

HOW TO PICK RELEVANT SUSTAINABILITY CRITERIA FOR THE BUILT ENVIRONMENT: A BOTTOM-UP APPROACH

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Abstract. The sustainability agenda is already taken in consideration widely in disciplines dealing with the built environment. What here is less agreed upon is how exactly each discipline herein repositions itself with regard to this agenda. This is exemplified when examining the fields of planning and real estate – two fields that actively embrace sustainability goals, but from two very different starting points. Planning approaches predominantly share a broader socio-spatial logic in their examination of areas, whereas real estate, by definition, works from the level of individual building and site, from which it potentially can connect with broader urban and economic concerns. There is also a constant interaction between the two: cities do not exist without homes and workplaces for their inhabitants; on the other, a well maintained and high quality urban amenity level together with timely provision of buildings and building land will keep property prices at moderate levels. This paper suggests a bottom-up oriented approach to overcome the friction between the two fields. This idea can be applied for analysis of either individual property management or revitalization of whole neighbourhood. This is demonstrated with the case of Portsmouth (UK).

Key words: built environment, planning, Portsmouth (UK), real estate, sustainability.

1. Introduction

The sustainability agenda is already well-established across the spectrum of disciplines dealing with the built environment. This seems to be the case even in some of the more practice oriented fields. On the other hand, while different disciplines within this broader category of scientific studies may be acknowledging the need to adopt new concepts, in the face of new challenges, they may not share one and the same paradigm. This is because each of them operate from a deep-rooted scientific and political position. So when we look at two fields, they both may be moving towards something defined as

sustainable built environment, but from very different starting points. Comparing planning and real estate fields exemplifies this point.

Even if planning practice and real estate industry still struggle to find a common ground, the sustainability agenda has become increasingly widespread in both built environment professions. This paper examines the ongoing discussion in relation to sustainability by challenging the capacity of planning, on its own, to deliver anything related to *true* sustainability. In doing so, the aim is to reiterate arguments about how localized real estate situations might

contribute to improvement of the wider area – before being subject to the ‘magic touch’ of planners. A case study of Portsmouth (UK) illustrates the arguments about neighbourhood revitalization using a bottom-up real estate oriented approach (as opposed to a planning approach).

2. The sustainability challenge as a new approach

Within Built Environment studies, the *sustainability* concept means balancing environmental, social, cultural and economic dimensions in a defined area (hence urban sustainability, regional sustainability etc). This model is illustrated in Fig. 1. It is closely aligned with the global sustainable development agenda established in the eighties (following the Brundtland commission), and which, a decade or so later, also was adapted into built environment studies (e.g. Cox *et al.*, 2002).

When breaking these dimensions into specific criteria the picture easily becomes complex. Below is an example of a suitable check list for our purposes [1]:

- Environmental-ecologic [2]: modern or eco-certified buildings, durable construction materials, reuse of old building materials, brownfield site, recycling of waste, accessibility by bicycle and public transport, amount of green areas, car parks, clean premises and air, safety against threat from environmental hazards, walkability (on-site), and similar criteria.
- Social: Social cohesion and inclusiveness (fit or isolation in demographic terms), asocial behaviour, children’s playgrounds, leisure and recreational opportunities, safety against crime and assault, security measures,

transport links, and similar criteria.

- Cultural: Preservation and awareness of the local heritage and history, strong *sense of place*, aesthetic design or natural elements, fit with surroundings and the rest of the area in terms of style, supporting local artists and traditions, and similar criteria.
- Economic-financial: Stable value uplift due to high quality, diverse or mixed character of functions, favouring local producers or artisans, use of *economies of scale* to promote affordable prices, *hitech* and ICT based convenience, transparency of the land and property development process, financial self-sufficiency, negotiation of lease terms (e.g. for sublets), and similar criteria.

Here one should note that different sustainability ideas have different applicability depending on the exact definition, as the use of concepts such as smart city, eco-city, green city, or low-carbon city shows (see Anthony *et al.*, 2018).

