



ISLAND DYNAMICS

Encountering Urbanization on Jersey: Development, Sustainability, and Spatiality in a Small Island Setting

Henry Johnson

University of Otago, New Zealand

henry.johnson@otago.ac.nz

Abstract: On the island of Jersey, the success of local industries including agriculture, tourism, and financial services has helped grow the population of permanent residents, contract workers, seasonal workers, and short-term tourists. As a result, between 1950 and 2015 the island's population nearly doubled from about 55,000 to 100,000, and, consequently, the landscape has undergone much urban development, not only in and around the parish capital of St Helier, but also in varying degrees in each of the island's other parishes. During this period of population growth, the island's urbanization has been framed within a context of developing the island's industries on the one hand, yet sustaining the island's unique environment on the other. After all, one of the main qualities of Jersey that has helped its tourism industry has been its ability to maintain characteristics of the island in a context of population growth and increased resource restraints. Using a method of critical inquiry of primary and secondary sources, this article foregrounds how the geographically small island of Jersey has encountered urbanization, particularly in the decades following the Second World War. The discussion illustrates some of the consequences for islanders and how development and sustainability as an assemblage of interconnected practices and perceptions have helped craft a distinct environment for the island that contributes to its local character. The article shows that inward migration flows have led to a locally-defined urbanization, which has resulted in a continually growing population and a type of urban island lure. For the field of Island Studies, a study of Jersey's locally-defined urbanization sheds light on how urban development and sustainability consciousness is characterized and practised on this particular small island in an era that sees it especially dependent on the finance and tourism industries.

Keywords: Jersey, immigration, locally-defined urbanization, migration-led urbanization, urban island lure, urban island studies, urbanization

© 2016 Henry Johnson

Island Dynamics, Denmark - <http://www.urbanislandstudies.org>



This work is licensed under the Creative Commons Attribution 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/3.0/>

Johnson, H. (2016) 'Encountering Urbanization on Jersey: Development, Sustainability, and Spatiality in a Small Island Setting', *Urban Island Studies*, 2, 50-71.

Encountering Urbanization on Jersey: Development, Sustainability, and Spatiality in a Small Island Setting

1. Introduction

This article investigates how the geographically small island of Jersey has encountered urbanization, particularly in the decades following the Second World War. The main findings illustrate some of the consequences for islanders and how development and sustainability as an assemblage of interconnected practices and perceptions have helped craft a distinct environment for the island that contributes to its local character. The article shows that inward migration flows have led to a locally-defined urbanization, which has resulted in a continually growing population and a type of urban island lure. For the field of Island Studies, a study of Jersey's locally-defined urbanization sheds light on how urban development and sustainability consciousness is characterized and practised on this particular small island in an era that sees it especially dependent on the finance and tourism industries.

Development in any location can often raise concerns in connection with urbanization and the destruction of the natural environment. On Jersey, where the physical size of the island can help heighten an awareness of any development, one such proposed change to the local environment has recently been the centre of public, governmental, and media attention with regard to turning a public park into a site for a new hospital. In 2012, a process was initiated by the government of Jersey for choosing an appropriate location for a new hospital, with 39 possible localities investigated (Future Hospital, 2016). A shortlist of five preferred sites was revealed early in 2016 with several months allocated for public consultation: (A) Dual site (Overdale Hospital and current hospital [Gloucester Street]); (B) Overdale Hospital; (C) Current hospital (Gloucester Street); (D) Waterfront (south side [on reclaimed land]); and (E) People's Park. With option 'E' (People's Park) emerging as a frontrunner for the government, much contestation emerged in various sectors of Jersey society, which has revealed several spheres of island-specific issues that relate to the dialectic between urbanization and sustainability (Boone & Fragkias, 2013). From a planning perspective, in a report on the possible use of People's Park, it was noted that the proposed site would be made available if necessary even though this site was located in the Parish of St Helier (one of 12 administrative parishes – Comité des Connétables, 2016):

People's park is one of five short-listed hospital sites. If it becomes the preferred site approved by the States Assembly [Jersey's government], we would begin by negotiating with the Parish of St Helier as the site custodians. However, as the hospital is so important for the Island, if an agreement cannot be reached in the public interest, compulsory purchase powers may be considered necessary (Future Hospital, 2016).

As shown in this article, there are locally-defined contestations between development and sustainability on the small island of Jersey, and issues such as the site for a new hospital help

foreground deeply embedded tensions regarding perceptions of land and a sense of spatiality based on the island's physical environment (cf. Baldacchino, 2012a). Drawing on the theoretical work of Deleuze and Guattari (1987), the article shows that Jersey's encounter with urbanization is an assemblage of practices and perceptions, as understood on the island's terms (McCall, 1994) and based on notions of spatiality (Baldacchino, 2012a) that are stabilized and destabilized as a result of tensions created in a political context of development and sustainability consciousness. The discussion explores some of the consequences for islanders, particularly in terms of housing, and how development and sustainability have helped craft a distinct urban environment for the island that contributes to its local character.

The notion of locally-defined urbanization is especially pertinent in small island settings where spatial limitations often generate discourse on development and underpin a counter view of sustainability or protection. The significance of perceptions of small island spatiality has been a part of Island Studies in many ways, and Grydehøj *et al.* (2015: 10) articulate the notion by asking: "How does island spatiality affect urbanisation processes?" A further question put forward is: "Does island spatiality encourage the development of certain architectural and urban design solutions?" (Grydehøj *et al.*, 2015: 11). Inherent in such studies, according to Grydehøj (2015a: 429), is that "land scarcity caused by island spatiality subsequently leads to urban densification and powerful agglomeration economies, resulting in the formation and growth of island cities." As Grydehøj (2015a: 429) further comments, "the prevalence of big cities on small islands suggests that sensitivity to place-specific spatial factors is necessary if we are to understand both islands and the urban." There are further factors to consider, and especially in a context of what could be called a paradoxical island lure. For example, Baldacchino (2010: 55) has noted that islands "are now, unwittingly, the objects of what may be the most lavish, global and consistent branding exercise in human history," but that lure is part of a paradox defined by a tension between development and sustainability that is underpinned by notions of spatiality. That is, based on Baldacchino's (2010, 2012b) discussion of island branding, such locations attract people, and hence population growth, whether residential or tourist, but at the same time those living on islands often want to protect their lifestyle in their spatially heightened location. In such settings, the physicality of islands interacts with the social environment as shown by the deployment of locally defined strategies for urbanization or for managing island urbanization (Connell & Lea, 1998).

