Pleanáil

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The Irish Planning Institute,

Floor 3, The Courtyard,

25 Great Strand Street,

Dublin 1, Ireland

Email: info@ipi.ie

Web: www.ipi.ie

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CONTRIBUTORS

Sheila Convery is a PhD candidate on the Earth and Natural Sciences PhD Programme at University College Dublin

Amy Hastings, MIPI, BCL, MSc (Spatial Planning), Barrister-at-Law is a partner in ARC Consultants, Dublin

Prof. Rob Kitchin is the Director of NIRSA, NUI Maynooth and Chairperson of the Irish Social Sciences Platform

Eoghan Lynch, MIPI, is a planner in the Forward Planning Section of Offaly County Council

Aiden O'Neill, is a practicing town planning consultant with Coakley O'Neill Town Planning Ltd, Cork

Frank O'Neill holds an MSc in Spatial Planning from DIT and is a Director of the Dublin based Asset Managers WK Nowlan & Associates

Dr. Harutyun Shahumyan is a researcher in University College Dublin with expertise on GIS, spatial modelling and data analysis

Hendrik van der Kamp, MIPI, is the Head of School of Spatial Planning in Dublin Institute of Technology and a past president of the Irish Planning Institute

Dr. Cormac Walsh is a Postdoctoral research fellow in HafenCity University Hamburg and formerly of NIRSA, NUI Maynooth

Dr. Brendan Williams lectures in Urban Development and Urban Economics at the School of Geography, Planning and Environmental Policy, University College Dublin

Editor's Foreword

Planning as a profession has always been preoccupied with informed, evidence-based decision making. A planner's role is primarily as a co-ordinating influence among professional disciplines so that society can ensure that resources are used in their most efficient manner possible. Such efficiency is imperative at times when resources seem to be at their scarcest.

Given what is now referred to as the 'current economic situation' and how long that this period of economic stagnation has already lasted, and is likely to continue, it is not surprising that the planning profession has had to diversify, particularly when considering the impact that the changing wider economic circumstance has had on the core duties and sources of work for practicing planners. Within this journal there is evidence of the extent to which planners and related professions are now seeking to adapt to new challenges.

Pleanáil is a publication with a long history, and even a brief perusal of previous issues shows that the articles in each reflect the wider social and economic concerns in Irish public life at the time of publication. This, the eighteenth edition of the publication, is no different. Within this issue contributors tackle a broad range of topics, from the appropriate use of research in formulating planning policy and the strategic planning of the wider Dublin area to planning for wind energy and to understanding how international workers wish to live in our capital.

Frank O'Neill's research regarding the attitudes of highly skilled migrant workers to live/work habits and Aiden O'Neill's review of the development management approaches taken to wind energy development are both about very different subjects, but the issues raised in each are ones that, if addressed, could contribute positively towards our economic recovery. Renewable Energy production and export has come into renewed focus and will continue to play a prominent role in employment growth once the international economy begins to recover. With government commitments to

increase the share of renewables, the need for new energy development from alternative sources is likely to become more urgent. Similarly with Government emphasis on the role of the knowledge economy in the wider economic recovery, Frank O'Neill highlights how positive urban planning will be central to attracting the highly skilled international workers that are required as part of this knowledge economy.

Again associated with economic recovery, Hendrik van der Kamp argues that the development of Dublin is vital to Ireland's success in competing internationally. He suggests the city state model as an alternative to balanced regional development and that we should not be concerned that growth will be concentrated on the capital, but that the important thing is to develop the critical mass and competitiveness that will secure that growth.

Both the UCD-based Urban Research Group's contribution and Cormac Walsh and Rob Kitchin of Maynooth-based NIRSA take a slightly different approach and have advocated for more focus on research in making strategic planning decision. The Urban Forum have shown methodologies in relation to the GDA in how this may be achieve while NIRSA show the usefulness of existing spatial data and argue for the development of a database so that such information is easily available.

Amy Hastings has taking an interesting look at visual impact assessment, Amy has suggested a methodological approach, within the current legislative framework, to assessing characteristics that might otherwise be very subjective.

The breadth of the subjects addressed in the articles of this journal show the range of areas where planning professionals have taken personal responsibility in advocating considered spatial policy. Through the application of such innovative thought, planning professionals will continue to positively influence policy decisions that will contribute to economic recovery in the coming years.

Research

The City State as an Urban Model[1]

Hendrik W van der Kamp

1. The Need for Critical Mass

It is often claimed in discussions about national spatial planning policies for Ireland, that with the exception of Dublin, no other city is large enough to be considered a 'city' or to compete at an international level. Table 1 illustrates the population size of the eight cities that were designated as 'gateway cities' in the National Spatial Strategy (GoI, 2002). This table illustrates how small the cities outside Dublin are in Ireland. Even Dublin is relatively small to qualify as a European City.

Not surprisingly, the need to retain Dublin as a national capital that is capable of competing internationally was seen as an essential starting point in the preparation of the National Spatial Strategy. The Strategy had as a central task to interpret the objective of Balanced Regional Development that had been explicitly stated as a Government objective in the National Development Plan (GoI, 1999). The NSS preparation team recognised the importance of Ireland having at least one city of sufficient scale; the argument of 'critical mass'. The importance of critical mass for the capital city was therefore seen as important not just for the inhabitants of the Dublin region but for all Irish citizens.

[1] *Based on a paper submitted to the Knowledge Collaboration & Learning for Sustainable Innovation ERSCP-EMSU conference, Delft, The Netherlands, October 25-29, 2010*

Table 1 – Gateway Cities in the National Spatial Strategy[i]

Gateway and surrounding catchment	Population in 2002 according to NSS*	2002 Population Town and Environs**
Greater Dublin Area	1,535,000	1,004,614
Cork	350,000	186,239
Limerick	236,000	86,998
Galway	146,000	65,832
Waterford	119,000	46,736
Letterkenny (incl. Derry)	14,100 (99,100)	15,231
Sligo	19,400	19,735
Dundalk	32,300	32,505
Athlone/Mullingar/Tullamore	43,000	42,655

Notes:

* Source: CSO volume 1, NSS, p.49. Letterkenny was designated as a joint gateway with Derry but the latter is outside the Republic of Ireland.

** Source: CSO volume 1

The argument of 'critical mass' and the need to protect the future of Dublin in the interest of all citizens of Ireland, was made very strongly in the National Spatial Strategy. It was also supported by the recognition that cities and city regions, rather than European member states, compete internationally with each other. The NSS concluded that to maintain the share of the Greater Dublin Area in the national population at its (then) current level of around 40% or indeed reducing that share, was not a realistic objective (GoI 2002, p.30). In other words, the NSS acknowledged

that continued increase of the Greater Dublin Area's share of national population was not only likely but also desirable in order to avoid a diversion of employment growth away from the Greater Dublin Area. The NSS further acknowledged that Dublin is a medium sized city in European terms and relatively small in global terms compared with cities like London, New York and Tokyo (GoI 2002, p22).

Although there is general consensus about the observations that Dublin is not a large city in international terms, and that its share of the national population is steadily increasing, it is necessary to qualify both statements. The size of Dublin at just over one million population in 2006 was not very different from successful European cities like Amsterdam or Frankfurt (both 750,000 or less). This would suggest that Dublin is therefore not 'small' by international standards. However, it is a sprawling city. With regard to its dominance in the national population, it is worth pointing out that the size of the actual city itself (including the suburbs that form part of the three surrounding counties Dun Laoghaire Rathdown, South Dublin and Fingal) as a proportion of the national population had been relatively constant and was actually declining somewhat in the intercensal period 2002-2006. See table 2. Analysis of preliminary results of the 2011 census suggests the percentage has not increased from 25%.

Table 2 – Dublin in the National Population

Area	1991	1996	2002	2006
Dublin City	478,389	481,854	495,781	506,211
Dublin Suburbs	450,701	470,838	508,833	539,558
National Population	3,525,719	3,626,087	3,917,203	4,239,848
Dublin as % of National Population	0.26	0.26	0.26	0.25

Source: Central Statistics Office.

To achieve an urban structure in Ireland with multiple cities of sufficient size to compete at national and perhaps international levels is therefore difficult. This is difficult because of the small size of the existing settlements but it is also difficult because of the small size of the overall population of the country. Clearly the size of the cake (overall population) determines the size of the pieces, not only how the cake is carved up. The total population of Ireland was 4.24 million in 2006. This represented an 8.2% growth from the population in 2002 which was 3.92 million. The overall population of the country is therefore comparable with the metropolitan areas of such cities as: Barcelona (ca. 5 million), Berlin (ca. 4 million) or Milan (4.3 million). A ranking of European Cities based on the *Size of Metropolitan Area*[ii] placed Dublin as no. 72 based on a metropolitan area population of 1,058,265.

However, although Dublin may be regarded as small in international terms, the city is undoubtedly a very dominant city in the Irish urban structure. According to the 2006 national census figures, the population of the second city Cork was only a quarter of the population of the Greater Dublin Area.[iii] Where smaller cities perform well in international ranking studies, they often form part of an urban network. Cities like Amsterdam and Dusseldorf, that are not very large in their own right (Amsterdam: ca.

745,000 and Dusseldorf: ca. 575,000) clearly benefit from the fact that they form part of urban networks that are large enough to count as sizeable metropolitan areas. In the case of Amsterdam it is the Randstad (ranking number 6 in metropolitan area) while in the case of Dusseldorf it is the Rhine-Ruhr region (ranking number 5 immediately after the Paris region). However, a 2006 study of polycentric cities in Europe concluded that the Greater Dublin Region remained a "*strongly monocentric region, dominated by Dublin*". The authors concluded that Dublin was too far removed from other cities to operate as a polycentric city and that during the Celtic Tiger years, "*if anything, the level of polycentricity at the city-regional level had declined"* (Egeraat, van 2006, p193).

The overall conclusion of the urban structure in Ireland that formed the starting point of the National Spatial Strategy in 2002, was therefore of a weak urban structure with a single dominant city which, although not small in itself, lacked linkages with other cities to achieve a size of a metropolitan area that was significant in international terms. Those responsible for the preparation of the National Spatial Strategy faced the dilemma of marrying the objective of retaining the critical mass of Dublin in the interest of Ireland's international competitiveness with the objective of Balanced Regional Development.

2. The NSS and Balanced Regional Development

If the NSS recognised the importance of retaining Dublin's share of the national population, how did it interpret the concept of Balanced Regional Development and how effective has the implementation been? There appears to be no doubt that the BRD objective was interpreted based on what one might call: 'push' and 'pull' arguments. The pull arguments were based on the need of other parts of Ireland to share in the fruits of economic development, i.e. receiving employment growth that might otherwise take place in the Greater Dublin Area. This was seen as appropriate given the capability of these regions to accommodate development having regard to the available land and workforce. The 'push'

argument was based on congestion problems in Dublin as reflected in long travel to work distances, traffic congestion and overheating property market.

The basis for this interpretation can be found in the National Development Plan 2000-2006 which concluded that emerging urban centres throughout the country which had not yet the attributes of regional Gateways in terms of population size, strategic location, range of skills and services or industrial and manufacturing base, had a key role to play in more balanced regional development, in terms of ensuring a more even spread of economic growth, utilising resources more effectively and alleviating the pressures on the larger urban centres (GoI 1999, p43). In other words: a pull argument (more even spread of economic growth) and a push argument (alleviating pressures on larger urban centres). This conclusion is further supported by the conclusions stated in the plan that there was an:

- Imbalance between and within regions in the distribution of national economic progress; and
- The growth and expansion of the Greater Dublin area, given rise to problems of congestion and housing shortage. (GoI 1999, p.39).