When entering any debate about urban sustainability the main issue concerns what exactly should be built in a given area in the foreseeable future in order to accommodate the projected number of in-moving households and firms. The issue is primarily about the volume and type of property development – both new and regeneration. It is also about variations in on- and off-site infrastructure concerns. What kind of buildings would be feasible on this site? How would the necessary traffic arrangements be solved? Where and how to provide sufficiently green spaces and public footpaths and communal areas? And so forth.

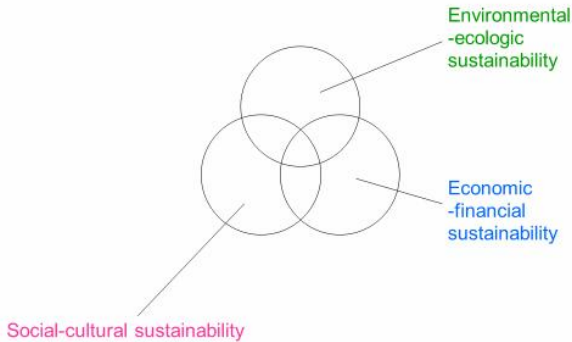


Fig. 1. The multidimensional sustainability model.

To deal with these questions responsibly furthermore requires well-founded argumentation about economic, social, cultural and environmental long-term implications for the affected area and its current and future property stock. At the core of this discussion is the divide in perspective about how to balance the long-term property value implications and the even longer-term vision of a prosperous, just, functional, clean and convivial urban environment. Some of this discourse is examined in the remainder of this contribution.

Apart from the discussion on how land and property prices react to various land use regulation measures, lots have also been written on how area density affects different dimensions of sustainable urban development and urban sustainability (see e.g. Bramley et.

al., 2009; MDPI, 2014). Here the issue still concerns economic benefits, usually measurable in property value or rent levels, but the time perspective is now extended from the standard short term analysis of economics to the long term analysis of sustainability (Kauko, 2017). In economic terms, higher density – so more efficient building arrangements – normally should be considered more energy efficient, but there are exceptions, for example, small projects might allow better use of innovations, as they can be tailored to the particular green features, such as water collection systems (e.g. Ganser and Williams, 2007); or a heating-cooling system that utilises differences between day and night time ground temperatures (see e.g. REEEP, 2011) [3]. Sometimes findings run counter to the received wisdoms. For example, Bramley and colleagues (2009) have found social

problems of too dense neighbourhoods offsetting any benefits of compactness. These findings were subsequently confirmed by Dunse and colleagues (2013).

In the sustainability discourses on real estate, land-use and urban form compactness nevertheless is seen as a virtue. For example, in New Zealand, when the spatial building and development policy was deregulated completely and the resulting neoliberal policy led to a pattern of densities that surely was too low and thereby considered unsustainable. Subsequently, the policy changed towards reregulating the land use again. Here it is to observe that the change in density does not have a uniform influence on the use of the site or property prices, because the new stock is never exactly comparable with the old stock (cf. Kauko, 2003a,b; Cheshire, 2005). It is thus not a straightforward approximation of economic sustainability. Elsewhere Jones and Evans (2013, p. 207) point out that building on brownfield land is not by definition more environmentally friendly than building on green field land, as the evaluation of the outcome depends on several aspects of the overall planning of the settlement such as connectivity to existing infrastructure networks.

Several studies coming from different disciplinary traditions broadly agree on certain key directions to take. For the social dimension, Colantonio and Dixon (2011) examine the prospects for designing valid urban sustainability metrics, both traditional (statistical) and emerging (other) ones, and note a variety of hurdles to overcome: lack of scientific basis; lack of practical utility; confusion in terminology between national and EU legislation; and

discrepancy between (possibly holistic) theory and methods that may be only about costs related to benefits.

Findings by Eichholtz, Kok and Quigley (2016) suggest that a tenant might prefer to lease greenspace if media has created a favourable image for such choice. More specifically, in a comparison between corporate real estate choices within the US office market (over 11,000 tenants in 2015), Eichholtz and colleagues found that some corporate tenants (in particular, corporations in the oil and banking industries as well as non-profit organisations) are likely to prefer *green* buildings rather than *conventional* buildings. Furthermore, these authors conclude that tenants in tertiary sector industries (financial sectors and service industry) have high human capital intensity, which is positively related to the propensity to lease *green* office space. Here one may predict that this will further attract institutional investors. One would also suspect that cross-country differences would show up if the study was replicated elsewhere. While this might not yet be the case, studies with some notable similarity already exist (Hegyí *et al.*, 2016; Razali *et al.*, 2017; Oyewole and Komolafe, 2018; Sundfors and Bonde, 2018).