The growth of Jersey's economy over the centuries has been the result of several very different local industries. However, with only a small land mass of 119.5 km² the island has confronted many issues pertaining to the dialectic between development and sustainability, especially in connection with demographic pressures, which, as outlined by Renouf and du Feu (2012: 97-104), include population density, inward migration, housing availability and affordability, land use, reclamation, and construction. The island's agricultural industry prompted an increase in the number of migrant workers, at first from France, which is around 22 km from Jersey, and then from Portugal (especially Madeira) from the 1960s. The island's tourist

industry turned into mass tourism in the post-Second World War years with the increased mobility of short-term holidaymakers from the UK utilizing an increasingly accessible passenger plane network servicing the island, along with the growing capacity and speed of a car-ferry service (Thomas & Thomas, 2012). After five years of German occupation during the Second World War, the island rapidly accommodated its new tourist demand by building hotels and other types of accommodation, and the interconnected service industry expanded to meet tourist demand. New short-term migrant workers came to the island, both from the UK and again from Portugal. Over the decades many such workers decided to stay on the island, but were confronted by strict housing regulations, which usually meant that the average workers could not make purchases until they had been working on the island for 10 years. As the mass-tourism industry was growing, so too was Jersey's offshore finance industry (as a British Crown Dependency the island offers a favourable tax system and is also in good proximity to two mainlands – France and the UK). In this context, as the tourist industry went into serious decline from the 1990s, there was a rapid reduction of accommodation providers between 1992 and 2014 (down from 393 to 139) and bed spaces (down from 24,770 to 11,554) (Visit Jersey, 2015: 19), although the financial services industry was still growing. In the present day, it is the financial services industry that “has grown such that it now accounts for around two-fifths of total economic activity in Jersey and employs about a quarter of the workforce” (States of Jersey Statistics Unit, 2015: iv), and with it came further short- and long-term migrants, mostly from the UK and EU (States of Jersey Statistics Unit, 2015: 40). Jersey's population by place of birth in 2014 was 50% Jersey, 31% other British Isles, 7% Madeira/Portugal, 3% Poland, 2% Ireland, 3% other EU countries, and 4% elsewhere in the world (States of Jersey Statistics Unit, 2015: 42). With such immigration, some hotels were replaced by apartment blocks, and other new housing was developed to accommodate the growing population. Just as urbanization in many other locations has been linked to the colonial process, so too has Jersey been subject to such movement of people.

Jersey's urbanization can be defined in different ways. While smaller housing projects have been a feature of development on the island over several centuries as a result of a growing population based primarily on increased inward migration, it is especially in the post-Second World War decades that the island has witnessed a rapid growth of its population, and, as a result of this, an increased urban corollary of ongoing economic change and development (see O'Neill *et al.*, 2001: 226). This might be viewed as a type of cultural colonization in that the resident population of Jersey is increasing the number of non-island born residents, as well as those with parents and more distant relatives not born on the island. Urban and metropolitan areas are statistically defined slightly differently in many countries (OECD, 2006: 245-248), and Jersey cannot be defined as metropolitan in terms of the OECD (Organisation for Economic Co-operation and Development) formula *per se*, which notes that such areas should have 1.5 million people (or more than 20% of the national population) and 150 people per km² (OECD, 2006: 34), but Jersey does have a history of urban development in various locations and statistically it has a dense population base in its small

island setting. Neither is Jersey a mega city with a population of more than 10 million, or a large city with a population of 5 million (Demographia World Urban Areas, 2015: 2). However, in terms of urban change on the island over the centuries, and especially since the Second World War, Jersey can be viewed through a broad urban paradigm. Indeed, “the emergence, development, and transformation of towns and cities can be termed urbanization” (Doumenge, 1999: 315). Further, while Jersey does not have a massive population, it does have a population density of over 400 people per km² (currently 836), which allows it to be considered urban (Demographia World Urban Areas, 2015: 3). Economic development theory is usually focused on growth, which often links directly with urbanization and progresses from traditional society to mass consumption. Jersey has developed accordingly and as it has moved away from agriculture it aims to balance economic growth with sustainable development. Yet, as Jersey has grown economically, and especially as a result of a burgeoning finance centre, its population and infrastructure have grown accordingly. These have caused a growing urbanization of the island and posed a threat to a perceived natural and cultural landscape that is so often a selling point for the island in terms of lifestyle and tourism – notwithstanding that some visitors might be attracted by the island’s urban areas more specifically (Nunkooa & Ramkissoon, 2010).

In this article, Jersey’s urbanization is seen through the lens of a “spatial turn” (Soja, 1996; see also Pugh, 2013), where the island is defined geographically in terms of place and space, which is framed within the island’s spatiality and perception of this as a result of and in reaction to its fragile physical borders and space within (see Tutt, 2014). While urbanization is commonly defined in relation to the growth of built-up areas, ranging from the condensed as in cities to the not-so-condensed as in suburban settings, Jersey might be defined according to Lefebvre’s (1970: 7) notion of “complete urbanization” in that, because of its limited space, there is actually very little land that has not been influenced by human intervention. It is here that a notion of “island spatiality within an urban context” (Grydehøj *et al.*, 2015: 6) should be stressed, but framed as an urban context within an island spatiality. Indeed, “small island spatiality may encourage exceptionally comprehensive urbanisation even in communities typically regarded as extremely peripheral, highlighting the need for improved urban governance and understanding of the drivers and impacts of urban development” (Grydehøj *et al.*, 2015: 8).

Jersey has a main urban centre, the town of St Helier, which, in terms of urbanization and government planning, is nowadays viewed to include parts of the neighbouring parishes of St Saviour and St Clement (Kelleher, 1991: 93; States of Jersey, 2011: 18), but there are also smaller urban villages in several other locations around the island. The government’s ‘Island Plan’ defined three main types of built-up (i.e. urban) areas: (1) St Helier (along with parts of neighbouring St Saviour and St Clement); (2) the coastal strip; and (3) other urban settlements (States of Jersey, 2011: 119). In this context, this article will study urbanization on Jersey on the island’s terms, as following the definition of the field of Island Studies offered

by McCall (1994: 1), and contribute to “the development of an urban island studies that can contribute a place-sensitive spatial understanding to the work being done within urban geography and island geography” (Grydehøj, 2015a: 429). It is with such a distinction that this article is framed in the field of Island Studies, although necessarily drawing on pertinent literature and ideas from other relevant fields, including geography, population studies, migration studies, urban studies, architecture, and planning.