Since the National Spatial Strategy was adopted in Ireland, the record of achievement of more balanced regional development by identification of eight gateway cities outside Dublin has not been good. For example, in the period 2002-2006, the five main cities of Dublin, Cork, Galway, Limerick and Waterford were unable to achieve significant population growth rates. Only 4% of the population growth between 2002 and 2006 took place in the five main cities combined (Dublin, Cork, Galway, Limerick and Waterford). In the previous period between 1996 and 2002 this was almost 8%. While some of the gateway towns grew faster than the national average (Galway, Letterkenny and Athlone/Mullingar/Tullamore) most considerably less than the national average of 8.2% (table 3). All the gateway cities combined grew by 4.6%. At the time of writing detailed figures from the 2011 census are not yet available, but it would appear that, although the five main cities achieved a growth rate of 5.8% this was again below the national average

of 8.1% while a massive 98% of the growth achieved in the five main cities between 2006 and 2011 took place in the city of Dublin.

Table 3 – Population Growth in the Gateway Cities

Gateway and surrounding catchment	2002 Population Town and Environs	2006 Population Town and Environs	% Growth
Greater Dublin Area	1,004,614	1,045,769	4.1
Cork	186,239	190,384	2.2
Limerick	86,998	90,757	4.3
Galway	65,832	72,414	10.0
Waterford	46,736	49,213	5.3
Letterkenny	15,231	17,586	15.5
Sligo	19,735	19,402	-1.7
Dundalk	32,505	35,085	7.9
Athlone/Mullingar/Tullamore	42,655	48,887	14.6

Source: Central Statistics Office, Dublin

Another way of illustrating how the population growth has not been distributed in accordance with the objectives of the NSS is by considering the counties which contain gateway cities and the counties that do not. If one excludes Dublin City and the three counties in the Dublin region, there are 10 out of 26 counties which contain a gateway city. (Two gateway cities are straddling two counties: Limerick/Shannon and Mullingar/Athlone/Tullamore.) For these counties one might expect that because of the gateway designation, the population growth since 2002 should have been above the national average in percentage terms. However, in the case of only four counties this is true: Galway, Louth, Offaly and Westmeath. The other six counties show population growth that

is *below*, and often significantly below, the national average. In contrast, of the counties that do not contain gateway cities and where one might expect population growth to have been below the national average, the opposite appears to be the case. Out of 16 counties, again only four counties show a population growth below the national average: Kerry, Mayo, South Tipperary and Monaghan. For the remaining 12 counties however, the population growth has been at or *above* the national average. Just as for some counties *with* gateway cities the population growth has been *well below* the national average, for some counties *without* gateway cities, the population growth has been *well above* (in one case more than double) the national average. See table 4. An examination of the 2011 census figures shows that the position of counties within this table remains unchanged with the exception of Donegal (growth above national average) and North Tipperary (growth below national average) while Wicklow and Galway achieved growth rates that were similar to the national average.

Table 4 – Population Growth (%) 2002-2006 of Counties With and Without Gateway

Category of County	Growth below average	Growth above average
County with Gateway	Clare (7.4) Cork (7.5) Donegal (7.0) Limerick (5.0) Sligo (4.6) Waterford (6.3)	Galway (10.8) Louth (9.3) Offaly (11.3) Westmeath (10.4)
County without Gateway	Kerry (5.5) Mayo (5.4) Monaghan (6.5) South Tipperary (5.2)	Carlow (9.4) Cavan (13.2) Kildare (13.7) Kilkenny (9.0) Laois (14.1) Leitrim (12.2) Longford (10.7) Meath (21.5) North Tipperary (8.2) Roscommon (9.3) Wexford (13.0) Wicklow (10.0)

Note: National average population growth 2002-2006: 8.2%. Source: CSO.

The 'push' argument that was used as a reason for the Balanced Regional Development objective deserves closer examination. It was the argument of *congestion*. Essentially, a key assumption in both the National Development Plan and the subsequent National Spatial Strategy was that Dublin was suffering from congestion which resulted in sub-optimal economic development evidenced by excessive house prices or excessive travel times. The congestion argument is based on a concentric city development model where development takes place at increasing distances from a central urban core (Dublin City Centre) where most of the

jobs are situated. This traditional type urban model is based on the 'trade off' between travel cost and land cost: as competition for land in the central parts of the city drives up land values, urban development moves outwards where land prices are lower even though this is (partly) offset by increased cost of travel.

While it is true that Dublin suffers from traffic congestion, and that travel to work distances increased as a result of an overheating property market (which has since been corrected), it is also true that the Dublin jobs market is often misinterpreted. Instead of the single centre concentric model, it is better characterised by the 'edge city model'. For example, large concentrations of employment emerged in the 1990s at locations away from the city centre in areas peripheral to the city centre. In the form of City West and Sandyford Business Parks to the south west and south east and the Dublin Airport zone to the north of the city. This 'edge city' phenomenon resulted in much more realistic travel times for households that chose to live outside the city but relatively close to the relevant areas of employment (particularly if measured in terms of travel time rather than distance). For example, young households moving to Carlow (50 miles from the city centre) would be within 45 minutes driving time from City West. Similar observations would apply to commuter towns of Greystones in relation to Sandyford Business Park, or Balbriggan in relation to the Dublin Airport zone.

This edge city phenomenon however was largely unplanned and also generally criticised as being an unsustainable and undesirable form of urban expansion contributing to urban sprawl. There is no doubt that this is the case. For example, the City West business park has subsequently led to significant housing and retail development in the vicinity and to an extension of the light rail project. However, the 'edge city observation' is important because, if the congestion argument (the push argument) is removed from the reasons for BRD, the argument in favour of re-balancing population growth across the country, or at least, preventing continued increase of population share of Dublin in national population, are suddenly

much less compelling. This is particularly so if the issue of infrastructure is taken into account.

Given the small population size of Ireland, its density of population is low. In 2002 (the year of publication of the National Spatial Strategy) the population density of Ireland was 57.3 inhabitants per sq km. Only Latvia (37.8), Lithuania (55.5) and the Scandinavian countries Finland (17.1), Sweden (21.8) and Norway (14.7) had lower population densities.[iv] This means that it is relatively expensive to provide public infrastructure. There are serious deficiencies in many of its regions in terms of providing the necessary volumes of fresh water, waste infrastructure or energy that are required by large multi-national firms considering a location in a gateway city other than Dublin. That leaves other issues even to be considered such as access to broadband capacity, proximity to an international airport, or social infrastructure such as universities, or theatres. All of these forms of infrastructure are readily available in the Dublin area or have been provided in recent years.[v]

If a spatial development model could be devised for a city that would remove the congestion problem, while at the same time the economies of scale (the critical mass) can be achieved, development of the 'single city' model becomes worthy of consideration.

3. The Single City Model: An Alternative to Balanced Regional Development

The Dublin based Urban Forum is a collaboration of five professional institutes with an interest in the built environment.[vi] In 2008, it published the results of a study which had the title: Twice the Size? Imagineering the future of Irish Gateways (Urban Forum 2008). The Twice the Size study was a study into the spatial development of each of the eight gateway cities as designated in the NSS. In order to stimulate creative thinking and avoid an approach based on incremental growth based on the existing footprint and urban form, it was assumed that each gateway city would double in population size. The study was carried out using a scenario approach and day long workshops with local key stakeholders, were held in each gateway city. Based on three alternative scenarios, futures for each of the gateways were developed. These were: (a) the Atlantic corridor concept of the counterweight to the GDA, (b) continued sprawl and dispersed development throughout the country (the picture that emerged from the 2006 census figures) and (c) the city state concept illustrated by the Dublin-Belfast corridor. In the course of the study it was concluded that of the three scenarios, the Dublin-Belfast corridor was very compelling. The study drew the following conclusions:

- The most plausible future spatial model of Ireland would be based on a single city-region serving the entire country.
- It is likely that such a city would be located on the East coast and would initially be based on the Dublin Belfast Corridor.
- This spatial model would be likely to develop because of the combination of increased political and economic integration between Northern Ireland and the Republic of Ireland as well as the weak urban structure of the island outside the Dublin-Belfast Corridor.
- Such a model represents a major change from the radial model focused on Dublin which has been dominant for more than 40 years.

It is important to emphasise that scenarios are not predicted futures but rather possible stories. Just as the author of a novel can determine the outcome of the book, the research team could in the study determine the outcome of the scenario. The challenge was then to analyse how this outcome was achieved. In doing this exercise, it became clear that the Dublin-Belfast scenario was a very plausible future spatial structure for Ireland. The economies of scale of a large city of Dublin having regard to the relatively small population size of the other gateway cities in the Republic of Ireland combined with the relative proximity of Belfast city, is compelling.

In coming to this conclusion, the study had used the methodology of '*backcasting*'. Based on an assumed picture of Ireland in fifty years time an analysis was carried out how likely it was that situation would be reached. The strength of this technique is that it forces the analyst to identify the changes, events or trends that are likely to happen if the assumed future was to become a reality. In other words: the key is that the analysis is not focused on estimating the likely future situation, but rather on the factors that must occur if an assumed future becomes reality. This methodology led to the clear conclusion that the Dublin-Belfast scenario was out of three scenarios the most robust and likely scenario. During a workshop focusing on the picture at national level, participants were asked to imagine that the Dublin-Belfast corridor and its dominant position in terms of urban development in the country was a fact, and were asked to examine which factors were likely to lead to this reality not whether the reality was in itself a likely outcome.

The single city concept is therefore not only a suggested proposal for a desirable national planning framework for the country, but also as a more robust national planning framework than either of the other two scenarios would suggest. It is based on the idea that urban growth would be concentrated in Dublin and this would not be seen as a 'problem'. Nor would the lack of population growth in the gateway cities outside the

influence of Dublin, be seen as a problem. A shift from a 'quantitative' approach to a 'qualitative' approach.

This model of regional development could be seen as analogous with the economic principle of '*comparative advantage*' (see box 1). This means that where a stronger region in absolute terms has a competitive advantage over, say, a weaker region in a peripheral part of the country, the concept of comparative advantage could mean that the weaker region should concentrate on an activity where the competitive disadvantage is only a little bit less than that of the core region, e.g. tourism, rather than compete with the core region in all activities or economic sectors. It might even be the case that the weaker region not only has a comparative advantage but actual an absolute advantage over the core region in certain areas of economic development such as tourism or specialised areas of industrial activity (e.g. given access to deep water coastline facilities).

Box 1 - The Principle of Comparative Advantage - Example[vii]

Two men live alone on an isolated island. To survive they must undertake a few basic economic activities like water carrying, fishing, cooking and shelter construction and maintenance. The first man is young, strong, and educated. He is also faster, better, and more productive at everything. He has an absolute advantage in all activities. The second man is old, weak, and uneducated. He has an absolute disadvantage in all economic activities. In some activities the difference between the two is great; in others it is small.

Despite the fact that the younger man has absolute advantage in all activities, it is not in the interest of either of them to work in isolation since they both can benefit from specialization and exchange. If the two men divide the work according to comparative advantage then the young man will specialize in tasks at which he is most productive, while the older man will concentrate on tasks where his productivity is only a little less than that of the young man. Such an arrangement will increase total production for a given amount of labour supplied by both men and it will benefit both of them.

