

Urban morphology and energy: progress and prospects

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The need to integrate research on urban morphology with that on energy has been argued previously in this journal (Oliveira and Silva, 2013). Despite well-documented evidence on the influence of the physical patterns of urban areas on present and future energy demand, urban morphology and energy studies exist in largely separate worlds.

Discussion on the need to rectify this has progressed little. The very complexity of cities is a factor: it is an obstacle to the emergence of integrated, accurate studies aimed at assessing or improving urban performance. It is also difficult to isolate urban form from other drivers of energy demand, notably social factors. For instance, Kitamura *et al.* (1997) note the correlation between higher income households and suburban detached house types, both of which are associated with commuting by private vehicles.

There are many variables of urban form to be considered. While many studies have focused on a limited set of factors, notably density and land-use admixtures (Cervero and Kockelman, 1997; Newman and Kenworthy, 1989), there is a larger set of urban characteristics that has not been widely explored, particularly micro-scale attributes (Soltani and Allan, 2006). There is also some lack of clarity in defining the aspects under investigation.

A complication in quantitative analysis is the degree of interaction between variables: for example, while dense urban form is often advocated to reduce energy demand for travel, it is not entirely clear whether density itself is the causal factor or variables with which it is associated (Ewing and Cervero, 2001).

Two key components of urban areas (buildings and transport) are frequently addressed in isolation, although it is often acknowledged that they should be considered together to account for eventual trade-offs (O'Brien *et al.*, 2010). An asset of urban morphology is its ability to

deal with both the built environment and urban networks: its concern with interrelationships is an attribute that enables it to contribute to more efficient urban performance (Behnisch *et al.*, 2012).

The shortage of detailed, robust geographical data at high resolution is a problem. There is also a tendency in addressing resource efficiency problems to shift the focus from a planning-oriented paradigm to other aspects of urban areas. Technological remedies are increasingly gaining support. However, before resorting to technological add-ons, attention should be given to the physical and spatial patterns of cities as the basis upon which to achieve urban efficiency. Building urban areas with resource-efficiency awareness should be a major goal.

To build a consistent energy-efficient planning paradigm, it is essential to be able to estimate how much energy could be saved, or how much greenhouse-gas emission could be avoided, by choosing particular urban forms. Such a framework should be flexible enough to have applications worldwide.

The contribution of urban morphology is needed in providing a basis for urban efficiency, in supporting the development of innovative and integrated analytical approaches, and in underpinning detailed guidelines for action. The creation of an expert group on the analysis of the energy implications of urban form could provide a significant contribution to the energy efficiency agenda.

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Second PNUM Workshop: Urban forms and dynamics in cross-border contexts

The Second PNUM Workshop will take place at the Escola Superior Gallaecia (ESG), in Vila Nova de Cerveira, Portugal, from 19 to 23 July 2016. It will focus on urban forms and dynamics in cross-border contexts, addressing, in particular, the relationships between the regions of Alto Minho, in Portugal, and Galiza, in Spain. The two selected case studies are Viana do Castelo (Alto Minho) and Tui (Galiza). Although taking place in Vila Nova de Cerveira, the workshop will include field trips in Viana and Tui. This one-week workshop is particularly relevant to students, academics, researchers and professionals in the fields of architecture, geography, planning and history.

The workshop will start with the presentation of different morphological approaches – historico-geographical approach (Conzenian School), process typological approach (Muratorian School), space syntax and a number of quantitative GIS-based approaches. At the end of the first session, participants should be able to choose one morphological approach. They will be divided into groups according to their selected approach. On subsequent days, each group will apply the selected approach in case studies in Viana and Tui. On the last day, a comparison between the different approaches will be developed, demonstrating the potential and weaknesses of each approach, as well as the complementarities.

The Organizing Committee of the workshop includes David Leite Viana (co-ordinator, Escola Superior Gallaecia), Xosé Lois Martínez Suárez (Universidad A Coruña), Vítor Oliveira (Universidade do Porto) and Paulo Vieira (Câmara Municipal de Viana do Castelo). The Advisory Council includes Rui Florentino (Escola Superior Gallaecia), José Juan González-Cebrián Tello (Universidad A Coruña), Maria Manuel Oliveira (Universidade do Minho) and Staël de A. Pereira Costa (Universidade Federal de Minas Gerais). In addition to these researchers, the Scientific Council includes: Teresa Marat-Mendes (ISCTE – Instituto Universitário de Lisboa), Frederico de Holanda (Universidade de Brasília), Jorge Correia (Universidade do Minho), Miguel Bandeira (Universidade do Minho) and Nuno Norte Pinto (University of Manchester).

The workshop is supported by the Portuguese-language Network of Urban Morphology, the Centro de Investigação da ESG (CIESG), the Câmara Municipal de Viana do Castelo and the Concello de Tui. The normal registration fee is 150 € and the reduced registration fee for students (including PhD students) is 100€. The period for registration is open from 15 January to 15 May. Further information is available at the workshop website (<http://www.esg.pt/pnum2016/#>).