The notion of ‘urban’ can be interpreted in many ways, but is usually applied to built-up locations such as a town or city in comparison with the countryside (*Oxford English Dictionary*, 2016). In other words, urbanization is an intensification of a population density and occurs in societies that engage primarily with non-agrarian economies. Such a definition is bound by a broader culture/nature dichotomy where the former might include a human-made urban setting and the latter a perceived authentic natural environment untarnished by human intervention. That is, while some scholars contend that the “urban is a place-based characteristic [that describes] a spatial concentration of people” (Weeks, 2010: 34), rather than only noting that people in urban locations have “lives organized around nonagricultural activities” (Weeks, 2010: 34), the present article critiques such thought within a model that seeks to understand island-based urban change while foregrounding tensions that arise in a context of development on the one hand and sustainability on the other. This paper constructs a theoretical framework to comprehend a contested notion of ‘urban’, embracing such a dichotomy within a context of ‘locally-defined urbanization’ along a continuum of place-based interpretation. The article at the same time considers the notion of urban as a part of the broader human footprint in the anthropocene in connection with all sites of human impact (e.g. buildings, roads, parks, cultivated land, etc.) (Crutzen & Stoermer, 2000). Unlike Tutt (2014: 202), who looks not at “the island as city’ but ‘cities on islands’,” this article considers Jersey as an urban island, even though about 55% of its landmass is agricultural land (States of Jersey Statistics Unit, 2015: 15), with points of urban development within its urban/rural continuum based on and reflecting locally-defined notions of spatiality.

The methods used in this research have been primarily critical inquiry of primary and secondary sources, informed by the author’s insider knowledge of Jersey in terms of being born and raised on the island. The primary sources are defined as the policy documents, reports, and similar materials that have been produced by or for Jersey’s government through its various branches of administration. The analytical methods are based on critical study of historical literature with the aim of contributing to urban island studies through interrogation of the juncture between what policy says and what actually happens. Following this introduction the article explores in separate sections ideas pertaining to development and sustainability on Jersey. These sections introduce key notions in connection with urban growth and the counterbalancing idea of sustainability, especially conservation of the so-called natural environment. It is through this discussion that Jersey as an island might be understood better in terms of locally-defined urbanization.

2. Development

With the development of each of its main industries, and generally progressing from agriculture to tourism and then finance, but maintaining each as important for the island, Jersey has urbanized in ways that are defined by the island's distinct spatiality, practices, and perceptions. For an island of its size, and influenced by a substantial growth in its population of long-term migrants and short-term workers and visitors, Jersey has urbanized on the one hand within its finite terrain (focusing on the island of Jersey). On the other hand, the island has urbanized in an extended way across parts of its shoreline and coastal seascape with several reclamation sites (Figure 1) that extend the island's topography as a way of reconciling the need to protect some parts of the island while developing other areas that may already be close to an urban environment (in this case St Helier).

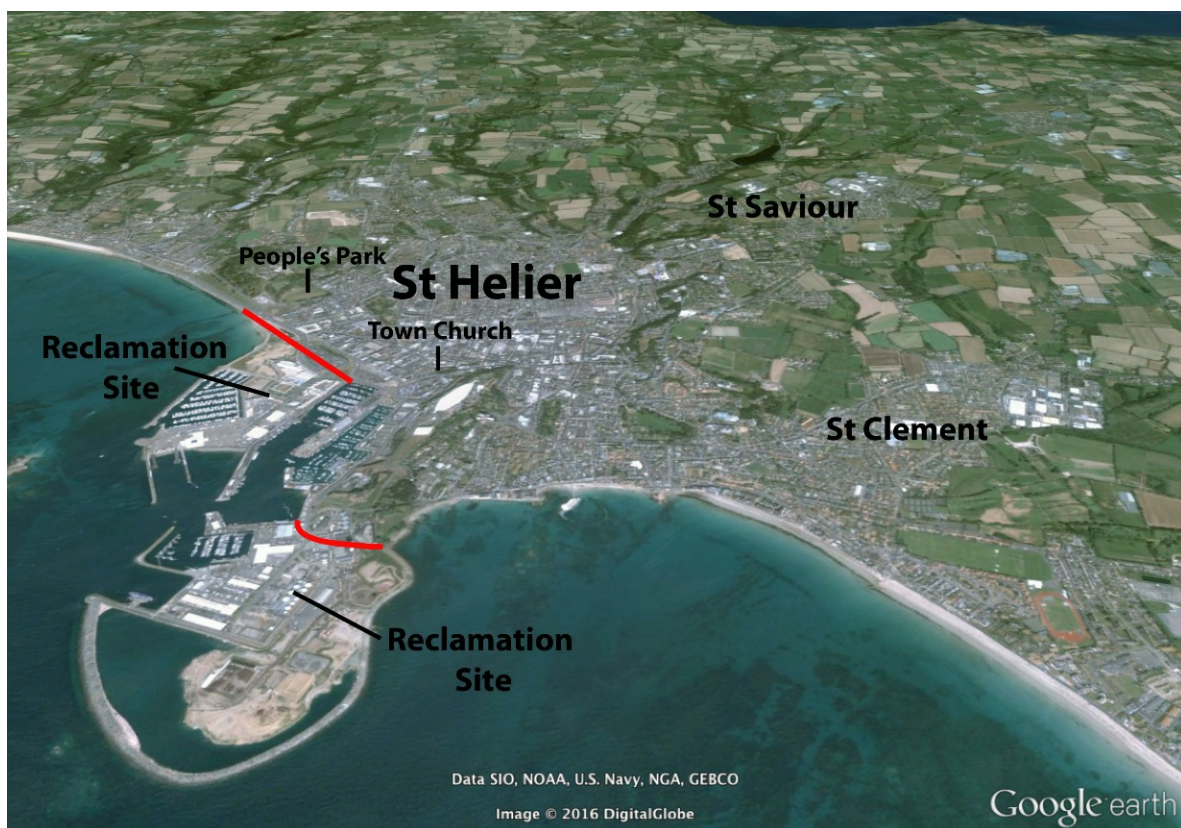


Figure 1: St Helier and its main post-Second World War reclamation sites. Red lines = approximate shoreline until recent reclamation projects. Source: Google earth (23 March 2016).

The purpose of reclaiming land on part of the St Helier waterfront at various stages has included the need for a harbour area in close proximity to the island's main urban centre. Over the centuries and more recent decades this area has grown to accommodate larger commercial vessels as well as private yachts. Other uses of these reclaimed areas have been to provide industrial and commercial space to service the island, and more recently have included tourism, office, recreational and residential areas. In this context, Jersey's urbanization project has allowed the island's limited spatial parameters to be expanded and

defines its island space as a socially and physically growing island. This section discusses some of the ways Jersey's type of urbanization is an island-defined venture that is signified by such factors as space, housing needs, and roads. Each of these points contributes to comprehending how Jersey might be perceived as a growing urban island setting that is defined by an inherent social, cultural, and environmental interconnection with space and place. Further, this relationship is intensified as a result of the island context where space is demarcated by island borders, which themselves are often a contested topic when urban needs encroach on perceptions of environmental sanctuary.