Specialising in niche markets means that individual gateway cities, or preferably: city regions, would not be subject of a policy of 'balanced regional development', but instead a policy based on the comparative advantages of that city region. The idea of 'niche markets' for settlements outside the Greater Dublin Area suggests that, rather than competing in terms of size, these settlements would compete in terms of qualitative criteria, such as: landscape quality, clusters of specialised industry or cultural identity.

A good example of the scope for performing in niche markets based on specialisation is the city of Galway. This relatively small city (2006 population of 72,414) is a gateway city as designated in the NSS. Unlike the other gateway cities, it performed well during the 2002-2006 intercensal period. Both the city and the county demonstrated population growth, at 10

and 11 % respectively, well above the national average of 8.2%. Small settlements in West Cork and Kerry perform quite well in terms of popularity as evidenced by property prices. Examples are: Schull or Kinsale. The Twice the Size study coined the phrase: the *Switzerland of the Atlantic* for this phenomenon. See box 2.

Box 2 - Switzerland of the Atlantic[viii]

Imagine, small cities such as Montreaux and Lucerne, set in the great scenic areas of the west of Ireland, concentrating on special activities, a potential home for the movers and shakers of the world. The West and particularly North-West losing much of its agriculture and having little employment growth in other sectors to compensate. But imagine, as other parts of Ireland continue to grow, particularly along the Eastern seaboard, their population growth and increased affluence creating demands for leisure and recreation activities. Imagine also the towns of the West becoming 'niche markets' for leisure and recreation based on environmental quality and availability of different lifestyles. Imagine cultural tourism products, local cuisine, hill walking and other activities creating picturesque destinations – the Switzerland of Ireland.

The single city model is therefore broadly based on a spatial demarcation of Ireland into two distinctly different areas:

- An eastern development zone that would be predominantly urban, and would be located along the eastern seaboard, albeit with a total width that could stretch 40-60 km inland.
- A western zone that would be predominantly rural with smaller settlements performing in key niche markets and competing both nationally and internationally on quality rather than (population) quantity.

As was evident in political reaction to the Urban Forum publication, this spatial model differed hugely from the current policy ideal expressed in the National Spatial Strategy. After all, the NSS had stated: "*It is likely (therefore) that the Greater Dublin Area's share of the State's population will continue to grow for some time. However, with the support of the NSS, this will happen at a slower rate than would otherwise be the case if Ireland*

had no spatial policy to enhance regional competitiveness." (GoI 2002, p.30). In contrast, the Twice the Size study suggested that an increased share in the national population of the capital city was not a problem and should be guided with an appropriate spatial planning framework.

4. From Single City to a Sustainable City State

As was stated earlier, an important argument in favour of the Balanced Regional Development concept has been the push factor of congestion in the Greater Dublin Area. How can it be argued that this is not a problem even if the share in the national population was allowed to grow even more? The answer suggested here lies in the adoption of the network city or polycentric city concept. The proximity of Belfast to Dublin combined with the likelihood of increased cross border trade in years to come, suggest strongly that the two cities will interact more in the future than they have done in the past. Improved transport infrastructure has greatly facilitated such greater interaction. By planning a linear urban network along the eastern seaboard that could ultimately stretch as far as Waterford on the south coast, a city could be developed that will achieve the critical mass necessary for it to compete internationally but avoid congestion drawbacks.

In the context of current national spatial policy, such a development model would be unprecedented and break with existing and established policies which are based on a radial model of development with Dublin as the hub and the national road network as the spokes linking the gateway cities to the capital. See fig. 2. Interestingly, it could potentially facilitate shorter distances between the regions on the west coast and the 'capital city' rather than longer distances if a transversal network is adopted. Provided that the distance from the capital city is measured as the distance to the nearest location of the urban network rather than the Dublin city centre, greater proximity can be achieved. A transport network would need to be developed emphasising these links rather than the traditional radial routes to Dublin.

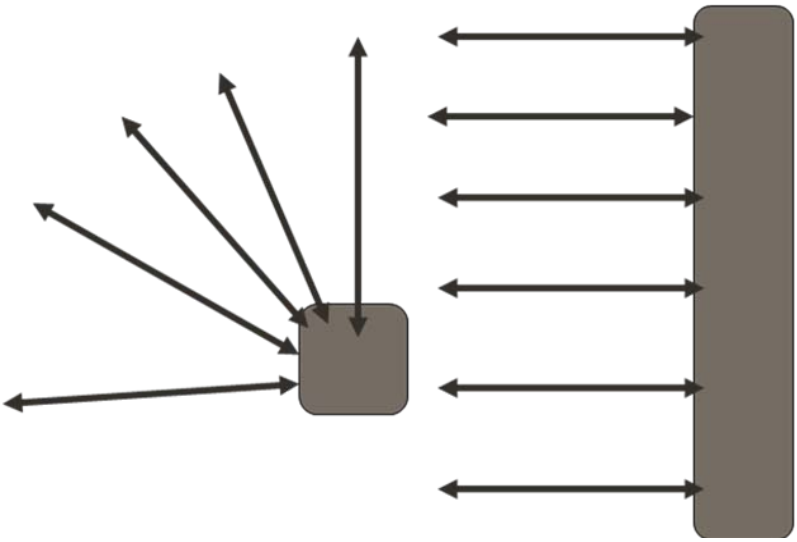

Figure 2 – From a Radial Model to a Transversal Model

A City State however suggests not only one dominant city in the settlement pattern of the country but also a separate system of governance.[ix] Such an idea would run counter to the existing policies espoused in the NSS which see Dublin as equivalent to other cities both in terms of its designation as in terms of governance. Nonetheless it is argued here that, given Ireland's small population size as a country, there would be considerable merit in acknowledging that the country really only has one city. In fact, such a system of governance would not be very different from the current reality of a highly centralised country where services such as police, public transport, education and health are all responsibility of central government rather than local government. It could be feasible for example, to consider a Minister of Urban Affairs with direct responsibility for the governance of the capital city.

How could such a dominant city with a separate system of governance, be compatible with a sustainable spatial development framework? Generally, sustainable development is interpreted in spatial terms as 'balanced' development or: equally spread out. Could it be argued that concentration of population and employment growth in a single dominant city could be the more sustainable model? It is suggested here that this is indeed the case. A number of arguments can be advanced to support such a spatial development model. First of all, a single city based on the Dublin-Belfast corridor could potentially be of sufficient size to be able to justify a high quality public transport network (e.g. rail based). High quality public transport of a quality that one might find in cities like London or Paris would not be feasible in any of the gateway cities under the NSS. However, it might be feasible in a linear city. Secondly, such a development model would take pressure away from the environmentally vulnerable parts of the county near the western seaboard.

Thirdly, demographic sustainability would be much more realistic than under a policy that seeks to 'spread population away from Dublin'. Increasingly, there are concerns expressed about the so-called 'shrinking city'. A research project on this topic stated that: "*To deal with the results of demographic, economic and physical contraction processes and to plan for the future of considerably smaller but nevertheless liveable cities is one of the most challenging tasks for urban Europe in the near future*."[x] While it is clearly the objective not to interpret population decline necessarily as a negative factor, it is nonetheless a concern that the critical mass concept can be more difficult to achieve if population growth is dispersed rather than concentrated in urban areas.

Dublin experienced in the past the phenomenon of the 'doughnut city'. This problem was addressed with highly successful urban renewal policies in the 1980s and 1990s which resulted in much residential development taking place in the city centre area. It is argued here however, that one must constantly aim to increase the population of an urban area though densification and appropriate urban policies aimed to avoid congestion.

Without concentration policies of population there is a risk of the shrinking city becoming a reality for Dublin also. The current phenomenon of 'ghost estates' in many parts of Ireland (although less so in Dublin) is an illustration of how vulnerable areas can be when the population increase does not take place as planned or as expected. In response to the 'ghost estates' phenomenon, it has been stated by many that when the demand for dwelling units will pick up again, this is likely to first emerge in the urban areas with the prediction that the more remote rural areas are likely to suffer an overhang of unwanted housing units for much longer period of time. This was essentially predicted under the two dispersal scenarios in the Twice the Size study. Essentially, the conclusion was that the policies based on dispersed population are more sensitive to economic downturn as they would be more costly to achieve.

5. The City State as a Polycentric City

It seems essential that a city state model of spatial policy will require the adoption of a policy towards 'polycentric urban development'. This means that a linear city on the eastern seaboard of the country would comprise of a range of settlements of different sizes, connected with each other but together forming an urban entity. In order to appreciate the importance of such an urban model it is useful to distinguish between three spatial models of urban development. See fig. 3. The first is that of the traditional compact city. This is the city where living and working are mixed so that the inhabitants are able to live at a reasonable distance from their work and satisfy most of their mobility needs using public transport, combined with cycling and walking. Such a city, while often aspired to in official policy documents, in reality has been replaced with a city where there has been a functional separation between working (in the centre) and residential (in the suburbs) leading to urban sprawl and increased travel distances between the home and the place of work, often requiring car based travel. The dominant type of mobility in this type of city is commuting directed predominantly in one direction (into the city in the morning peak and out of the city in the evening peak). This second model of urban sprawl is often

criticised and blamed for many of the ills that we are currently experiencing. In its place we would like to see a return to the compact city model, but is that a realistic option? A third model is the polycentric city, where the city comprises of a number of urban settlements, connected to each other by good transport systems and together forming a city region. While each of the urban settlements within the network may in themselves be compact and comprise mixed land use, the urban residents often display a lifestyle that can be described as 'polycentric', i.e. they visit different urban settlements for different purposes whether work or leisure based, resulting in a criss-cross travel pattern. It is suggested that this polycentric lifestyle is a reality that should be recognised.

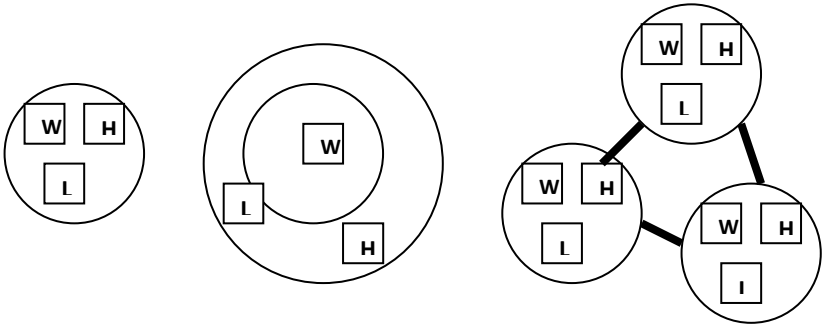

Figure 3 – Three Models of Urban Form: the compact city (a), the sprawling city (b) and the polycentric city (c).

A vision of an urbanised east coast of the country in the form of a polycentric urban network does not mean that the countryside will be lost. A fundamental principle in the polycentric urban network model is that it consists of three essential ingredients: (i) the individual settlements that together form the network, (ii) the connections between them in the form of transport infrastructure, and (iii) the open areas in between the settlements.

In the polycentric urban network the rural hinterland is integrated as part of the network rather than treating it as area of overspill of poorly controlled urban sprawl.

