The challenges of introducing climate-responsive urban development to Mardin

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The old city of Mardin, mainly medieval in origin, is located on the slopes of a rocky hill in southeastern Turkey (see photo below) and has been named as a candidate for the UNESCO World Heritage List. My current research in the city is an extension of a previous study on climate responsiveness in the vernacular urban pattern of Mardin (see last year's *Heritage Turkey*). This earlier project revealed that the urban built environment in the heritage area of the city presents relatively more responsiveness than areas of modern development, in terms of adaptation to local climatic challenges, especially to extremely high summer temperatures. Building on the distinctive urbanisation types in both the heritage area and the area of modern development, the main aim of my new research project is to explore the views of local authorities – the decision-makers – about the challenges of introducing climate-responsive urban development practices (i.e. the architectural lessons learned from the past) to modern-day development in Mardin.

To achieve this, an 'elite' interviewing technique was used to explore the current planning and urban development system used in the generation of contemporary urban built environments. In order to access the key actors in the urban decision-making processes, I mapped out the institutional urban-development system in the Mardin (Turkish) context, and determined (1) the key institutions which have a role in urban development, (2) the key departments that are relevant to this research and (3) the key individuals who have directorship roles in these departments. Using the referral sampling method, 15 interviews were conducted in total.

One of the major outcomes of this research was the determination of the weaknesses of the existing planning and urban-development system that leads to the provision of climatically and socio-ecologically unresponsive urban living environments in the contemporary part of Mardin. This was an important and yet underexplored area of study. Preliminary results indicate that one of the main challenges that leads to uncomfortable urban experiences in the contemporary town originates from planning decisions which disregard the topography. Decision-makers explain that this is unavoidable because of the lack of vacant land on the slopes of the hills where the heritage area of the city sits. Challenges related to urban thermal comfort and the amount of energy consumed for the provision of a certain level of comfort start with this 'unavoidable', dense, high-rise and sprawling urban development in the modern area of the city. Although the lack of vacant land on the hillside leads planners to propose new development towards the agricultural plain, where the topography is relatively flat, this does not necessarily call for the building of high-density, high-rise apartment blocks.

There is no doubt that the role of topography (i.e. altitude and slope) in providing a cooling environment cannot be underestimated in the heritage area. But it is only one of the variables that influence the overall thermal comfort alongside other natural cooling sources (determinants of climatic characteristics) such as orientation according to the movements of the sun and/or the dominant wind directions.

The urban-development pattern in the heritage area presents a comprehensive 'design vision' which creates harmony between the forms and arrangements of housing units and brings order and structure to the streets, so that the built environment responds to local climatic characteristics and brings thermal comfort to everyday life. On the other hand, due to a lack of 'design vision' in the preparation of master-plans for the contemporary area, the city has been shaped with partial development decisions and without a comprehensive target aimed at creating urban settings that are more adaptive to climatic challenges.

Decision-makers claim that the planning board in the municipality faces various difficulties in terms of creating more responsive living settings. For instance, the small parcel sizes and the predominantly privately-owned land in the contemporary area make it difficult to provide sufficient hectares of green space, one of the crucial variables in the provision of cooling in densely urbanised areas. This calls for the development of a smart strategy which can both guide/direct and control private developers so that they implement construction projects in line with a predefined set of design strategies implemented by the local authorities.

Further challenges regarding urban development in Mardin will be discussed in my doctoral thesis, planned to be submitted to the University of Reading towards the end of 2015. Subsequently, based on the research findings and the video-data collected during fieldwork, a short documentary film will be published so as to engage wider audiences.