As the southernmost islands in the British Isles, the Channel Islands occupy a space of inbetweenness and difference. They are British, yet self-governing, have much French (and historically Norman) influence due to their geographic location in the Bay of St Malo, and have enjoyed relative economic success with various industries, including agriculture, tourism, and financial services. On the island of Jersey, each of these industries has helped grow the population, including permanent residents, contract workers, seasonal workers, and short-term visitors. As a result, as shown in Table 1, between 1951 and 2015 the island's population nearly doubled from about 55,000 to 100,000 (States of Jersey, 2016; States of Jersey Statistics Unit, 2015: 39), and, consequently, Jersey has undergone much housing development, not only in and around the parish capital of St Helier, but also in varying degrees in each of the island's 11 other parishes.

Table 1: Jersey's population: 1951-2015. Source: States of Jersey Statistics Unit (2012b: 5).

Year	Population
1951	55,224
1961	59,489
1971	69,329
1981	76,050
1991	84,082
2001	87,186
2011	97,857
2015	102,700

During this period of population growth, the island's urbanization has been framed within a context of developing the island's industries on the one hand, yet sustaining the island's unique environment on the other. After all, one of the main qualities of Jersey that has helped its tourism industry has been its ability to maintain characteristics of the natural environment in a context of population growth and the increased resource restraints as a result of such urban change. Jersey's population in the context of its land mass of 119.5 km² means that the island has a population density that is more than three times that of the UK and substantial when compared with other islands. With the current population of just over 100,000 people, the density is about 836 people per km², which is more than double the usual density for defining urban areas (Demographia World Urban Areas, 2015: 3). Further, islanders own a massive 121,551 registered vehicles that often congest many parts of the

island's narrow roads, which also contributes to a sense of urban sprawl throughout much of the island (States of Jersey Statistics Unit, 2015: 74).

Islands, especially small islands, are defined by their finite size. In other words, urbanization is determined according to the extent to which landscapes and seascapes are transformed through urban development. Jersey's population growth has long been a contested issue. When the population reached just over 100,000 in 2015 there was continued discussion about whether or not further population growth should be restricted. Such discussion is largely based on aiming to maintain the character of the island and not to allow further urbanization. In one article, the largest local newspaper put forward Jersey's population data in comparison with similar islands under a provocative heading that has island spatiality at its core: "How many people should live in Jersey?" (*Jersey Evening Post*, 2015). The article noted the population density of the island and comparing it to that of Singapore, Guernsey, and several other jurisdictions (Table 2). Jersey's population density is slightly less than the neighbouring island of Guernsey, but much larger than the Isle of Man, another Crown Dependency. However, in comparison to locations such as Singapore and Bermuda the density is considerably less.

Table 2: Comparison of population densities. Sources: Health Intelligence Unit (2014: 9); United Nations (2015).

Jurisdiction	People per km ²
Singapore	7,571
Bermuda	1,264
Guernsey	1,001
Jersey	836
Alderney	261
United Kingdom	263
Isle of Man	151

Jersey's current population should be considered in historical context in terms of urban growth, along with certain characteristics that are distinct to the island. At its first census in 1821, Jersey's population was 28,600, and by 1851 the number had grown to just over 57,000 (Kelleher, 1991: 311, 449). What was particularly significant at the time was the number of English immigrants, who in 1851 numbered around 12,000, or nearly 20% of the population, and that 7,000 of them resided in St Helier, which itself had a population of around 10,000 in 1821, growing to about 30,000 in 1851 (Kelleher, 1991: 311, 452). Clearly, Jersey's population had grown substantially over the time, and St Helier had emerged as a site of urban importance along with a substantial number of English immigrants who helped form a town-based population vis-à-vis the rural establishment. Indeed, the island's population at this time had grown into a largely immigrant-urban one that had created an island-based spatial and social distinction that represented "over two thirds of the census total" (Kelleher, 1991: 628). While such urban/rural and local/immigrant distinctions were particularly visible and episodic, continued inward migration along with a context of changing economics in the

latter half of the 20th Century led largely to a blurring of such dualisms. Further, it is this type of migration-led urbanization that has helped transform Jersey from a predominantly rural island before the 19th Century to an urban island setting where a type of cultural colonization has helped define the urban-rural interconnectedness. However, from 1851 until 1921, the population of the island declined to around 50,000, although thereafter it has increased at every ten-yearly census (States of Jersey Statistics Unit, 2015: 39).

More recent census data further help to show Jersey's continued population growth, much of which has been based on immigration, along with the importance of St Helier and its surrounding parishes, in providing the island with a distinct urban core. St Helier continues to have an important role in Jersey's urbanization in a context of commerce, residential property, and employment, and while the parish capital occupies 8% of the island's land area, which includes 2 km² of recently reclaimed land (States of Jersey Statistical Unit, 2015: 1), 68% of the island's workforce work in St Helier (States of Jersey Statistics Unit, 2012b: 3). An increase in the number of non-Jersey born residents continued throughout the 20th and 21st Centuries, and even in 2012 half of the island's resident population was not born on Jersey (States of Jersey Statistics Unit, 2012b: 2, 9). Indeed, the number of residents born on Jersey has been around 50% for several decades (States of Jersey Statistics Unit, 2012b: 11).

In connection with the population density of each of Jersey's 12 parishes, Tables 3-4 help show differences and developments. In Table 3, while St Helier clearly is the island's urban centre, several other parishes show significant urban populations, densities, and growth over a ten-year period. Indeed, St Clement, St Saviour, and St Brelade show substantial populations, although the size of each parish defines actual population density.

Table 3: Population and population density by parish. Source: States of Jersey Statistics Unit (2012a).

Population and population density by parish					
	2011 pop.	% of total	2011 density	2001 pop.	% change
Grouville	4,866	5	594 /km ²	4,702	3
St Brelade	10,568	11	803 /km ²	10,134	4
St Clement	9,221	9	2,142 /km ²	8,196	13
St Helier	33,522	34	3,541 /km ²	2,831	18
St John	2,911	3	320 /km ²	2,618	11
St Lawrence	5,418	6	552 /km ²	4,702	15
St Martin	3,763	4	368 /km ²	3,628	4
St Mary	1,752	2	267 /km ²	1,591	10
St Ouen	4,097	4	270 /km ²	3,803	8
St Peter	5,003	5	425 /km ²	4,293	17
St Saviour	13,580	14	1,471 /km ²	12,491	9
Trinity	3,156	3	253 /km ²	2,718	16
TOTAL	97,857	100	819 /km ²	87,186	9

Table 4 gives more specific data on each parish, with focus on the division between the urban (built) and natural environment. The parishes of St Clement, St Saviour, and St Brelade show areas of major urban sprawl, and nearly one-quarter of Jersey's total landmass is built up. With just over 50% maintained for cultivation, the island has preserved substantial rural land, albeit in a context where considerable urban development has taken place more widely.

Table 4: Land Cover Type by Parish. Source: States of Jersey Statistics Unit (2015: 1).