In a linear urban network such as the Dublin-Belfast corridor, one must not only find specific functions for each of the settlements in the network but also prevent these towns growing together thus reducing the distinctiveness of each of the settlements within the city region. This requires 'positive zoning' of the open areas between the towns. Rather than treating the undeveloped areas outside the settlements as agricultural land without specific zoning, or as a green belt zone which prevents any development taking place, these areas should be treated as part of the city region capable to accommodate many land uses that urban residents require but that are better located in the open areas than in the built up part of the city region. For example, recognising that urban residents need parks, it is perhaps preferable to provide the park *between* the settlements thereby strengthening the separation between the urban areas, than *within* the settlement. Other types of land uses that can be accommodated in the zones between the settlements are: caravan parks, waste facilities, greenhouses, recreation incl. horseriding, golf courses, allotments etc.

A linear city based on the Dublin-Belfast corridor will also contain many smaller towns. These towns often have characteristics that are special and that can be complementary to the range of activities that the main city can offer. This can be illustrated with the town of Bray located south of Dublin. Bray is at risk of becoming a suburb of Dublin but it can develop a niche market based on the sea side and its natural amenities. Rather than competing with Dublin's city centre that offers higher order facilities and nightlife, Bray's town centre should develop its retail offer based on the sea side experience. This means that identities need to be identified: e.g. what makes Bray special and distinctive, what makes it different from Dublin. But also: how is Bray different from Swords, a similar size town located at a similar distance from Dublin but with very different strategic advantages.[xi]

Undoubtedly, adoption of the linear city model for Ireland that is advocated here would require strong cross border cooperation between Northern Ireland and the Republic of Ireland. In this regard it is noted that a recent report concluded that proposed local government reforms in both jurisdictions[xii] are largely welcomed in terms of the perceived positive changes they will bring to the existing planning and governance systems, but that questions remain as to what extent they will result in the further alignment of policy and practice in both jurisdictions, and whether they will enhance the opportunities for collaborative working on a cross-border and inter-jurisdictional basis in the area of spatial planning (Creamer et al, 2010).

6. Conclusions

A scenario based study of potential growth of the gateway cities concluded that a spatial development model based on the concentration of urban development along the Dublin-Belfast corridor was highly likely. This conclusion leads to the justification for a spatial development model for Ireland that is based on a 'single city concept', i.e. concentrating urban growth along the Dublin-Belfast corridor in the form of a linear city for the eastern part of the country combined with a niche market policy (Switzerland of the Atlantic) for the western part of the country. Based on the economic principle of 'comparative advantage' niche markets can be justified in the gateway cities and their hinterlands that are located outside the sphere of influence of Dublin. Such a policy would recognise the significant environmental constraints that exist in the (north) west of the country making urban expansion difficult.

In the context of current national spatial policy, such a development model would break with existing and established policies which are based on a radial model. It would also present a radical departure from the idea of multiple cities in Ireland and potentially create a 'city state model'. While the implications are far reaching in terms of governance and regional development objectives, it is suggested that a well planned linear city along

the eastern seaboard, supported by two north south transport corridors and designed as a polycentric urban network, is of sufficient merit to justify investigation as part of a future review of the National Spatial Strategy.

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Notes

[i] Definitive CSO population figures for 2002 were not available at the time of publication of the NSS. The GDA as used in the NSS encompasses a wider area than as defined in the CSO census. For four of the eight gateway cities outside Dublin the population figures as stated in the table could be seen as too high. The NSS used as a definition for these cities their commuting catchments; i.e. areas within which significant numbers of persons journeyed to the city in question for work from surrounding areas.

Arguably, however, these catchments are not reflecting the actual size of the city. For example, in the case of Cork the town of Mallow was included (at a distance of 32 kms), in the case of Limerick: Ennis was included (distance: 36 kms) while for Galway, Tuam (distance: 35 kms) was included in the population figure in table 1. The last column in the table reflects the actual population figures of the cities as included in the census publication.

[ii] The ranking is based on population figures of the relevant cities and the metropolitan regions of which they form part. Source: Eurostat.

[iii] Based on aggregate urban area in both cities.

[iv] Source: Eurostat.

[v] For example, in the last ten years Dublin has achieved a Port Tunnel, a National Convention Centre, a Theatre, National Sports Stadium capacity, and a second airport terminal.

[vi] Royal Institute of Architects of Ireland, Engineers Ireland, Irish Planning Institute, Irish Landscape Institute, Society of Chartered Surveyors.

[vii] Source: Wikipedia

[viii] Urban Forum, 2008, p. 5.

[ix] A city-state is an independent country whose territory consists of a city which is not administered as part of another local government.

[x] www.shrinkingcities.eu

[xi] While both towns have similar proximity to Dublin are of similar size and both have motorway access, there are significant differences where Bray has a steady instead of fast growing population, where Swords has the

airport and forms a county town whereas Bray has its history, the seafront and the amenities. Differences to be embraced not be hidden.

[xii] The proposed changes will largely come into effect through the planned reform of local government in Northern Ireland as part of the wider Review of Public Administration (RPA), and the adoption of the *Planning and Development (Amendment) Bill 2009* and the soon to be published White Paper on Local Government Reform in the Republic of Ireland.

Visual Impact Assessment as part of Environmental Impact Assessment and its Statutory Context

Amy Hastings

Introduction

Despite the central importance of visibility and visual character in the planning process in Ireland, guidance on how visual matters should be described and assessed is limited. The purpose of this article is to discuss how visual issues surrounding development are addressed or referred to in E.U. law and in Irish law and statutory guidance. In many of these documents, matters relating to visual impact assessment are referred to obliquely or by inference. There appear to be no legal commentaries that draw together the broad spectrum of legal provisions on the visual effects of development.

Having regard to the EU law and guidance and Irish statutory guidance, this article proposes to suggest a methodology for the assessment of visual impacts of a development on landscape and the built environment.

Visual Impact Assessment and Environmental Impact Assessment under EU Law

The Environmental Impact Assessment Directive (Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment), as amended, requires the assessment of projects that are likely to have significant effects on the environment. Neither the Directive, nor those directives which amend it (Council Directives 97/11/EC, 2003/35/EC and 2009/31/EC), refer to a requirement for visual impact assessment, but, instead, refer to the requirement for assessment of the direct and indirect effects of a project

on, *inter alia,* landscape and architectural, archaeological and cultural heritage. It is clear, however, from supporting documentation that visibility and visual impact is considered to be a key factor in the assessment of projects, which are likely to have significant effects on the environment.

Visual impact would appear to be a factor in determining whether a project might be one requiring an Environmental Impact Statement, particularly when screening projects that might be considered an urban development project within the meaning of Annex II(10)(b) of EIA Directive. The European Commission, in the 2008 guidance document on *'Interpretation of definitions of certain project categories of annex I and II of the EIA Directive'*, in referencing the European Court of Justice in case *C-332/04, Commission v Spain*, stated that:

> *'In interpreting the scope of Annex II(10)(b), the 'wide scope and broad purpose' of the EIA Directive[61] should be borne in mind. Consideration should also be given to the general objective of the Directive as expressed in Article 2(1), i.e. that 'projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to [...] an assessment with regard to their effects'…*
>
> *On the basis of these considerations, it would be advisable to interpret the scope of this project category as follows:*
>
> 2. *Construction projects such as housing developments, hospitals, universities, sports stadia, cinemas and theatres should also be assumed to fall within this category. The underlying principle is that all these project categories are of an urban nature and that they may cause similar types of environmental impacts[62].*
>
> [61] *Stated in C-72/95, Kraaijeveld and others, and consistently stressed in subsequent ECJ rulings.*

> [62] *Including noise and traffic-related disruption during the construction phase, traffic generation during the operational phase, land take, impairment of soil function due to sealing and* ***visual impact****.'*
>
> [Emphasis added.]

In the Irish context, an assessment of visual impacts on 'landscape' is often interpreted as referring to only rural landscapes. *Case C-332/04, Commission v. Spain,* is, therefore, significant, as it would seem to clarify that urban areas and the built environment should fall within the broader definition of landscape:

> *'Indeed, densely populated areas and landscapes of historical, cultural or archaeological significance in points 2(g) and (h) of Annex III of the EIA Directive are among the selection criteria to be taken into account by Member States, under Article 4(3) of the Directive, in the event of a case-by-case examination or of setting thresholds or criteria for the purpose of Article 4(2) to determine whether a project should be subject to an assessment. These selection criteria relate more often to urban areas.'*[1]

A broader interpretation of the term 'landscape' is also supported by Section 3.13 of the European Commission's 2001 document '*Guidance on EIA: EIS Review'*, which states asks: *'is the landscape or townscape of the area that may be affected by the Project described…?'*. This author, therefore, suggests that, within the context of the EIA Directive, 'landscape' should be interpreted as including natural landscapes, the built environment / townscapes and landscapes which combine both natural

[1] European Commission. 2010. Environmental Impact Assessment of Projects: Rulings of the Court of Justice. Belgium: European Union at page 21.

features and man-made features.

The European Commission's 2001 document *'Guidance on EIA: Screening'* describes a *'checklist of information needed for screening'*, which suggests that *'a brief description of the likely impacts of the project … on … landscape and the **visual environment**'* should be included in any description of the characteristics of the potential impact of a project. Also, under the *'Screening Checklist'*, the document asks the following questions:

> *'11. Are there any areas on or around the location which are protected under international or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the project.*
>
> *…*
>
> *15. Are there any areas or features of high landscape or **scenic** value on or around the location which could be affected by the project?'*
>
> [Emphasis added.]

European guidance documents, and, in particular, the European Commission's 2001 document '*Guidance on EIA: EIS Review*', draw a distinction between *'protected views or landscapes'* and other *'important views or viewpoints'*[2]. It should, therefore, be noted that, within the meaning of the EIA Directive, a visual impact assessment should have regard to the impact of a development on all elements of the built environment and should not be restricted to visual impacts on protected views or landscapes.

[2] At Section 3.13.

This document also suggests[3] that an assessment of the impacts of a project on the landscape should include an assessment of the *'direct, primary effects on the quality of landscape'* and an assessment of *'direct, primary effects … on views and viewpoints'*. These views and viewpoints should also be *'described and where appropriate illustrated'*.

In formulating a potential methodology to be used in the preparation of a visual impact assessment, this author suggests that regard should also be had to the general requirements in relation to the information to be contained in an Environmental Impact Statement (as set out at Annex III of the EIA Directive):

> *'4. A description (1) of the likely significant effects of the proposed project on the environment resulting from:*
>
> - ***the existence of the project**,*
> - *the use of natural resources,*
> - *the emission of pollutants, the creation of nuisances and the elimination of waste;*
>
> *and the description by the developer of the forecasting methods used to assess the effects on the environment.*
>
> *(1) This description should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project.[4]'*
>
> [Emphasis added.]

[3] At Section 4.15.

[4] This part of Annex III is transposed into Irish law, albeit using slightly different wording, at Section 2(c) of Schedule 6: Information to be contained in an EIS of the *Planning and Development Regulations, 2001*, as amended.