Moving the analysis from the level of floor-space and building to the level of site and location is bound to generate more insight to the concept of built environment sustainability. At the same time we are then also broadening the perspective from recommended *green* building characteristics to more holistic criteria. As the leading global expert organisation in built environment context RICS (2016) highlight the importance of sustainability (i.e. the

green agenda, sense of community and long term marketability prospects) for the viability of new residential developments. Intuitively, place making and property value are concepts with natural feedback relationship between real estate economy and broader place development goals. Improving the place quality generates market attractiveness and *vice versa*, increased demand triggers (at least in theory) the improvement of various amenities associated with the location. So quality improvement increases the economic activity; and this market expansion, again, can lead to further quality improvement.

While the urban land economics literature on place quality dates back to at least 1970s, recently RICS has taken this relationship on board in their evaluation of development practice. Evidence from five case studies carried out in south-eastern parts of England points to the importance of master-planning and phasing; social and commercial infrastructure; good design of location and space; green infrastructure and landscaping; and to fill the obligations of providing affordable housing and following construction standards. This can be considered best practice of creating sustainable real estate locations with prospects for deriving commercial value from selling residential property. Thus it is anticipated that the market prices a successful scheme at a premium. While this is likely to work more often for low priced areas than for their high priced counterparts, when it does work for the latter, the premiums generated tend to be high. Here is obviously a variation across the locations studied as well as within each location across the range of property types provided (RICS, 2016).

From these findings we can make a connection between a steady long-term price increase and an appropriate quality improvement for a given site or area. The real problem here is to fit the goals of private and public actors together, as the tensions between planning and property development are a common problem to solve (Grant, 2009). Planners aim at increasing suburban densities but at the same time developers can challenge planning principles related to urban form and function. Canada, she explains, is traditionally a country where urban sustainability principles including New Urbanism have been embraced. As a particular issue it is apparent that, by the mid-nineties, the Brundtland report had influenced the urban development of Canadian cities.

The problem with planning theory, Grant notes (in Canadian circumstances), is that it is so abstract, in relation to practical concerns. She found that counsellors and planners on one hand and the developers on the other make concessions towards a compromise solution. She accepts that planning policy alone cannot transform land development patterns. However, her findings show that, on the one hand, planners think they can influence consumer preferences in the long run, but on the other hand, no matter what planners try, the market tends to resist it. As a general point this account is agreeable, for example in the UK it is already common knowledge (following the notorious Barker report of 2004 [4]) that planning induces happenstances concerning affordability and shortages in housing and office space. So deciding on apt adjustments to the balance between planning and real estate is far from straightforward. And

because of this we may ask: to the extent that *truly* sustainable planning exists, what is the role of individual real estate situations in securing the sustainability element? Can we build up a location strategy based on isolated sites and buildings?

3. Islands of Property Management as an innovative approach to combine the two fields

The discussion above points to a friction between the two levels of analysis: one, individual buildings and property rights; and two, neighbourhood and urban level. The former analysis is simpler and familiar to real estate economists and probably to property valuers too. The latter analysis is more complex and should be familiar for social scientists, geographers and, indeed, present day spatial planners. This is why a potential innovation referred to as the *Islands of Property Management approach* is proposed as a way to overcome – or at least substantially reduce – this friction.

The idea here is to look for common denominators – we are after all dealing with same ingredients, even if we use them in different order. Namely, property price, area density and quality effects of neighbourhood revitalization are in constant feedback relation, as variables have an effect on one another (e.g. Dunse *et al.*, 2013). Management of individual buildings will inevitably result in the way the surrounding area is kept. On the other hand, neighbourhood revitalization, is likely to influence the price level of the property (total, per sqm. floor space, per sqm. land) either negatively or positively. If the intensified management of individual buildings leads to their improvement in quality, then the outcome also represents a

gradual upsurge in the standing of the neighbourhood – in environmental, social and economic terms. Here is also link to the more general spatial analysis literature as such ‘islands’ of individual well-managed buildings can then act as ‘cells of development’. This is based on an original idea by Wallner and colleagues (1996), but as modified to a smaller scale analysis [5].

