

Tensions and complexities in creating a sustainable and resilient built environment: Achieving a turquoise agenda in the UK

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ABSTRACT: The paradigms of sustainability and resilience have significant impacts on both research and practice in the built environment, framing ethical postures towards the fragile relationships between the built, the natural and the social environments. Both paradigms adopt a systems approach to the understanding and the embracing of complexity, highlighting the importance of long-term effects and a holistic view of highly interconnected variables. However, a careful look at policies shows that these paradigms also emphasize diverging priorities and relationships, and that there is often a prioritization of one agenda over another. Such tensions create increased complexity in policy and decision-making, potentially undermining both agendas. In this paper we examine the tensions and compatibilities between these agendas through an analysis of 43 UK policy documents, and 21 interviews with stakeholders involved in the planning, design, construction and operation of the built environment. Our analysis reveals a series of recurrent tensions that occur when theoretical approaches are translated into the ‘green’ (sustainable) and ‘blue’ (resilience) agendas. Incapable of dealing with this increased complexity, decision and policy makers simplify and ‘instrumentalise’ several core principles, creating additional tensions. Rather than determining objective concepts that decision-makers can directly translate into action, both paradigms lead stakeholders to create their own dynamic representations and meanings in an iterative process influenced by theory and practice. The findings have both theoretical and practical implications. Conceptually, they help to draw clearer boundaries between the two paradigms. In practice, they show that narrow and simplistic representations of these paradigms make it difficult to reconcile the two agendas. The paper raises important questions as to the plausibility of a ‘turquoise’ agenda, and suggests the need for a more nuanced representation of the two paradigms.

Keywords: sustainability, resilience, tensions, policy analysis, UK.

1. INTRODUCTION

Urban planners, architects, builders and other decision makers who influence the built environment are increasingly asked to respond simultaneously to policies aimed at enhancing sustainability (Bagheri & Hjorth, 2007; Lam, et al. 2009; Sjoström & Bakens, 1999) and resilience (Boshier et al., 2007; Dainty & Boshier, 2008; Davoudi et al., 2012). This is hardly surprising, considering that the built environment is largely responsible for environmental degradation (Robichaud & Anantatmula, 2011) and for the vulnerability of households and communities in the face of natural hazards and man-made threats (Birkmann, 2006; Lizarralde et al., 2013; Wisner et al., 2004). The sustainability and resilience paradigms share a dynamic systems approach to the understanding and the embracing of complexity (Bagheri & Hjorth, 2007; Alexander, 2013). As such, both are particularly concerned with fragile relationships between interconnected variables and with long term effects analysed in a holistic manner (Manyena, 2006; Martin-Breen & Anderies, 2011; Wheeler, 1998). However these paradigms also significantly differ demanding important trade-offs in the decision making process. Given these synergies and discrepancies, we explore how policy and decision-makers navigate the integration of these agendas in the built environment through an analysis of the policy documents that they generate, and how their integration can be better conceptualised in a more nuanced and realistic way

2. METHOD

When analysing how policy and decision makers navigate the paradigms of sustainability and resilience, this paper relied on three approaches: from the perspective of practitioners; from the perspective of policy; and from the perspective of norms and standards. It included five main steps conducted in an iterative manner: 1) examining of the most common journals in resilience and sustainability through common databases (ex. Science Direct), using keywords such as: Sustainable construction, Sustainability, Resilience, Adaptation, Disaster Prevention, Sustainable development, etc.; 2) defining a methodological framework to scrutinise policy and stakeholders’ perspectives; 3) creating a database of documents related to resilience and

sustainability and issued by the UK Government between 2000 and 2013; 4) examining the database through frequencies of word use (including the use of conceptual mapping and clouds); 5) analysing transcripts from 21 interviews conducted with construction project stakeholders and local authorities in the UK. The final step of the study consisted of comparing word uses, frequencies and discourses among the three types of documents and the transcripts of the interviews. This content analysis enabled patterns and analytical generalizations to be drawn among each group; quotes are provided to help illustrate the differences and synergies found.

3. THE GREEN AND BLUE AGENDA IN THE UK

In 2011, the government published the Vision for Mainstreaming Sustainable Development, a policy document that shapes government responsibility for sustainability and expresses the commitment of the coalition government towards the green agenda (DEFRA, 2013:4). Representations of sustainability put forward in these documents are largely influenced by the Inter-Governmental Panel on Climate Change (IPCC), international standards, and European Union policies. On the other hand, stakeholders create simplified and less sophisticated representations of sustainability in which they find important apprehensions between economic and environmental performances.