In the opinion of this author a description of the likely significant effects of a proposed project on the environment resulting from *'the existence of the project'* is of particular importance in the context of the assessment of visual impact for the following reasons:

(i) *Determination of the baseline context*

It is clear from the above that it is a requirement of EU law (as subsequently transposed into Irish law) that when assessing the visual impact of a project as part of an Environmental Impact Statement, visual impact should refer to the difference in the environment that occurs as a result of the existence of the project. In other words, the visual impact of a development represents the difference between the current environment and the environment after the construction of that development. Confusion arises where the proposed development is one which proposes removal of existing development from the development site prior to construction of a new development (e.g., demolition of an existing house and replacement with a new house). It would seem that there is a temptation in these circumstances to consider the site, as cleared of existing development, to be the baseline context for the assessment of visual impact of the portion of the development that proposes new construction. This author suggests that this approach is inconsistent with the EIA legislation and that the correct methodology, having regard to Annex III of the EIA Directive, is to look at the visual impact of the proposed new construction against the existing development on the site.

(ii) *The fallacy of diminution of impact over time*

It is fair to say that, in certain circumstances, a building thought startling when first built, may in time become part of the background, and what at first might have been regarded by the public a significant impact, fades to slight, where other development in the area

surrounding the studied proposal takes place and changes the visual context. So, though buildings are intended to be permanent, and will be permanently visible, the extent of visual impact associated with a building can diminish with time. However, this diminution of extent of visual impact can only occur where the surrounding visual context changes. It is a fallacy for a visual impact assessment to suggest that the visual impact of a development will diminish over time for the sole reason that the people viewing the development will become used to it, a fallacy that is not borne out by the legislation governing EIA at EU or national level.

An example of how assessment of whether the visual impact of a project will diminish over time might operate in practice is as follows: where planning permission is sought for single dwelling on open lands in a rural context, the extent of visual impact of that dwelling might be considered significant when compared to the non-existence of that dwelling. In circumstances where planning permission has been granted for the construction of one hundred dwellings around the original dwelling, those new houses are likely to change the visual context and obstruct views of the original dwelling, thereby reducing its visibility and visual impact. The visual impact of the existence of the original dwelling when compared to its non-existence is likely to diminish over time as those new houses are constructed. For example, the visual impact of some of the initial developments that have occurred in the Dublin Docklands area could be said to have reduced because considerable other development has been constructed around it over the years. In circumstances where no development is likely to occur in the area surrounding the original dwelling, the visual impact of the original dwelling cannot diminish as the difference between its existence and non-existence will always be substantial. An example of this latter circumstance is the Loopline Bridge, which, although built some 120 years ago, is still the subject of campaigns for removal on

grounds of negative impact on views of the Custom House[5].

From a reading of the EIA Directive, as amended, and supporting documentation (including guidance produced by the European Commission and rulings of the European Court of Justice), this author suggested that the requirements of EU law with regard to visual impact assessment of projects could be summarised as follows:

- The visual impact of a project on landscape and / or the visual impact of a project on landscapes of architectural, archaeological or cultural heritage significance can be a determining factor in the assessment of whether an Environmental Impact Assessment of a project is required.
- The term 'landscape' was not intended to refer solely to natural landscapes and can include semi-natural landscapes and the built environment.
- In undertaking an assessment of the likely impacts of a project on landscape: it is necessary to consider (i) the impact of a development on the quality of the landscape; and (ii) the impact of a development on views and viewpoints (i.e., a visual impact assessment).
- A visual impact assessment should not be confined to an assessment of the likely visual impact of a project on protected or designated views.
- The views and viewpoints chosen for analysis as part of a visual impact assessment of a project should be described and, where appropriate, illustrated.
- Visual impact assessment should be a measure of the change in the

[5] Proposals for the removal of the bridge have been made for almost a century and the potential removal of the Loopline Bridge remains a recurring topic of debate on online architectural forums. Dublin City Council Architects also proposed the removal of the Loopline Bridge during the An Bord Pleanala oral hearing into the proposed redevelopment of Tara Street Station (ABP Ref. 29S.PA0012). Members of the Dublin City Planning Department later confirmed that it was not the policy of Dublin City Council to remove the Bridge. See also the Irish Times Article 'Architects' proposal to remove bridge 'merely tongue in cheek'' of the 30th July 2009.

visual environment caused by the existence of a development in relation to its non-existence.

While European law is instructive with regard to what might be contained in a visual impact assessment, it provides little guidance as to how the extent or character of a visual impact might be categorised.

Irish Statutory Guidance on Environmental Impact Assessment

The extent of the visual impact of a development is usually proportional to the extent to which that development is visible. The extent of impact will also, in part, depend on the sensitivity of the spaces from, and within, which the development is seen. This proportionality may be modified by the extent to which a development is regarded as culturally or socially acceptable.

The EPA's *Guidelines on the Information to be Contained in Environmental Impact Statements*, was prepared under section 72 of the *Environmental Protection Agency Act, 1992* and is, therefore, statutory guidance. Section 72(3)(a) of the 1992 Act states that regard must be had in the preparation of an environmental impact statement to any guidelines prepared under section 72.

While European law and guidance on Environmental Impact Assessment does not provide information on how the extent of a visual impact might be assessed, the definitions at *Section 5: Glossary of Impacts* of the EPA's *Guidelines on the Information to be Contained in Environmental Impact Statements* are instructive with regard to how the extent of a visual impact might be categorised.

'Imperceptible Impact

An impact capable of measurement but without noticeable consequences.

Slight Impact

An impact which causes noticeable changes in the character of the environment without affecting its sensitivities.

Moderate Impact

An impact that alters the character of the environment in a manner that is consistent with existing and emerging trends.

Significant Impact

An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.

Profound Impact

An impact which obliterates sensitive characteristics.'

Therefore, having regard to the above, an 'imperceptible' visual impact would be one where the proposed development is likely to be visible but difficult to find in a view (e.g., the roof of a proposed house might be visible in views from high ground over urban development, but, while technically visible, the viewer might be find it difficult or impossible to identify the proposed development in the view). This could be distinguished from a 'slight' impact, where a development is openly visible and easily identifiable in a view, but where that development does not alter the overall character of the view (e.g., an extension to the side of a house in a residential estate, where other houses have been extended in a similar fashion could have a 'slight' visual impact). A moderate visual impact is likely to occur where

development is proposed in an area undergoing or earmarked for major development (e.g., areas such as the Dublin Docklands).

In relation to significant and profound visual impacts, sensitive aspects of the visual environment would refer to important elements on which a view is dependent. A 'significant' visual impact might occur where one of those elements is obscured by a development, while a profound visual impact is likely to occur where views of several of those elements were prevented by a development to the extent that the view is fundamentally impaired.

The EPA Guidelines also define ways in which the quality or character of an impact can be categorised, i.e., positive, neutral and negative.

> *'Positive Impact*
>
> *A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or removing nuisances or improving amenities).*
>
> *Neutral Impact*
>
> *A change which does not affect the quality of the environment.*
>
> *Negative Impact*
>
> *A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health of property or by causing nuisance).'*

When the definitions set out in the EPA Guidelines of quality of impacts are read in conjunction with the definitions of significance of impacts in the context of visual impact assessment, this author believes that a neutral impact, being one which does not affect the quality of the environment, can

only occur where the extent of visual impact is 'imperceptible' – an 'imperceptible' impact can be neither positive or negative as it neither improves nor reduces the quality of the environment. It is arguable that the visual impact of a development could be neutral and 'slight', as where the sensitive characteristics of the visual environment remain unchanged, it is reasonable to assume quality of the visual environment remains unchanged. However, as 'moderate', 'significant' and 'profound' visual impacts all occur in circumstances where the visual environment is altered, in the opinion of this author, these views must be classified as positive or negative. In this regard, it is notable that the EIA Directive makes no reference to the potential for impacts that are neutral in character to occur.

Notwithstanding this, these definitions may not be particularly helpful in relation to the assessment of visual impacts. The character of a visual impact (e.g., positive, negative or neutral) will depend on how well a development is received by the public, and on the general contribution of the development to the landscape or the built environment. The character of a visual impact, and even the duration of a visual impact, is very dependent on the attitude of the viewer. If a viewer is opposed to a new building for reasons other than visual, that viewer is likely to see the building in a negative light, no matter how appropriate that building might be in the context of its surroundings.

In the absence of Irish statutory guidance on the subject of visual impact assessment, many practitioners choose to make reference in whole or in part to UK guidance in assessing the visual impact of a development. The *Guidelines for Landscape and Visual Impact Assessment* by the UK Landscape Institute with the Institute of Environmental Management and Assessment (often referred to as the Spon Guidelines) is not statutory guidance in Ireland and sets out methodologies and terminologies for the assessment of landscape and visual impacts, which are in conflict with the methodologies and terminologies set out in the Irish statutory guidance, the EPA's *Guidelines on the Information to be Contained in Environmental*

Impact Statements. For example, the Spon Guidelines describe all potential and predicted impacts as being either of negligible, low, medium and high magnitude, sensitivity and significance rather than as being imperceptible, slight, moderate, significant or profound, as is required by the EPA guidance. It further creates difficulties that the Spon publication suggests multiple different definitions for the terminology used.

This author suggests that the application of the UK Landscape Institute publication, without reference to the EPA guidance and to the terminology and methodologies set out in that document, is contrary to the requirements of environmental impact assessment legislation. More than this, as some terms (e.g., 'slight', 'moderate') are common to both documents, but can have different meanings depending on the document being used, the use of the UK guidance, in the Irish context, can be misleading as to the true character of a visual or landscape impact.

Recommendations for Framing a Visual Impact Assessment Methodology

With reference to the principles set out in EU legislation and guidance and Irish legislation and statutory guidance on the subject of Environmental Impact Assessment, a methodology for the assessment of the visual impacts of a development on landscape and the built environment could be as follows:

- *Baseline Analysis of context*
  Following on-site analysis, describe the existing visual character of the context illustrating this character, where appropriate, from representative viewpoints

- *Visibility analysis of the project*
  Having regard to the location of the project (e.g., natural landscape, semi-natural landscape or townscape), the character of the area and proximity to areas of heritage or scenic value, compile a list of

viewpoints from which the project may be visible, taking care to include any protected or designated views. A zone of visual influence diagram, illustrating likely areas from which a development might be visible, may also be useful.

- *Visual Impact Analysis of the project*
  Having regard to detailed design drawings of the project, describe the likely extent of visual impact and character of visual impact on each chosen viewpoint. The key point of reference should be the visual impact that the existence of the development is likely to have on the existing context. This description should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the proposed development. In categorising the extent and character of impacts, reference should be made to the EPA's *Guidelines on the Information to be Contained in Environmental Impact Statements.* It may be appropriate to include a number of illustrations in this section also, such as line diagrams, sections or photomontages.

Amy Hastings BCL, BL, MSc (Spatial Planning), MIPI has worked as a planning consultant in private practice for nine years and has been a partner in ARC Consultants since 2003.

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Evidence based urban modelling as a spatial analytical tool in the Regional Planning and Strategic Environmental Assessment context for the Greater Dublin Region.

Brendan Williams , Harut Shahumyan, Sheila Convery. Urban Research Group UCD

Section 1 introduction

From 2000-2010 a sprawl type pattern of development became established in the Greater Dublin Region (GDR). Uncertainty surrounding future demographic and economic projections indicates that the spatial and land use implications of such alternative projections would be a useful aid to all participants in the urban development, planning and environmental management process. Analytical models applied to urban development patterns such as the EU JRC Moland model have been developed in recent years .The logic of their development is based on the need for evidence based support for decision making in this area. In particular, they include inputs of economic and demographic trends along with specialist land use ,type and access data for use by decision makers including city managers ,urban planners and economic and development interests. The analytic models can be viewed as part of an integrated ecological approach to this issue with a strong science and quantitative basis. A concern with such approaches is that along with such technical data and decision-making processes are the values and attitudes of the various socio economic groups of city region residents and key decision makers. These are obviously much more difficult to evaluate and analyse.