When the issue of improvement of an area is reduced to purely economic terms (so a traditional mode of urban land and real estate economic analysis), the issue is about how a change in permitted area density (zoning) influences property prices (Dunse *et al.*, 2013). The starting point is that demand is required to induce that price increase. Then we experience an immediate effect: more floor-space (or higher plot-efficiency ratio) increases the total price increase, unless this is something akin to a trophy property with antiquarian value. Furthermore, this effect also increases the unit price for land. However, the same effect, when realised, due to decreasing marginal benefit, reduces the unit price for floor-space. These effects notwithstanding, improved on-site and off-site amenities as well as upgrade of building quality (e.g. insulation) push all price measures upwards as demand for the built-up property packages increases. The challenge however is to show all this empirically – and when possible, expand the analysis towards the noneconomic dimensions (referring to Fig. 1 earlier).

So we need to find real cases where some kind of major improvement is likely in the foreseeable future – in this case locations from Portsmouth (see also University of Portsmouth, 2017).

So what exactly should be built in Portsmouth in the foreseeable future to accommodate the growing number of inhabitants and firms. What would be the volume and number of property developments – both new and regeneration – as well (green spaces) as infrastructure concerns? What kind of buildings (both office and apartments) would be feasible? How would the necessary traffic arrangements be solved? Where and how to provide sufficiently green spaces and public footpaths and communal areas? When attempting to answer these questions, we should develop well-founded arguments about economic, social, cultural and environmental long-term implications for the affected area and its current and future property stock. Neighbourhood revitalization of Portsmouth is here examined from the vantage point of individual real estate management plans and best practices.

As already suggested, this is a bottom-up approach based on improvement of individual buildings and sites, as opposed to a top-down approach typical for using the town-plan as a starting point (cf. Kauko, 2015). The idea here is that by improving individual units of real estate, also the whole area will be improved as a consequence, although this will take time and proceed piece-by-piece. As units of real estate comprise both building and site, and as value also is derived from its immediate surroundings, this involves a three step thought procedure as follows:

1. How could the *building* be improved best, so as to facilitate an optimal functional aptness and maximization (or merely protection) of value? This might mean change in use and designing new features, or it might mean protection of existing use and features. And what about the security and safety aspect? [6]
2. As *on-site* amenities are vital for the quality and value of any unit of real estate, how could the site (i.e. front garden and backyard for built property) be improved best, so as to enable swift logistics and also provide a pleasant recreational space for its occupants and users (without forgetting the above mentioned safety/security aspect)?
3. As also *off-site* location matters significantly for the ease of use and creation of value, how could the vicinity be improved as well? How this takes place is depending on the specific micro-location, but here two main features can be singled out: amount of green space surrounding the site and the traffic arrangements leading to the site. Are there any kind of nuisance factors (i.e. negative externalities)? If yes, can these be abated? And above all: how to coordinate the suggested improvements with neighbouring property owners?

These three levels of analysis define the limits of a real estate oriented approach, where urban planning is only a parameter. Planning practice, in turn, relates to a number of environmental, social, cultural, behavioural, economic, legal and administrative goals, at least partly uniting them. Many of these issues concern the balance of seemingly opposite ideals on how planning is meant for the common good; it can be about development or protection of something, and about tangible or intangible factors. In other words: we have to evaluate different arguments when looking at current and anticipated state of affairs.

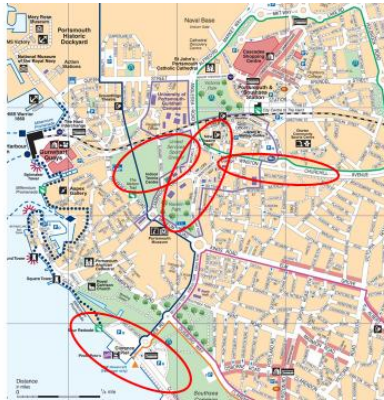


Fig. 2. Map of Study area in Portsmouth City Centre and Southsea.