Definitions of resilience in the UK underpin the development of all subsequent resilience-related work, the identification of people who might be vulnerable in a crisis, data protection protocols, cyber-security programs, and plans for the protection of critical infrastructure and for the prevention of violent extremism. It is understood in policy that it is impossible to fully eliminate the risk (it may also not be desirable in some cases, as risks may provide new opportunities). Resilience is thus seen as a way of building capacity to respond to extreme events and as the required response to emergency and return to normality (notably to guarantee business continuity). Practitioners however create different representations of resilience: as a buzz-word that does not mean much in practical sense; as robustness and the ability to cope with abusive use of the buildings and facilities on a day-to-day basis; or as an ability of a property to bounce back to the state it was in before the event happened. However it was also stated that other important characteristics of resilience include flexibility and an ability to mutate and remain adequate as the context changes. Some respondents referred to the ability to survive on the market and the ability to change.

4. TENSIONS BETWEEN GREEN AND BLUE

The agendas of sustainability and resilience also find diverging principles and emphases. We find five additional tensions between them.

1. *Achievements vs. Capacities*: The sustainability agenda largely focuses on what can be obtained in terms of energy consumption performance and CO₂ emission reductions. This is simultaneously the cause and the consequence of an important emphasis on standards and performance assessment methods in the green agenda. On the other hand, the resilience agenda and paradigm puts emphasis on what is available in order to cope with risks and threats. In the UK, a notable focus has been placed in floods and terrorism. Respondents mentioned that resilience might be seen as carrying too much negative information, as it implies that “something bad may happen”. This, again, is indicative of the lack of awareness. The importance of resilience is not seen as a benefit, and as a consequence there is a preference for resilience to be overlooked.

2. *Incremental performances vs. Trial and error performances*: Whereas the sustainability paradigm and agenda call for a maximisation of resources leading to the minimisation of resource consumption, the resilience paradigm and agenda focus on testing performances based on anticipated scenarios. Policy on sustainability has been based on incremental performances (arguably, affected by political interest). Resilience policy, on the other hand, has largely focused on two types of risk: floods and terrorism (considering the new forms of risk triggered by a more globalised and interconnected world), although the National Risk Register (Cabinet Office 2013) outlines a number of other hazards and threats which are considered as ‘high priority’ concerns, such as ‘pandemic flu’, ‘low temperatures’, ‘heatwaves’ and ‘severe space weather’.

3. *Efficiency vs. redundancy*: The sustainability paradigm suggests a lean approach to development and streamlining processes that reduce consumption and minimise environmental impacts. However, the resilience paradigm and agenda are significantly more open to assume the risk of overdesign in order to avoid damages and prevent disasters. A flexibility of redundancy is apparent in several documents, including the government’s humanitarian policy, which “outlines how the UK will help build resilience to crises and respond to humanitarian need resulting from conflict and natural disasters”. The need for backup systems is also highlighted in relation to data protection and telecommunications.

4. *Mid-term equilibrium vs. long-term equilibrium*: There is no doubt that both paradigms call for a consideration of long-term impacts. However, they do it in a different way. The sustainability paradigm and agenda seeks that interventions made today do not affect what the next generations can do, based on targets that are defined today. On the other hand, the resilience paradigm favours an ecological approach to regeneration that is not necessarily based on today’s measures but in a constant reassessment of contingencies, resources, assets and risks.

5. *Emphasis on standards vs. Emphasis on potentials*: The sustainability agenda has largely focused on globally accepted standards, often underestimating the importance of local conditions. Instead, the resilience paradigm calls for the identification and reinforcement of local potentials of the system.

5. THE INCREASING COMPLEXITY OF A TURQUOISE AGENDA

Navigating and reconciling the two agendas is rendered complex by a range of influencing factors revealed through these analyses. First, both paradigms have created a field of practice that is extremely difficult to conceptually grasp. To be clear, misconceptions and variations in the definition of sustainability have already been recognised in academic literature (Walter Leal, 2000) and public debates (Victor, 2009). However, we can now assert how that these differences have also translated to policy in the UK. These paradigms have not created consensus among definitions, objectives and means. Instead, they frame a variety of ethical postures towards what is responsible to do in the face of increased environmental degradation, protection of nature, pollution, terrorism, natural hazards, crime, etc. These representations are constantly reified by stakeholders in an iterative process informed by both theory and practice. This dynamic complexity is not exclusive of the built environment. When transferred into the field of practice, many crucial elements of the paradigms, including their strong original emphasis on adaptation are often lost in translation. Moreover, the elastic nature of the concept is such that it can be mobilised to justify a range of morally contested positions. This renders both concepts highly malleable and nebulous in terms of their conceptualisation and construction.