Land cover by parish (2012 data), percentages						
	Built Env.	Cultivation	Natural Env.	Misc.	Inland Water	Greenhouses
St Ouen	15	60	23	2	1	0
St Brelade	29	24	38	9	0	0
Trinity	15	63	20	2	0	0
St Peter	22	50	15	11	2	0
St Martin	18	63	17	1	0	1
St Lawrence	21	62	13	2	1	0
St Helier	52	31	9	8	1	0
St Saviour	33	55	7	4	0	1
St John	17	65	3	3	0	0
Grouville	21	62	5	5	2	1
St Mary	14	68	14	3	0	1
St Clement	37	48	4	9	0	2
TOTAL	24	54	17	5	1	<1

Housing is an example where urbanization on Jersey is locally defined according to island spatiality. As a result of much land on the island being protected for the agricultural industry, which nowadays represents just 1.6% of GVA (Gross Value Added) while financial services represent 42% (States of Jersey Statistical Unit, 2015: 2), Jersey's government has tended to allow the development of urban areas within and in close proximity to St Helier, in villages elsewhere, along road sides (especially larger roads), and in smaller-size 'estates' (defined on Jersey as a housing complex that usually shares many architectural features and are often for first-time buyers). As inward migration continues to grow, the government has recently predicted a shortfall of about 760 dwelling units between 2016 and 2018, with an estimated 27% of this number required for new migrants (States of Jersey Statistics Unit, 2016: 2, 5).

St Helier and parts of neighbouring parishes have experienced much urbanization during the post-Second World War era in a planning context that has generally favoured horizontal growth as opposed to vertical development. The capital, along with most of the rest of the island, has relatively low-height buildings, with a few exceptions dating from the early 1960s, and has avoided large numbers of high-rise buildings as found on some other islands (States of Jersey, 2011: 155). There are just several high-rise buildings on Jersey, with the States'

own administrative building, Cyril Le Marquand House, being one of the tallest in its part of St Helier at 10 storeys. To the east of St Helier, in the Parish of St Clement and within the urban sprawl of the capital, four 14-storey high-rise apartment blocks at Le Marais were built in the 1960s. Further, as shown in Table 5, the number of private and vacant dwellings in each of the parishes reflects the population data noted earlier.

Table 5: Number of private dwellings and vacant dwellings. Source: States of Jersey Statistics Unit (2012b: 19).

Number of private dwellings and vacant dwellings, by parish.				
	Total dwellings	% of dwellings	Vacant dwellings	Vacancy rate (%)
Grouville	2,142	5	124	6
St Brelade	4,547	10	365	8
St Clement	3,843	9	155	4
St Helier	17,417	39	1,397	8
St John	1,184	3	72	6
St Lawrence	2,350	5	121	5
St Martin	1,621	4	129	8
St Mary	696	2	33	5
St Ouen	1,698	4	12	77
St Peter	2,207	5	189	9
St Saviour	5,641	13	283	5
Trinity	1,352	3	108	8
TOTAL	44,698	100	3,103	7

Coupled with tightly controlled housing regulations, which define primarily who can purchase a property and the type of property based on housing or residential qualifications (i.e. the number of years one has been resident on the island or by a degree of wealth brought into the island), Jersey's authorities have regulated the number and type of new dwellings that have been developed with the aim of trying to preserve the character of the island (States of Jersey, 2011). On Jersey, residential housing qualifications are gained in several ways depending on social or economic grounds: (1) residing for 10 years or more on the island; (2) being an essential employee; (3) economic or social benefit; and (4) other reasons, such as hardship (States of Jersey Statistics Unit, 2012b: 52). Jersey is not the only island territory to regulate its number of immigrants based on wealth. For example, as Baldacchino (2006: 11) notes, island jurisdictions such as "Åland, Bermuda and Malta have adopted immigration policies which favour a stream of limited but wealthy immigrants." After all, tourists are often attracted to Jersey because of the island's sandy beaches, shorelines, and countryside, each within easy reach of St Helier and the various villages around the island. As a result of strict housing regulations, limited land within the island's spatiality, and a desire to try to preserve many 'green' parts of the island, the type of housing on Jersey is somewhat different to some

parts of the UK. For example, Jersey has a large number of small apartment blocks, many of which house short-term residents within the finance industry. There are also apartment blocks for long-term locals, and many relatively small detached and semi-detached houses in small housing estates.

Road size, quality, and quantity have had much influence on the urbanization of Jersey. The island's road system was primarily a network of small and winding lanes that crossed much private land prior to the development of a new and improved road system initiated by General George Don (1756-1832), who was Lieutenant Governor of Jersey (1806-1814) and considered such roads essential to link effectively the island's main strategic points for the deployment of the English military based on the island during the wars with France (Kelleher, 1991: 51). This would have meant that travel by sea between one settlement and another would have been much quicker in some cases. Nevertheless, by the early 19th Century roads became parish property for public use (Kelleher, 1991: 51) and a new system imposed on Jersey as a result of its strategic importance and growing defence network included a coastal route and network of roads that mostly led to St Helier, which is located mid-way along the island and to the south:

Under General Don, eighteen roads were constructed throughout the Island, providing a basic framework which linked all the minor complexes of lanes. Don's most acclaimed success was the building of a road linking the towns of St. Helier and St. Aubin, which, despite being located in the same bay, had previously been joined only by crossing the sands at low tide (Kelleher, 1991: 53-54).

The development of Jersey's roads signalled the beginning of a new era of urbanization. As a result of new and enlarged roads, "areas such as Sion in St. John, Carrefour Selous in St. Mary, and Victoria Village on the border of St. Saviour and Trinity, grew out of their location as half-way points along major routes" (Kelleher, 1991: 60). As the 19th Century progressed, a railway opened in 1870 that linked St Helier with the western villages of St Aubin and St Brelade, with a further route opening in 1873 linking St Helier with the eastern village of Gorey (Kelleher, 1991: 54). The eastern route closed in 1929, and the western route in 1936.

Over the centuries, and especially in the post-Second World War period, further urbanization occurred on various sites, which had mostly been agricultural, where new buildings were constructed next to routes that usually provided easy access to the island's capital, and a degree of minimal development beyond the immediate vicinity of the roadside. In other words, land was mostly developed in formerly rural or lightly built-up locations either immediately along the roadside or within small housing complexes, thus reflecting a locally-defined urbanization within the island's spatial parameters and contributing to Jersey's urban island lure.

3. Sustainability

This part of the discussion explores sustainability on Jersey as a reaction to the island's growing urban influence, especially in terms of urban resilience and resistance. Three key themes that stand out in this context are policy, action groups, and land reclamation, each of which is shown as particularly significant in the politics of development and sustainability on Jersey as an assemblage of interconnected practices and perceptions.