4. Case: City of Portsmouth (UK)

The set of issues discussed so far concern the way decisions are made in relation to various economic, social, administrative and image related pressures. These concerns are also present in the case of Portsmouth (UK). From this city three different sites, where redevelopment is planned, are picked for scrutiny (Fig. 2):

- Central areas affected by the City Campus masterplan, including landscaping and making a section of a busy traffic artery (Winston Churchill Avenue) more friendly towards light traffic, and even pedestrianizing a part of it (Hampshire Terrace).
- Royal Navy and Ministry of Defense green spaces (two sports facilities separated by Burnaby Rd within an area enclosed by four streets: Park Rd, St. Georges Rd, Cambridge Rd and St. Michael's Rd) in a central location that until now has blocked the connectivity and walkability between the central area and Gunwharf Quays, as this area is fenced off private property.
- Redeveloping an old leisure site by the waterfront (Clarence Pier) as site for future four-star hotel and conference centre. Here the task is to avoid a new Gunwharf Quays (a mixed use redevelopment of a former Naval site with historic significance, situated further northwest along the waterfront of a central part of the city), while still utilizing the expensive land value of this location efficiently.

So the first two of the sites are situated in the City centre and the last one in Southsea, the coastal part of this city, as shown in Fig. 2. (Here it is to note that no decisions of approval with regard to any of the affected sites are yet made at the time of writing.) The method for examining these sites is relatively small-scale: built on expert discussions, documents (i.e. content analysis) and site visits. This research design fits the qualitative purpose of the study where narratives and observations form the basis for conclusions.

The issues at stake concerning sustainability evaluation of planned development can be illustrated also in these sites (see Fig. 2):

- The City Campus masterplan, including plans for pedestrianizing some streets, would improve the walkability and connectivity and reduce pollution; however, it is likely that the traffic burden on other streets would be heavy and rerouting the cars poses here a serious conundrum to solve.
- The Royal Navy and Ministry of Defense green spaces will probably become available in 2020 for development, and then a large proportion of hitherto closed areas is likely to become accessible for the public, which will provide considerable enlargement of the walkable and public part of the city centre. However, the Navy and Military do, then need to find adequate replacement areas for their physical training elsewhere.
- Clarence Pier waterfront is a key location and already high land value necessitates efficient development; however, the aim is to try to avoid *bling* buildings and isolated areas as Gunwharf Quays discussed earlier, and aim at some sort of community oriented and environmentally friendly model instead.

In this context we note that The University is a major stakeholder in the urban regeneration of the city centre and will invest in public space and buildings (new and refurbishment of existing buildings) based on its new Estates Masterplan (University of Portsmouth, 2010). This document has a number of statements and visions relevant for the use of the campus area (so the first site above):

- Aims 'to contribute to sustainable economic, social, cultural and community regeneration and development'.

- Focuses on an area known as University Quarter [7]. Preserve this focus and resist temptation to move outside it.
- The legacy of the outgoing plan (2006-2010) is positive in so far as the University has managed to maintain its estate in good standard with spatial utility levels in line with best sector practice.

These views are furthermore meant to align with the shared vision of Portsmouth 'Urban Futures Manifesto for the sustainable urban regeneration of the City of Portsmouth' with its nine strategies (following University of Portsmouth, 2017):

1. Urban culture and heritage - maintaining Portsmouth's unique sense of place.
2. A public space network for a compact, walkable and mixed use Portsmouth.
3. Mobility - moving around Portsmouth conveniently.
4. Transforming the waterfront to a resilient, future-proof Portsmouth through citizen engagement.
5. Inclusive mixed-use urban living in Portsmouth.
6. High-quality architectural design as a catalyst for a better city.
7. Smart citizens, smart energy.
8. Thinking long-term and making the most of what we have.
9. A vibrant University Quarter in the regenerated heart of the city.

The notion of tensions between planning and property rights in an urban setting sets the tone for the negotiations concerning the specific sites and areas owned by University, Navy and Ministry of Defense, and City Council. In Portsmouth a shift in functions is taking place: from military to commercial, recreation and leisure oriented use of urban environment. It could be said that

this city is in many ways a 'hidden gem' – a seaside town with character. Inhabitants may be comparatively poor and uneducated, but, as a casual observation, these people seem relatively happy. Here seems to be lots of potential to realise – but on whose terms? However, that stable long-term economic growth is anticipated at the city regional level is debatable. This is due to the decline of traditional industries and easily accessible development land (CoStar, 2017).