Second, there are synergies and tensions within and between the two agendas. Our results show that the sustainable and resilience policy documents in the UK do not cover the same issues. For instance, climate change is seen as a separate issue of sustainability, which instead focuses on energy efficiency. The government is implementing various policies for energy savings and to reduce carbon emissions in a way that would also create jobs. However, the impacts of climate change are hardly mentioned, thus the adaptation component of sustainability is largely ignored. The term 'resilience' does not appear in the sections where the government's stance on sustainability is described (only DEFRA 2013 suggests that an important component of both sustainability and resilience must be climate change mitigation). More worryingly, the two agendas sometimes call for diverging approaches.

Third, there are multiple levels of interlocking decision-making and policy-making that range from the national level to the regional, municipal and local levels. There is, therefore an increased number of expectations concerning the capacities of other stakeholders to identify and prioritise issues and respond to them in a holistic manner. In reality, each agenda might be simultaneously mobilised at different levels, thereby causing a complex 'swirly mix' of greens and blues occurring in different densities and at different levels of abstraction.

Fourth, it has been largely ignored that implementing these paradigms inevitably requires accepting several trade-offs. UK policy states that sustainability involves meeting the following objectives: social progress which recognises the needs of everyone; effective protection of the environment; prudent use of natural resources; and maintenance of high and stable levels of economic growth and employment. However, there is no indication of the trade-offs when two or more of these objectives are in conflict with one another. To what extent is it viable to find an appropriate balance between environmental protection and economic growth that is capable of providing enough jobs to all citizens?

6. ADDED VALUE FOR THE POST 2015 FRAMEWORK FOR DISASTER RISK REDUCTION

In the Outcome document of Rio+20 "The Future We Want" member states highlighted the need to address disaster risk reduction and climate change adaptation in setting the Sustainable Development Goals (UN, 2012). However, before this can be addressed, it is critical to understand the challenges presented by the tensions between two paradigms: resilience and sustainability.

There are important theoretical implications of these results. They highlight the need for re-conceptualising the relationships between these agendas. Clear boundaries in concepts are needed, but it must be recognised that these paradigms do not actually offer universally accepted concepts. Academics, decision and policy makers are required to create them balancing trade-offs and contingency factors together. Yet, it is also necessary to recognise that both paradigms are one thing according to scholars and writers (who tend to romanticise and encourage "holistic-ness") but another to practitioners and decision makers (who – for better or worse – are more pragmatic and focused). These results move us towards a theoretical interpretation of the interrelationship between the green and blue agendas which reveals the extent to which they are opposed across some dimensions, and yet more compatible across others (see Coaffee and Bosher 2008 for potential compatibilities in the context of counter-terrorism). It becomes clear that built environment projects will increasingly reveal elements of green, blue and turquoise, and for that matter bluey-turquoise, turquoise-green, turquoise with a hint of green, or green with a blue veneer, or blue with a green veneer. Moreover, the combination of colours and shades will differ and unfold over time as buildings are appropriated, retrofitted, extended and altered. It is necessary to accept a 'kaleidoscopic' view of the agendas shifting, combining, dividing etc. as the built environment changes.

There are also relevant practical implications of these results. Decision makers can combine both approaches if they understand them better. Synergies can lead to stronger agendas; whereas understanding differences can lead to complementary interventions and objectives. However, these results have to be taken with prudence, particularly when considering the limits of our study. In

fact, we worked with a limited database, and it is therefore impossible to widely generalise from short samples of cases in the UK. More cases are still needed to understand these patterns in different contexts. Further studies should include a longitudinal case study aimed at understanding how representations are created and evolve in real time.

7. CONCLUSIONS

Whereas there is an increased pressure to respond to the blue and green agendas in the creation of the built environment, there is little knowledge about *how* stakeholders navigate the simultaneous implementation of such agendas. This article explored this research gap by assessing policy documents and stakeholder perceptions in the UK. The results show that policy and decision makers encounter several difficulties in this process, notably due to the fact that different representations of the sustainable and resilience paradigms cause important tensions between the agendas. Confronted with this difficulty, decision makers tend to emphasise the green over the blue agenda. In the meantime, scholars and policy makers often fail to recognise the necessary trade-offs that result from confronting the principles of the two agendas. Theoretical implications of these findings point to the need for a better comprehension of the boundaries between both paradigms. The results also challenge the common understanding of these paradigms as providers of common meanings and objectives; highlighting the complexity that occurs due to the multiplicity of representations that are created from the notion of ‘sustainable’ and ‘resilient’. At the practical level, these results call for a better understanding of the consequences of implementing and enforcing both agendas at the same time. They also demand a more nuanced understanding of the different ‘tones’ of green and blue that can be obtained in the process of responding to both paradigms. The study also highlights the importance of further examination of how the representations are created and how they evolve in policy and decision-making at the project level. It becomes clear that both academics and practitioners still need more refined tools and conceptual frameworks to successfully achieve a turquoise agenda in the built environment.

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