From an island-wide perspective, Jersey has a number of urban locations, which have been defined by Jersey's government as "the town of St Helier [including the overspill]; eight urban settlements; eleven key rural settlements; and twenty-one small Built-up Areas and small rural settlements" (States of Jersey, 2011: 249). The notion of urbanization is featured much in government policy and often presented with sustainability in terms of protecting Jersey's distinct island environment both for locals and visitors alike. For example, even the placement and illumination of such objects as road signs or new country paths is given much consideration so as to help "prevent the incremental 'urbanisation' of the character of rural Jersey" (States of Jersey, 2011: 51, 101) and not damage the island's fragile biodiversity. In connection with island spatiality and tensions between development and sustainability, Jersey's countryside is highly valued as an asset, but "the scarcity of land in the Island has resulted in it being subject to considerable pressure for development" (States of Jersey, 2011: 55). With such discourse, Jersey's government is acknowledging both a balance between the island's rural and urban features, along with recognizing that urbanization has been significant in the island's development in more recent years. Further, such is Jersey's growing urban environment in St Helier that its "historic character is still under threat despite over four decades having passed since conservation was first enshrined in Jersey's planning legislation" (States of Jersey, 2011: 126). Here, the notion of 'historical character' is dependent upon a certain definition, but the point is that conservation of the urban is also a concern and a part of a policy that recognizes points of contestation between natural and cultural guardianship and urban development.

Regarding the latest version of the government's 'Island Plan', the main local newspaper reported that "creeping urbanisation has for many years threatened green Jersey. The idea that agricultural sites of any character should be rezoned must be viewed with extreme caution" (*Jersey Evening Post*, 2013). Here, one can observe that media intervention is offering a perspective that may reflect or indeed influence wider public opinion. On a social level, Jersey has several action groups that strive to help preserve what they see as the island's natural or cultural heritage. Aspects of the island that are of special concern are green zones and the shoreline, along with cultural assets of historical importance. Organizations or action groups such as Save Jersey's Heritage, St Helier Waterfront Action Group, Save Our Shoreline Jersey, and Save People's Park do much to bring to public attention areas of concern regarding development and sustainability when viewed through a gaze or assemblage of interconnected

practices and perceptions. Save Our Shoreline Jersey, for example, is particularly active as a lobby group in connection with the island's 72 km coast, which it views:

As possibly the most critical element of our island. It enables our highly concentrated population to obtain release from being cooped up and, although we take it for granted, it is a prime resource for our feeling of well being. With the many recreational possibilities that it also offers, it contributes to our good health and the education of our children. It is a truly short and finite resource which, in earlier days, with a smaller population, could more easily be developed in a way acceptable to fellow islanders. Today, with a much increased population and very little left to be developed, every metre assumes a huge importance and impacts the many competing interests of the much enlarged community (Save Our Shoreline Jersey, 2016b).

With this example, the idea of understanding Jersey's urbanization and the size of the population on the island's terms is especially important. Jersey's spatiality is framed by its shoreline, but the island extends its boundaries into the sea in various ways such as across water or through reclamation (see below).

In connection with the government's policies for protecting what it views as unique for Jersey, there are various plans and agreements such as Ramsar Sites, Coastal Zone Management, and Aquaculture Management, each of which is focused on Jersey's existence as an island with a fragile coastal and marine setting. Further, in the context of the aborted (as of February 2016) plan by the government to favour People's Park as the preferred site for the new hospital (the current hospital site was later agreed upon – *Jersey Evening Post*, 2016), the location's public and green spaces have been noted in reports on the project and by those opposed to the plan. For instance, in the proposed plan for the site, the public consultation document noted several areas of concern in connection with the loss of key public amenities, including a playground, grassed areas, trees, parking, and a fitness or recreation area (Future Hospital 2016). Moreover, the collective voice of the protest group opposed to the project worded objections in stronger terms. For instance, an online petition against the proposal was initiated, which stated:

We believe that People's Park is at the heart of our town and the heart of our Island community. To rip that heart from the people of St Helier and the Island as a whole, by developing essential green space as a new Hospital, is an entirely unconscionable decision. [...]

The development of the Park would take away an essential piece of open public space in a highly-developed urban area; where Jersey already falls far below international standards. It would further congest the roads in the gateway to town and have a negative aesthetic and economic effect on the property overlooking the Park.

Islanders would be deprived of a space that provides a ready location for the Battle of Flowers Funfair, RAF static displays during the Jersey International Air Display, sporting trails, cultural festivals and public celebrations (change.org, 2016).

Interestingly, People's Park is in St Helier, and in the direct vicinity of the town's urban setting. While it is also next to a hill and within close reach of the shoreline, People's Park is essentially in an urban location that offers a constructed green retreat within easy reach for thousands of people. It forms part of a locally-defined notion of the rural/urban continuum where built-up areas are juxtaposed with green areas within the broader urban sprawl that now dominates the island's main town (see Willie Miller Urban Design *et al.*, 2005: 262).

As an island, Jersey can be perceived as existing within limited spatial parameters. However, parts of Jersey, and especially on the St Helier shoreline, have been the site of much reclamation over the past few centuries, and especially since the 1970s, which has helped enlarge its overall landmass (Figure 1). As well as the building of several ports around the island, along with the building of a coastal route between St Helier and St Aubin (village), the main port in St Helier has experienced exceptional physical expansion in terms of land reclamation projects as a way of extending port facilities and providing further land for urban development. In this part of the discussion, land reclamation is viewed both as part of the continued urban development of Jersey and as a move to stem further urban development of the island's rural zones. Reclamation exists primarily around the harbour of St Helier and is intended to extend that part of the town into an area that is deemed suitable for such development even though it encroaches the shoreline and seabed and exists in a discourse of conflict (Grydehøj, 2015b), especially with organizations such as Save Our Shoreline Jersey aiming to "protect the south east coast of Jersey from further reclamation, pollution and / or development" (Save Our Shoreline Jersey, 2016a). Nevertheless, as noted in government policy:

The Shoreline Zone represents a significant resource and asset to the Built-up Area. It has a vital and important rôle in publicly linking, physically and visually, the built environment and the sea, and requires special consideration to ensure that the public accessibility and quality of this connection is maintained and enhanced. (States of Jersey, 2011: 153)

An early development of the St Helier's shoreline was a reclamation near to the Town Church: "The earliest improvements to the waterfront took shape in the late 15th century, when a sea wall (usually referred to as the 'Town Wall') was constructed some sixteen feet south of the Town Church's perimeter wall" (Willie Miller Urban Design *et al.*, 2005: 29). However, it was not until 1853 that St Helier had a small harbour and pier, along with a new road (Pier Road) from the Town Church along the side of Mont de la Ville to access it (otherwise access would be across the beach) (Willie Miller Urban Design *et al.*, 2005: 33). After some smaller extensions to the harbour with new docks, several major developments were initiated in the 19th and 20th Centuries. The Town Church is now just over 200 m away from the start of the harbour, which itself now extends a further 700 m or so past this point. More recently, the need for more dock facilities was necessitated by several factors. On the one hand there was a need to have facilities for larger ships such as car ferries, and on the other hand as Jersey increasingly created itself as a tourist site for visiting yachts it needed to ensure it had

the facilities to maintain itself as an attractive location. Both points were part of the island's drive to grow its tourist industry, which went hand in hand with the development of airport facilities, hotel development, transport companies, and touristic businesses to accommodate the mass tourism that was a significant part of Jersey's identity in the post-Second World War decades. With a decline in mass tourism in the 1990s (Visit Jersey, 2015: 19), albeit with sustained growth of sea tourism and high-end visitors on private yachts, the continued development of the finance industry contributed to further population growth and migration-led urbanization with the transformation of many hotels into apartment accommodation for contract employees or permanent residents, new residential houses, and office development.