Therefore, the evidence based models need to be supplemented by a methodology, which can assess the probable outcomes of the linked development decision processes involved in urban development. Critically, this approach needs to discuss and evaluate the alternative projections or possible scenarios, which could result in future development patterns. Such evidence based scenarios could be used in a cooperative manner to

evaluate differing development options and as a basis for development management decisions. The results of such research can include a series of illustrative images or scenarios representing future development options and also associated quantitative indicators, which can be used to measure environmental impacts of various courses of action. Alternative propositions and counter propositions can, therefore, be examined and evaluated as to their likely future impact. In turn, this reflects a shift from the physical determinism aspects of planning policy towards policy approaches, which can adapt and respond to emerging social and environmental problems.

The realities of recent development patterns differ substantially from stated policy in the National Spatial Strategy (NSS, 2002) and from international best practice in many cases. This new urban form and emerging development trends require examination in order to identify the impact on the environment and the implications for sustainable development policy aspirations. The Urban Environment Project (UEP) examined examples of potential measures to create a more positive environmental context including urban containment and improved public transport and improved water infrastructure provision. The principal aim of the UEP project is to compare and evaluate scenarios in regional planning for improved evidence based urban policy processes. It is recognised that such policies also need to be better integrated; to combine their technical, environmental, economic and social impacts to move towards sustainability in ways that enhance environmental quality and economic competitiveness; and to maximise cost effectiveness and value for money.

The paper will cover three main areas

-The adaption, development and application of the Moland model to the Irish planning context

- Results of case studies in the Dublin region undertaken in the Urban Environment Project

- Analysis of implications for development policy and potential future applications and uses of evidence based models in the Irish urban management and development context.

Section 2.The adaption, development and calibration of the Moland urban model to the Greater Dublin Region

Land use change could be considered as complex but self-organising market actions linked to individuals and business changing demand requirements subject to some regulation. Modern land use and development has, however, evolved as an economic process in which major development interests, policy makers and planners have a decisive influence. Development interests seek to standardise and provide as a commodity sector space demanded and provide it at a profitable price. This produces the standardised speculative housing estate or office block. Urban Planners in turn can seek to facilitate or direct the built environment process to achieve social environmental and economic aims. The development of appropriate tools, such as urban modelling, which can assist in achieving the best utilisation of scarce public investment resources is therefore an option which can benefit these processes.

The MOLAND model was developed as part of an initiative of the Joint Research Centre (JRC) of the European Commission as a response to the challenge of providing a means for assessing and analysing urban and regional development trends across European member states (Engelen et al, 2007). The software application was developed at the Research Institute for Knowledge Systems (RIKS) within the Geonamica platform and runs as a standalone application (Hurkens et al., 2008; Engelen et al., 2007). It was intended to be a generic tool that could be used in a wide variety of contexts, both geographic and institutional, to enhance the spatial planning process. It has been applied in more than 20 regions, like for example, in the Friuli-Venezia Giulia region of Italy to explore possible future flood losses consequent on urban expansion in the region (Petrov et

al., 2005) and in Lagos, Nigeria to explore the future growth of the city (Barredo et al., 2004).

The MOLAND model comprises two sub-models working at different scales: a spatial interaction based model of activity location and migration (the macro model), and a cellular automata (CA) based land use model (the micro-model) with which the macro model is linked dynamically, so that the two components run as a single model. At the macro scale, the model takes as input the population and the economic activity (number of jobs by major economic sector) in the region, and these are then split among the sub-regions of the modelled area. At the same time, the macro-model captures the competition for population and economic activity among the sub-regions and generates a relocation of activity among them. In the Greater Dublin Region (GDR) application, the sub-regions are the administrative counties within the region (Figure 1).

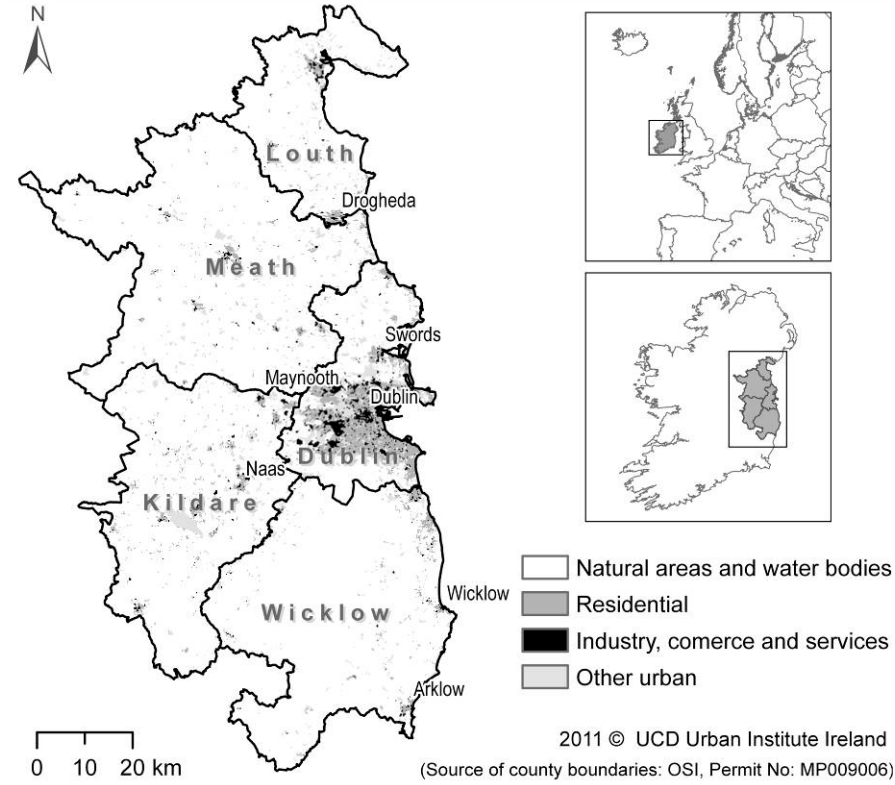

Figure 1. Greater Dublin Region (2006 land use classes combined in 4 groups)

At the micro scale, the sub-regional totals for population and economic activity generated by the macro-model are translated into demands for the corresponding land uses, for example, population will be accommodated within the residential land use categories, and economic activity will be provided for within commercial, industrial, service and ports land use types. The micro model consists essentially of a constrained CA; this is the heart of the MOLAND model. The CA consists of (1) a grid of cells representing the land use of the Greater Dublin Region, (2) a set of factors (i.e.

accessibility, zoning, suitability, and neighbouring land uses) influencing the direction of land use change, and (3) a transition rule, which generates changes in land use on particular cells in response to the land use demands generated by the macro-model, taking into account the factors that affect land use change. The result is a dynamic land use map, on which the land use pattern changes year by year in a realistic manner as validated by land use maps for past periods as well as the present.

In the scope of Urban Environment Project, the MOLAND model was adapted, calibrated and validated for the GDR based on 1990, 2000 and 2006 social-demographic and spatial datasets described below (Shahumyan et al, 2009 a,b):

- The **land use** maps of GDR prepared for the MOLAND are at a 200m resolution with the minimum mapping unit 1 ha in urban areas and 3 ha in rural areas and with a total of 23 land uses by CORINE classification. What would be the residential category, the land use corresponding to population, is divided into four categories: residential continuous dense, medium dense, discontinuous, and discontinuous sparse. Corresponding to each of the highly aggregated economic sectors used (Industrial, Commercial, Service, and Ports) is a single land use category.

- **Suitability** in the MOLAND represents the intrinsic qualities of a cell insofar as those qualities make the cell attractive or not to each land use type according to a set of predefined criteria. In MOLAND the suitability values are expressed on a scale of 0 (completely unsuitable) to 10 (highly suitable), and are computed using as input elevation, slope, aspect, soil and existing land use datasets. An assessment of the suitability maps of GDR used for the 1990-2000 calibration of the model carried out earlier by other researchers revealed no documentation on how the suitability maps were prepared. In particular, no documentation was found on the soil types and weightings used for defining the criteria. This made it difficult to apply consistent guidelines to the 2006 datasets.

Due to time constraints in achieving a calibrated model and for comparison with the previous calibration, the suitability maps used for the 2000 calibration were duplicated for 1990 and 2006. It is assumed the previous suitability maps are reasonably accurate and that physical suitability is not likely to have changed significantly between 1990 and 2000 or 2000 and 2006.

- MOLAND models **zoning** with binary options, namely, permitted (1) and not permitted (0). That is, zoning specifies whether a cell may or may not be taken over by a specific land use. In this application, since future zoning plans are not known, only protected areas are zoned as non-developable. For the GDR application, attempts were initially made to apply direct translation of the development plans into zoning maps for MOLAND. This process was, however, tedious and time consuming due to poor data quality and lack of homogeneity within counties. As a result, a one-to-one mapping of the zoning maps into MOLAND could not be incorporated. An alternative approach was implemented, whereby zoning maps were developed to include special protection and conservation areas as well as national heritage areas.

In addition to suitability and zoning, **accessibility** to the transportation networks is an important input into the MOLAND model, because arguably the most important driver of land use change is the degree to which services, markets and people can be reached. Accessibility maps capture the relative importance of access to the transportation networks for the various land uses. The MOLAND model creates accessibility maps as it runs based on the transport network and accessibility parameters. The road and rail networks of 1990, 2000 and 2006 years were used in the MOLAND model GDR application.

Initially a classic calibration-validation procedure was considered using the 1990 – 2000 period for calibration and 2006 for validation. However, detailed analysis of the available data and several calibration exercises revealed some unforeseen challenges. In particular, whenever the

calibration gave reasonable estimates for the period 1990-2000, the validation results were poor for 2000-2006 and vice versa. Though for population the results were satisfactory (under 5% root mean square error), this was not the case with regard to employment data (Shahumyan et al, 2009b). This can probably be explained by the variations in wider socio-economic interactions taking place in Ireland during these two periods, as well as the lack of the employment data by place of work for 1990 and 2000.

Over the period 1990 to 2004, Ireland's economic profile changed from one of the weaker economics of North West Europe to one of the strongest in terms of economic and employment growth. Irish GNP grew by over 8% per annum over this period and this resulted in a reduction in unemployment from 12% in 1996 to a low of 4% in 2000. Interestingly, the brief international economic slowdown in 2001 resulted in a stabilisation of house prices with a rise of 21.3% recorded for 2000 and a significantly lower rise of 4.4% recorded for 2001 as evidence of an economic slowdown. However, the recovery in economic activity, allied with fiscal interventions, ensured a strong market recovery and a return to high levels of growth in prices and the general economy. From 2001 to 2004, continued economic and employment growth resulted in unemployment remaining below 5% in 2004. (ESRI Quarterly Economic Commentaries (2000-2009). In 2005, economic growth in GDP terms continued at 5% in 2005 and with sustained employment growth unemployment remained low, estimated at 4.3% in mid-2006 (CSO, 2007). The end peak of this economic cycle saw GDP growth of 6.5% in 2007 tail off to approximately 0.6% growth in 2008 (Central Bank Bulletin Q.3, 2008). House prices fell by 7.35% in 2007 as the construction boom ended and with the deepening recession and, credit crunch unemployment has risen to over 10% in 2009.