In this city the main dynamics is much determined by the diminished role of the Royal Navy, unavoidable due to budget cuts and falling further behind global super powers in technological development. Here is nevertheless an optimistic hope of city revival based on the tourism industry. As *The Economist* (Anonymous, 2018, p. 31) puts it:

To understand how seafaring Britons, in romantic moments, see their island's maritime story, it helps to join the tourists taking a cruise around the harbour that was once home to the world's mightiest navy. In the same skyline, visitors are urged to admire the finest of the old and the shiniest of the new. Gazes switch from the oaken planks of *HMS Victory*, from which Admiral Horatio Nelson smashed the French and Spanish, but lost his own life in 1805, to *HMS Queen Elisabeth*, a new aircraft-carrier which is by far the biggest vessel ever built for the Royal Navy.

In the study area the cityscape is much dominated by connotations of a glorious past – be it the great imperial naval heyday or the dignified working class culture of more recent times. Traditionally the Naval presence is strong in this city, which also forms the core of the proud heritage of war memorabilia and the settling of remote parts of the

British Commonwealth, grandiose sailing and sea-travelling legacy, together with the strategic (but hitherto diminished) port functions and shipbuilding industry of this city. On top of this, a good measure of British seaside holiday nostalgia can be added to this image of Portsmouth. Lastly, to balance the historical weight, the presence of a modern University, lots of trendy cultural activities and a large population of smart young bohemians adds a more modern element to this set-up.

On the other hand, today serious problems in the functionality of this city are caused by backlogs in the promotion of walkability, connectivity, mobility and traffic arrangements as *The Urban Future of Portsmouth* manifesto discussed earlier notes. Each of the three cases under study illustrates a specific point here:

- The City Campus masterplan needs to connect the city centre quarters with the seashore seamlessly.
- The Navy/Ministry of Defense green spaces could satisfy much of the demand for public recreational spaces in the city centre.
- The Clarence Pier needs a renovation and the surrounding waterfront area needs to be utilized better than what currently is the situation.

4. Concluding remarks

Planners often think that they can generate the sustainability enhancing features required for improvement of the built environment. Perhaps so, but they cannot, arguably, do it in a vacuum. At the very least, they need to intersect their ideas with those coming from their counterparts in the real estate field. And sometimes it may even be more beneficial for everyone if the real estate industry is put in the driving seat. This is the philosophy and basic principle of the

approach proposed in this paper – this was referred to as Islands of Property Management. However, in this kind of bottom-up approach, the same logic applies as in the planning critique above – albeit in a reverse: here the scale ought to be extended from performing simple tasks about floor space optimisation towards examining the place in its complexity. This was also evident in the cases brought up: the urban development potential of Portsmouth is likely to be hampered unless comprehensive infrastructure considerations and community interests are taken seriously. And this limitation has to be brought to the fore alongside economic prospects.

5. Notes

- [1] This set-up is also used in the author's own teaching activity.
- [2] Whilst acknowledging that these two dimensions are essentially different, they tend to be 'lumped together' in much of built environment studies.
- [3] To give an extreme example, the Brahma Kumaris organisation constructed their first green building in 1993, and strongly opposed to contemporary luxury 'bling' developments (hotels, offices and residential towers) that consume far too much energy and are thereby unsustainable to the extreme. The future, they predict, is to go back to the traditional building type that still seems to do well in historic cities all over Europe.
- [4] The *Barker Review* targeted housing affordability problems resulting from land use constraints at government level (see Barker, 2004).
- [5] In the original idea of Wallner and colleagues (1996) the scale was however different: it was suited for using small areas as 'cells of development' to revitalize a whole urban area/region (see also Kauko, 2015).

- [6] Recently fear of crimes has grown and one main reason has to do with uncontrolled immigration, ghettoization and terrorism threats (Kauko, 2018).

- [7] It is to note that this is not the name of historical neighbourhood.

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