Much land has been created as a result of the various land reclamation projects in St Helier, and much based on locally-defined urbanization as a result of practices and perceptions pertaining to notions of island spatiality. The land has been used for various aspects of urban development, including housing, offices, recreation facilities, and commercial and industrial purposes. One outcome has been the moving of the shoreline south, a considerable distance from the main historical commercial part of the town. Another has been a perception that such development would actually help prevent the further destruction of rural sites elsewhere on the island.

4. Conclusion

The proposal by Jersey's government to build a new hospital generated much social, media, and political debate, and, in particular, it helped foreground the island's delicate balance between urban development and sustainability. In this context, several themes that characterize the urbanization/sustainability balance on Jersey have stood out: locally-defined urbanization; migration-led urbanization; and the urban island lure. Each contributes to the distinct ways that Jersey has urbanized in terms of the island's spatiality, inward migration, and its attraction for tourists, residents, and temporary workers.

This article has referred to the notion of 'locally-defined urbanization' as a way of explaining some of the ways that Jersey has urbanized since around the beginning of the 19th Century. When General Don initiated the building of new roads to link the island's main strategic points, he helped initiate a process of urban development. Not only do the roads themselves form part of the island's urbanization, but these new and modernized routes, which included some newly developed coastal roads, helped in the development of smaller urban localities outside of St Helier. Jersey's urbanization is also defined by the island's spatiality. Land is tightly controlled and housing development and ownership must comply with strict regulations. As such, development falls within the physical boundaries of the space available and according to government policy that regulates such progress. In this context, Jersey has initiated a number of reclamation sites as a way of expanding St Helier around its port area, which further complicates the need for sustainable growth and environmental protection.

‘Migration-led urbanization’ has primarily defined Jersey’s urbanization over the past few centuries. During the English wars with France the island’s population expanded with British troops and workers; the success of its industries helped attract migrant workers; and more recently tourism has waxed and waned as different touristic trends have come and gone. As such, the island’s population expanded rapidly in the first half of the 19th Century and again from the early 1920s. This cultural colonization on the island has historically been to the main urban centre, and more recently to other urban areas as they have developed.

In this context, Jersey has attempted to maintain its attraction to residents and visitors alike. Policies have been established to tightly regulate development and urbanization, although the island has urbanized in many ways. Jersey, however, also has an attraction in terms of its ‘urban island lure’. The island has a bustling urban centre, urban sprawl into neighbouring parishes, and developed and developing urban locations in several parts of the island. Jersey’s industries have attracted and continue to attract long- and short-term workers, new residents, and visitors alike. There are action or lobby groups, as well as government policies, that aim to help protect the island from uncalled for development, and it is such an urban/rural balance that contributes to offering such an urban island attraction.

Jersey is a growing island, especially in terms of population, reclamation, and industry. This island’s urbanization is balanced with various forms of sustainability that combine to show how Jersey has defined urbanization on its own island terms. While there is certainly urban resilience and resistance on the island with the stabilization and destabilization of the urban/rural assemblage, just as the example of the proposal for the development of People’s Park showed, Jersey’s form of urbanization includes a range of built-up, open, and green spaces that help show how notions of spatiality in small island settings offer distinct ways of reacting to and defining urbanization in a political context of development and sustainability consciousness.

This article, therefore, has shown how the small island of Jersey has encountered urbanization in some spheres of the local environment. The discussion has illustrated some of the consequences for islanders regarding how an assemblage of interconnected practices and perceptions pertaining to development and sustainability have helped create a distinct urban environment that constitutes the island’s character. The article has shown that inward migration over several hundred years, and especially since the end of the Second World War, has led to a locally-defined urbanization, which has resulted in a continually growing population and, ultimately, a type of urban island lure.

References

1. Baldacchino, G. (2006). 'Managing the Hinterland Beyond: Two Ideal-type Strategies of Economic Development for Small Island Territories', *Asia Pacific Viewpoint*, 47(1), 45-60. <http://dx.doi.org/10.1111/j.1467-8373.2006.00295.x>
 2. Baldacchino, G. (2010). 'Editorial: The Island Lure', *International Journal of Entrepreneurship and Small Business*, 9(4), 373-377.
 3. Baldacchino, G. (ed.) (2012a). *Extreme Heritage Management: The Practices and Policies of Densely Populated Islands*. Oxford: Berghahn.
 4. Baldacchino, G. (2012b). 'The Lure of the Island: A Spatial Analysis of Power Relations', *Journal of Marine and Island Cultures*, 1(2), 55-62. <http://dx.doi.org/10.1016/j.imic.2012.11.003>
 5. Boone, C.G. & Fragkias, M. (eds) (2013). *Urbanization and sustainability: Linking Urban Ecology, Environmental Justice and Global Environmental Change*. New York: Springer. <http://dx.doi.org/10.1007/978-94-007-5666-3>
 6. change.org (2016). 'Stop the Development of a New Hospital on People's Park, Jersey: Save People's Park'. Available at: <https://www.change.org/p/senator-andrew-green-health-minister-states-of-jersey-stop-the-development-of-a-new-hospital-on-people-s-park-jersey>. Accessed 10 February 2016.
 7. Comité des Connétables (2016). 'My Parish Online'. Available at: <http://www.parish.gov.je>. Accessed 20 March 2016.
 8. Connell, J. & Lea, J.P. (1998). *Island Towns: Managing Urbanization in Micronesia*. Honolulu: Center for Pacific Islands Studies, School of Hawaiian, Asian, and Pacific Studies, University of Hawai'i at Mānoa.
 9. Crutzen, P. J. & Stoermer, E.F. (2000). "The "Anthropocene"", *The International Geosphere–Biosphere Programme (IGBP) Newsletter*, 41, 17-18.
 10. Deleuze, G. & Guattari, F. (1987). *A Thousand Plateaus: Capitalism and Schizophrenia*. Trans. Brian Massumi. London: The Athlone Press.
 11. Demographia World Urban Areas (2015). *Demographia World Urban Areas (Built-up Urban Areas or Urban Agglomerations)*. 11th Annual Edition. Belleville: Demographia.
 12. Doumenge, J.-P. (1999). 'Urbanization' in M. Rapaport (ed.) *The Pacific Islands: Environment & Society*. Honolulu: The Bess Press, 315-325.
- Johnson, H. (2016) 'Encountering Urbanization on Jersey: Development, Sustainability, and Spatiality in a Small Island Setting', *Urban Island Studies*, 2, 50-71.