As a consequence, it is hardly possible to find just one set of model parameters, which can accurately capture the activity growths for 1990-2000 and 2000-2006 time periods simultaneously. Taking into account the stabilisation of economic growth in Ireland in 2001, the period of 2000-2006

probably describes the present situation more reasonably. Besides, this period is also more comprehensively represented given the time period of our datasets, including place of work data. This significantly reduces the errors raised during the data estimation procedures. Therefore, calibration fine-tuned for 2000-2006 has been accepted as the most reasonable for use in future simulations and application of the model and was used in simulation of the scenarios described below.

Section 3. Results of Case studies

The purpose of the UEP research was to develop a methodology that may be utilised for the examination of development in functional urban regions and the general management of urban development in the context of its long term economic and environmental consequences. This concept is particularly relevant in considering the emphasis in the National Spatial Strategy (NSS) on balanced regional development. The debate on the Irish urban system and its dynamics was carefully explored in the NSS and related Regional Planning Guidelines (RPG). It is, therefore, appropriate that evidence based analysis of how Dublin and other functional urban regions have developed should be examined. The implications of a functional regional approach to planning and development issues are especially relevant to long term and strategic policy planning issues.

During the period 2000-2008, a sprawl type pattern of development became established in the East Region of Ireland. A lack in provision of housing close to the economic core areas of the region created a continuing push of employment related housing demand at increasing distances from Dublin. Recent trends towards increased supply in the Dublin area is in effect at an advanced stage in the regions current development cycle when a dispersed pattern has already become established. The dispersal of housing, retail and employment activities in a fragmented manner across an ever-increasing area has major implications for the environment, infrastructure and service provision (Williams et al, 2003). In 2009, the economy and development markets experienced a

major downturn with all development activity stalled. However, it is evident that the problems of the environmental consequences of the dispersed development activity will have major bearing on future development and environmental policies in the region.

The realities of emerging development patterns differs substantially from stated policy in the National Spatial Strategy (NSS, 2002) and from international best practice as represented by the European Spatial Development Perspective. This new urban form and emerging development trends require examination as to the impacts of such patterns on the environment and its implications for sustainable development policy aspirations. The negative externalities resulting from sprawl patterns of development are recognised as reducing individual well being and are often inequitable in terms of their geographic spread. Potential measures to create a more positive environmental context including urban containment and improved public transport have been identified as policy aspirations. However, localised development pressure and inadequate governance and management structures often negate such policies. Robust evidence based research on existing development trends and its implications are, therefore, essential in assisting in the development and management of effective policies for sustainable urban development. Following consultations with Dublin Regional Authority, it was decided that the UEP management team would participate in a meeting with relevant stakeholders to decide on the choice of potential development scenarios for the region as part of their Strategic Environmental Assessment (SEA) process. Brennan et al (2009) describe how these discussions and further meetings with regional authority officials resulted in several final scenarios being chosen. Using the MOLAND model, the UEP team evaluated scenarios describing possible future development patterns. The full range of scenarios are examined in the final UEP report (Williams and Convery, 2011)

Among the several scenarios evaluated as part of the SEA and examined below are

1. Baseline/Continued Trends Approach.

2. Finger Expansion of Metropolitan Area

Methodology

Calculating populations for the region in 2026:

The Dublin and Mid East regional authorities provided population projections to 2022, with a high/low range, which were used in all scenarios. For use in MOLAND, these were extrapolated to 2026 based on the linear projection of the growth from 2006 to 2022. In consultation with the regional authorities and in light of the current economic down turn, it was decided to present results for scenarios run with the low population projections in the research. This population was used in all Scenarios.

The GDA, comprising the Mid-East region and the Dublin region, is of similar, though not identical extent to the MOLAND study area named Greater Dublin Region (GDR). The GDA consists of the Dublin counties, Meath, Kildare and Wicklow. The GDR consists of the Dublin counties, Meath, Kildare, Wicklow and Louth. Thus, it was necessary to estimate the population for Louth in 2026 and add it to projected GDA population in 2026.

Table 1. Projected populations in the GDR by 2022 under the four regional population projections.

Each scenario required different transportation networks to be derived from existing road and rail datasets. The existing road and rail datasets along with future proposed Transport 21 network (Figure 2) datasets were

	2022 Population (Low)	2022 Population (High)
GDA 2022 population	2103900	2161700
GDR 2022 population	2244759	2306442
Linearly extrapolated GDR 2026 population	2362498	2439596

obtained from the Dublin Transportation Office and the National Roads Authority. Using the ArcGIS platform, these datasets were manipulated to suit the required transportation network for each individual scenario. The following network links were included in scenario development; Dunboyne Spur (rail), Metro North, DART, Navan Rail, Outer Orbital Route. Each proposed network change was added in to each modelled scenario at the specific date it was required.

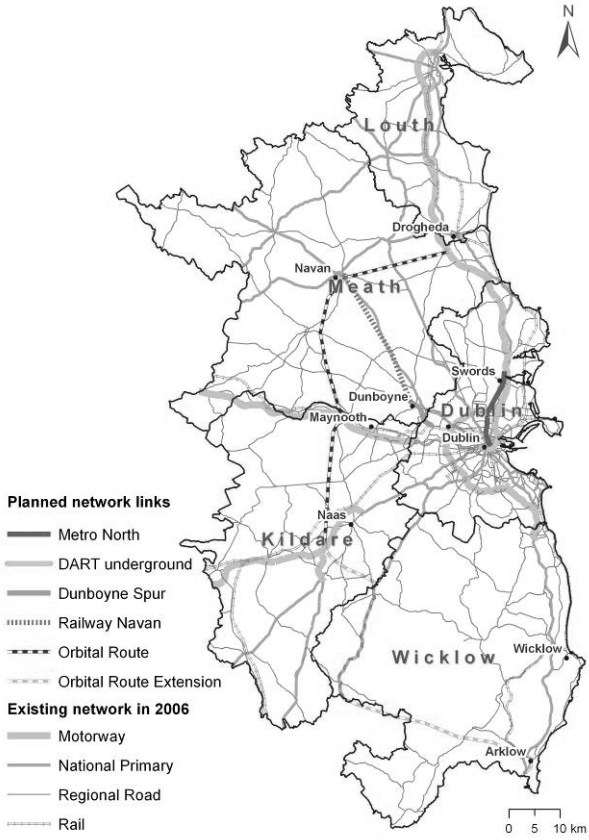

Figure 2 Transport 21 proposed networks used for scenario development

The Scenarios

Scenario 1: Continued Trends/Business as Usual

Scenario 1 explored a continuation of the current, dispersed settlement pattern. Although both Strategic Planning Guidelines for the Greater Dublin Area (SPGs) in 1999 and the subsequent RPGs in 2004 emphasised a move toward a consolidated settlement pattern, strong green belt policy and improved transport links recent studies have suggested that there has been a divergence between policy and practice (Convery et al. 2006, Scott et al. 2006). Scenario 1 therefore simulates a -business as usual- future, whereby implementation of the SPGs/RPGs has been weak in places. For the purposes of this analysis in the current economic climate delivery of Transport 21 projects were delayed with: Metro North and the DART Interconnector not in place until 2020 and the opening of Dunboyne Spur in 2012. With the divergence of policy and practice concerning Green Belts in mind, Scenario 1 does not contain a special greenbelt layer. The decision not to include a special greenbelt layer was taken to explore what the current trend of developer led settlement patterns might lead to if left unchecked. Those areas that enjoy legal protection were zoned such that development was prohibited from occurring within.

For this scenario MOLAND default suitability and zoning maps were used as presented in Figure 5.8. (Shahumyan et al, 2009). The default transport network of 2006 was updated in 2012 by adding the Dunboyne Spur.

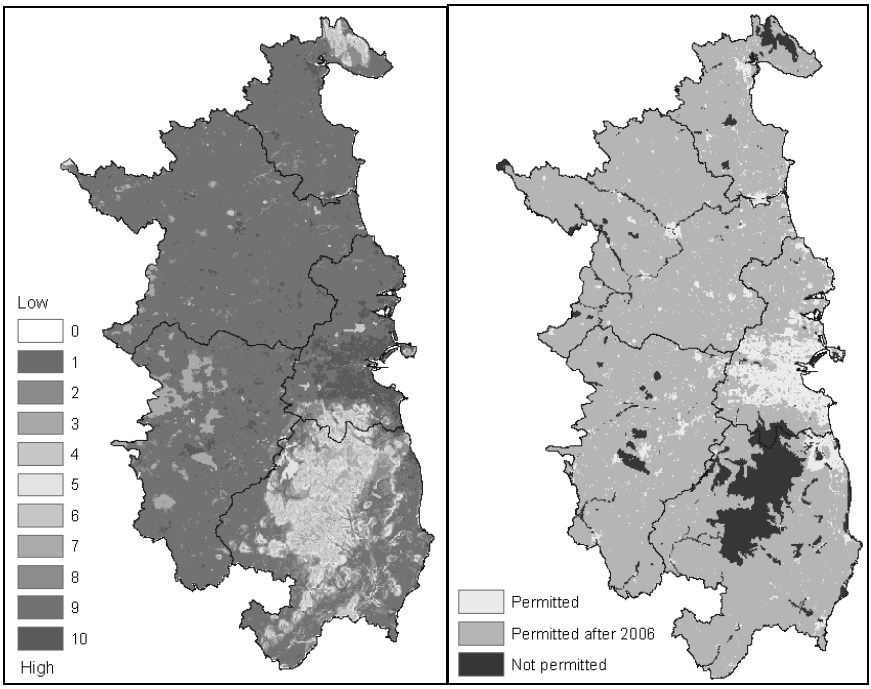

Figure 3 Default suitability (left) and zoning (right) maps for urban land uses in the MOLAND model

Scenario 2: Finger Expansion

In this scenario the effects of a firm policy of consolidation are explored. Development is strongly directed toward an expanded Metropolitan Area (MA), which is extended along key transport corridors. In support of this stance on consolidation, all Transport 21 projects are included. The Outer Orbital Route (OOR) was not included and large, strictly enforced Strategic Green Belts are used to discourage excessive development in rural areas and link protected areas. Since the theme of this scenario was to focus development in an expanded Metropolitan Area and along key corridors, large Green Belts were placed between the major roads to encourage

development adjacent to transport links. Two types of Green Belts were created; large Outer Green Belts designed to designate areas where development should be kept to a minimum; and smaller Connector Green Belts, designed to preserve links between urban green space and rural areas.

Suitability and zoning maps used for this scenario are presented in Figure 4. The default transport network of 2006 was updated adding all Transport 21 links by 2016 presented in Figure 2.

