policies, particularly in this research context, because new political structures and social hierarchies have emerged between urban and rural and also between cities and peripheries. This situation has led to a change in the path of the urbanisation process, which does not consider the topographical features of the land. For this study, it is important to discuss the role of the topographical formations and the eco-cultural landscape in urbanisation processes, because this discussion will become a hierarchical documentation tool to understand the interactions between man-made activities and nature.

This paper is structured as follows. It will first discuss the background and justification of the research, followed by the hypothesised relationship with regard to the relevant literature. This is then continued with explanations of the methodology employed. Preliminary findings and discussions are given prior to the conclusion.

2. Research context and sociopolitical background

Famagusta is directly connected to an intercontinental body of water in the Mediterranean Sea and, consequently, to its urban territory neighbours of Europe and the Middle East (Kottek et al., 2006). Its strategic location between Eastern Europe, the Balkan route and Southern Mediterranean countries makes Famagusta an exposed frontline city, subject to constant changes in the construction industry (Ozarisoy and Altan, 2017b). This coastal city is an anticipatory model for rapid urbanisation processes in evolving the urban morphology and ecological characteristics of the island, as shown in Figs. 1 and 2. In order for the city centre core to function, it is dependent on a continuous, densely populated area which makes no allowances for either physical or social boundaries to sufficient urban expansion. As late as the 1970s, the present urban agglomerations of Famagusta were one of the eco-cultural regions in Cyprus, a rural area of small farms and agricultural lands (Ozarisoy and Altan, 2018). However, due to the lack of stringent town planning regulations, after economic growth and its effects on the planning of large-scale mass housing estates, these rural settlements were transformed into an area of unplanned and uncontrolled urban development (Ozarisoy and Elsharkawy, 2017a). Today, the territory is characterised by an endlessly fragmented, repetitive stream of purpose-built or self-built residential areas and privately owned construction company-built mass housing estates, with no recognisable distinctions from the city centre (Ozarisoy and Elsharkawy, 2017b).

The city's role as a secondary city to the capital of Nicosia provides an appropriate model for second- and third-tier cities as well as towns which are projected to be the areas of more significant growth and

transformation in the future. It does so by offering alternatives for how these fragmented environmental areas may urbanise under the threat of rapid construction processes. Compared to other densely built Mediterranean coastal cities, Famagusta is dominated by large-scale residential developments, not only in the coastal regions but also in its semi-mountainous regions. At the same time, almost half (45%) of the owner-occupied building stock comprises self-built houses, often detached. The rest are low-rise (13%) or high-rise flats (44%) (State Planning Organisation, 2015). Mass-scale residential tower block estate developments are developed and regulated by privately owned construction companies. Such projects are often the size of whole city districts but are rarely geared towards the concept of a socially and functionally diverse and structurally open city. Current problems are aggravated when taking account of the implementation of green urbanism scenarios. The case examples chosen for this study are intended to explore, in particular, the possibilities offered by the eco-cultural landscape and topographical characteristics in Famagusta in formulating sustainable urban growth in the city's densely urbanised territories.

One approach is to consider urban-scale retrofit measures which are better suited to establishing a control mechanism within the construction industry and in residential sectors. For this reason, well-established tools and guidelines for retrofitting are required for mass housing developments. It is clear that the current supply of low, mid- and high-rise residential building stock cannot match the environmental design principles of current housing conditions and the current tools, to link existing construction practices and the implementation of a sustainable approach to urbanism.

2.1. Urban sprawl and its impacts on society

Famagusta is a confused as an eponymous, immaterial city. The functioning city is a heterogeneous, continuous agglomeration, spreading through the districts of downtown Varosha, midtown Varosha, upper-town Varosha and beyond its neighbourhood districts, as shown in Fig. 3. The vast expanse of low-density residential clusters scattered through the Varosha territory are representative of 1970s residential building stock. This area extends all the way to the Engomi territory, where purpose-built mass housing estates were built in the 1990s to tackle the housing crisis which had arisen from the demand for housing by the increased young population on the island. And more recently, in the 2010s, attention focused on the newly built mass housing estates in the city centre of Famagusta. During this period, the housing and construction industry were characterised by social, economic and political changes, and political priority was given to uncontrolled mass housing production. This led to insufficient planning of layouts, of the design of mass housing estates and of land-use planning which considered the topographical formations of the built site. It is also worth mentioning that about 40% of the total residential building stock in Famagusta was built in the period 1950–1970. Peak production was achieved in 1972 and 1973, at over 1500 houses a year (Statistical Service of Cyprus, 2010). According to these figures, the number of purpose-built houses in the pre-1974 period was twice the present volume of housing production.

Most urban and suburban housing schemes were constructed in these territories on a mass scale; these schemes comprised uniform, mono-functional housing construction in the urban agglomerations of the city. Yapicioglu and Lawlor-Wright (2014) claim that this mass-scale unregulated growth boosted the property market, aiming for the quick benefit of selling these properties to international buyers by privately owned construction companies. Although Yorucu and Keles (2007) explain that the outcomes of these 'property boom' years are evident where housing production reached a peak in the mid-2000s and early 2010s, not coincidentally, during these same years, detached or semi-detached housing peaked as well. Currently, housing estates are built as high-rise residential tower blocks in large quantities and at high

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