13. Future Hospital (2016). 'Future Hospital - Short Listed Site Options: Option E–People's Park'. Available at: <https://www.futurehospital.je/wp-content/uploads/FH-1.3-States-Member-Launch-Site-Option-E-v3.pdf>. Accessed 12 February 2016.
 14. Grydehøj, A. (2015a). 'Island City Formation and Urban Island Studies', *Area*, 47(4), 429-435. <http://dx.doi.org/10.1111/area.12207>
 15. Grydehøj, A. (2015b). 'Making Ground, Losing Space: Land Reclamation and Urban Public Space in Island Cities', *Urban Island Studies*, 1, 96-117. <http://dx.doi.org/10.20958/uis.2015.6>
 16. Grydehøj, A., Barceló Pinya, X., Cooke, G., Dorathı, N., Elewa, A., Kelman, I., Pugh, J., Schick, L., & Swaminathan, R. (2015). 'Returning From the Horizon: Introducing Urban Island Studies', *Urban Island Studies*, 1, 1-19. <http://dx.doi.org/10.20958/uis.2015.1>
 17. Health Intelligence Unit (2014). 'Health Profile for Jersey 2014: Incorporating Data From 2010 to 2012'. St Helier: States of Jersey.
 18. *Jersey Evening Post* (2013) 'Rural Jersey Must be Protected', *Jersey Evening Post*, 25 September. Available at: <http://jerseyeveningpost.com/news/comment/2013/09/25/rural-jersey-must-be-protected>. Accessed 11 February 2016.
 19. *Jersey Evening Post* (2015). 'How Many People Should Live in Jersey?', *Jersey Evening Post*, 25 June. Available at: <http://jerseyeveningpost.com/news/2015/06/25/how-many-people-should-live-in-jersey>. Accessed 11 February 2016.
 20. *Jersey Evening Post* (2016). 'New hospital to be built on current site', *Jersey Evening Post*, 14 June. Available at: <http://jerseyeveningpost.com/news/2016/06/14/new-hospital-to-be-built-on-current-site/>. Accessed 24 July 2016.
 21. Kelleher, J.D. (1991). 'The Rural Community in Nineteenth Century Jersey'. PhD diss., Warwick University.
 22. Lefebvre H. (1970). *La Révolution Urbaine*. Paris: Gallimard.
 23. McCall, G. (1994). 'Nissology: A Proposal for Consideration', *Journal of the Pacific Society*, 17(2-3), 1-14.
 24. Nunkooa, R. & Ramkissoon, H. (2010). 'Small Island Urban Tourism: A Residents' Perspective', *Current Issues in Tourism*, 13(1), 37-60. <http://dx.doi.org/10.1080/13683500802499414>
- Johnson, H. (2016) 'Encountering Urbanization on Jersey: Development, Sustainability, and Spatiality in a Small Island Setting', *Urban Island Studies*, 2, 50-71.

25. OECD (2006). *Competitive Cities in the Global Economy*. OECD Territorial Reviews. Paris: OECD Publishing.
26. O'Neill, B.C., Balk, D., Brickman, M., & Ezra, M. (2001). *A Guide to Global Population Projections*. Demographic Research, 4(8). Rostock: Max-Planck-Gesellschaft.
27. *Oxford English Dictionary* (2016). "urban, adj. and n.". OED Online. December 2015. Oxford University Press. Available at:
<http://www.oed.com/view/Entry/220386?redirectedFrom=urban>. Accessed 07 March 2016.
28. Pugh, J. (2013). 'Island Movements: Thinking with the Archipelago', *Island Studies Journal*, 8(1), 9-24.
29. Renouf, J.T. & du Feu, T.A. (2012). 'Jersey, Channel Islands' in G. Baldacchino (ed.) *Extreme Heritage Management: The Practices and Policies of Densely Populated Islands* (pp. 96-115). New York: Berghahn.
30. Save Our Shoreline Jersey (2016a). 'Save Our Shoreline Jersey'. Available at:
https://www.facebook.com/sosjreports/info/?tab=page_info. Accessed 13 March 2016.
31. Save Our Shoreline Jersey (2016b). 'About & Why'. Available at:
<http://sosjersey.co.uk/about-why>. Accessed 1 March 2016.
32. Soja, E.W. (1996). *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places*. Oxford: Blackwell.
33. States of Jersey (2011). 'Revised 2011 Island Plan'. St Helier: States of Jersey Department of the Environment.
34. States of Jersey (2016). 'Population Estimates.' Available at:
<https://www.gov.je/Government/JerseyWorld/StatisticsUnit/Population/Pages/Population.aspx>. Accessed 21 March 2016.
35. States of Jersey Statistics Unit (2012a). 'Jersey Census 2011. Bulletin 1: Total Population. St Helier: States of Jersey Statistics Unit.
36. States of Jersey Statistics Unit (2012b). 'Report on the 2011 Jersey Census'. St Helier: States of Jersey Statistics Unit.
37. States of Jersey Statistics Unit (2015). *Jersey in Figures 2014*. St Helier: States of Jersey Statistics Unit.

38. States of Jersey Statistics Unit (2016). 'Jersey's Future Housing Needs 2016-2018'. St Helier: States of Jersey Statistics Unit.
39. Thomas, B. & Thomas, S. (2012). 'Cultural Events and Tourism in Jersey', *Shima: The International Journal of Research into Island Cultures*, 6(1), 114-131.
40. Tutt, P.A. (2014). 'Defining the island city: ancient right versus modern metropolis, as considered at Peel, Isle of Man', *Island Studies Journal*, 9(2), 191-204.
41. United Nations, Department of Economic and Social Affairs, Population Division (2015). 'World Population Prospects: The 2015 Revision', DVD Edition. New York: United Nations.
42. Visit Jersey (2015). 'A Destination Plan for Jersey'. St Helier: Visit Jersey.
43. Weeks, J.R. (2010). 'Defining Urban Areas' in T. Rashed and C. Juergens (eds.) *Remote Sensing of Urban and Suburban Areas* (pp. 33-45). New York: Kluwer.
http://dx.doi.org/10.1007/978-1-4020-4385-7_3
44. Willie Miller Urban Design et al. (2005). 'St Helier Urban Character Appraisal: Final Report'. States of Jersey Planning and Environment.