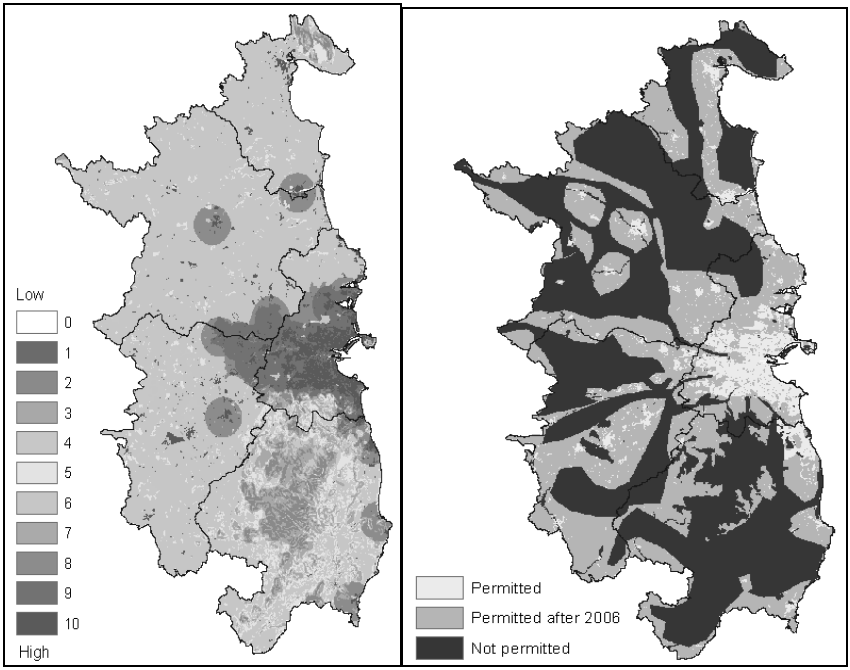

Figure 4 Land use suitability (left) and zoning (right) maps for urban land uses in the MOLAND model

Associated Indicators of sustainability:

As a result of the development of these scenarios further discussions were held with the regional authorities and the issue of critical indicators was assessed. In the exploration of the data used, it was found that indicators could be developed in the following manner; firstly those which could be developed immediately from data analysed and in use in the project; secondly, those which might be developed based on existing data with additional resources; and, lastly, a third category of indicators which require a higher resource input to be developed. Examples of such indicators include:

1) Encroachment on protected areas (SPAs/SACs/NHAs):

To investigate the extent of encroachment upon protected areas all SPAs/SACs/NHAs within the study area were merged using GIS. To allow for a by-county analysis this polygon was intersected with a County shape file to produce five polygons, representing the protected area of each individual county. A special tool (UEP Cell Count Tool) was developed by ArcGIS Model builder to calculate cell statistics within these buffers. The results were compared using MS Excel.

2) Development proximity to public transport corridors

One of the goals of the RPGs is to promote sustainability with improved transport efficiency being a major priority. To assess this, a 1km buffer was created around the transport nodes for each scenario. Cell counts within these buffers were found using the UEP Cell Count Tool. The results were compared using MS Excel. Since the different scenarios used different patterns of transport nodes (motorway junctions or railway stations) it was decided to find what percentage of urban cells was within 1km of nodes for each scenario. In Scenario 1, by 2026 development has dispersed across the region in many small clusters and formerly separate urban areas have merged. In Scenarios 2, development to the West of Dublin city is more intense.

Development proximity to public transport corridors

By 2026, all scenarios showed an increase in urban cells within 1km of transport nodes compared to 2006. The greatest gain of urban cells was in scenario 2 and least in scenario 1 (figures 59).

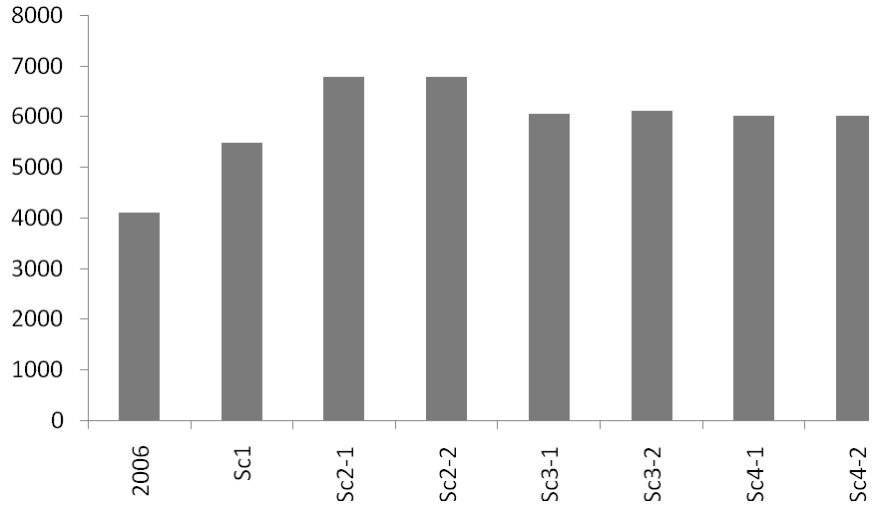

Figure 5 Urban cell counts within 1km of transport nodes for 2006 and each 2026 scenario.

Comparison of Scenario results

Scenario 1:

Should development proceed as simulated, i.e. dispersing to a greater or lesser degree across the region, it would imply a continuation of current unfavourable sprawl trends. Commuting in the GDA is a major problem with the increase in car dependency implied by the dispersed nature of the forecasts likely to exacerbate the situation.

Waste water provision over such a dispersed area would be extremely difficult and expensive, necessitating septic tank use in a large number of dwellings. Even though technology is improving, this higher number of tanks can be expected to increase the rates of groundwater contamination. Furthermore, work has already been carried out that suggest that growth in the several areas across GDA will outpace future wastewater treatment provision (Shahumyan et al. 2009). Similar deficiencies could be expected for other services such as waste disposal, education, health provision and emergency service response time.

Scenario: 2

This Scenario represents the result of a strict enforcement of consolidation within the MA, which is in-line with current European policy promoting the compact city. Compact Cities have been advocated as a way of increasing space for city dwellers while at the same time reducing transport, energy and material consumption. Critics of compact urban form argue that benefits are often exaggerated and that consumer demand preferences are for amore dispersed housing development pattern. Development within an existing urban centre benefits from pre-existing infrastructure (drinking and waste water pipes, electricity, street lighting, etc.) and is also easier is extend to adjacent areas. In addition, many studies have tested hypotheses regarding the relationship between urban structure, especially density, and energy consumption in the transportation system. Under these hypotheses, raising urban densities is expected to lead to a decrease in energy consumption. From the indicator analysis, we concluded that compared to Scenario 1, Scenario 2 performs better in terms of promoting settlement near transport nodes and many other categories.

The results of this research were used to develop and explore the contrasting trends which might emerge across several scenarios and also options within such scenarios.

Findings based on results

The exercise demonstrates how MOLAND may be usefully applied in exploring the spatial distribution of land uses under two zoning scenarios in the Greater Dublin Region. This allows, for example, proposed investment in infrastructure such as transport or waste water treatment capacity for the region to be evaluated in a spatial context under spatially explicit scenarios of population expansion in the region. It also demonstrates the potential of the MOLAND model and the CA approach to dynamically integrate information in an inherently spatial manner.

In this element of the research, the scenarios principally relied on modifying the suitability layer, representing changes to zoning designations one variable that is the future zoning. However, the framework allows for scenarios encapsulating changes in a range of variables to be explored. For example, scenarios demonstrating various activity levels, alternative population and job projections, changes in zoning practice and provision of transport infrastructure or a combination of all of these elements can be considered within the MOLAND framework.

MOLAND, as a spatial decision support system, goes some way to provide decision makers in the area of spatial planning and infrastructure development with a tool that overcomes some of the obstacles encountered in the formulation of regional development policies. This comes about through the capacity of MOLAND to work at both the regional and sub-regional scale, thereby providing a link between issues at different temporal scales e.g. county level and regional level.

The Scenarios presented here represent hypothetical end points of different policy directions. There are associated costs and benefits with following any of these paths and the exact direction pursued will be decided by the interaction between planners, policy makers and the public working together. Urban regions such as the Greater Dublin Area has undergone major change in the recent past and it would be useful to simulate development into the future, expose potential issues before they occur and structure policy accordingly. As shown above, the MOLAND

model allows diverse policy options to be evaluated before concrete decisions are made and provide a useful basis for discussion on the issues facing policy interests.

Section 4 Policy Issues Arising and Conclusions

The recent collapse of the property market and development finance process demonstrates the need for improved governance and accountability in the entire development and planning process. High levels of speculative activities often linked to questionable zoning and planning decisions contributed to a property market collapse necessitating a subsequent rescue of the Irish owned and managed banking sector and property market at a major cost to the Irish taxpayer. Reform of the planning and development system has been initiated in the Planning and Development Act in 2010.

The planning and development system remains hampered by inherent policy design flaws such as the ease of making major alterations to agreed development plans by rezoning and the retention provisions for significant unauthorised developments. The ability to make ad hoc and intuitive planning and development decisions negates attempts to strategically manage development (Williams 2010). Consequently, an unreformed and fragmented local authority and planning system has overseen urban growth often with little relationship to the requirements of national and regional development policies or the realities of the property cycle. Urban regions have developments granted permissions without adequate infrastructure, transport and social services. The powers to zone or rezone lands were often seen as facilitating rather than managing development in the public interest.

The zoning/rezoning system of development can be seen in systematic failure in terms of achieving managed development and has involved corruption of public officials. Proving individual cases of secret payments linked to specific decisions is often nearly impossible to prove. However, from the evidence of cases examined in Dublin and likely to be widespread nationally, the priorities of vested interests dominated decision making over the recent period. It is understandable that the public is now extremely sceptical as to the objectivity and evidence basis for many development decisions.

With the completion of the planning tribunal's process examining issues of malpractice within the planning and development system, the opportunity arises to recommend good practice based upon best international standards. A critical issue is the treatment of zoning and development land gains under Irish legislation. To what extent is the granting of planning permission and access to public infrastructure and resources to be based upon evidence? At present, the planning gain or the increase in land prices occurring as a city and its development expands is returned to land interests often based on limited objective evidence.

Recent legislation in this area is a more definitive first step in a serious reform agenda .In introducing the bill prior to the Planning and Development Act 2010, then Minister Gormley
stated that "A key element is stated as the introduction of a requirement for an evidence based core strategy in development plans which will provide relevant information as to how the plan and the housing strategy are consistent with regional planning guidelines and the National Spatial Strategy".

The Act also requires that, by ensuring compliance with planning guidelines, there will be greater transparency for the public into the plan making process by removing the likelihood of significant changes being made to plans at a late stage in the process.

In addition, we have seen greater use of Ministerial powers of direction under the Planning Acts to vary development plans where, for example, there have been excessive or inappropriate zonings. A number of new changes are being introduced in the 2010 legislation in this regard. In effect, if this approach is followed, elected councillors would no longer be able to make significant later amendments by rezoning to a draft development plan or local area plan that has been through the public consultation process.

The approach that planning decisions should be taken on the basis of an evidence based core strategy supported by factual evidence is long overdue. The toleration of alternatives such as selective parcel rezoning based on individual cases made and connections has resulted in a highly dispersed and inefficient development pattern (Williams 2010). The response of attempting to retro fit infrastructure and amenities is often

simply impossible. Moves to a more evidence based approach to planning and urban management will enhance the potential for efficient decision making in development decisions and with increased transparency hopefully reduce the incidence of corruption in the process. The use of evidence based urban modelling such as Moland can make a significant contribution to a more effective and transparent planning and development process.

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The different attitudes to spatial matters of Non-Irish Nationals living in Dublin compared to their Irish counterparts

Frank O'Neill

Introduction

The Irish economy is in freefall and the mood of the country is, at best, sombre. The economic prognosis is frightening. The relationship between our national income and our national debt is deteriorating at a rate that is unsustainable. As our debt grows the proportion of our national income required to service it (i.e. pay the interest) increases. Only the achievement of economic growth at a rate greater that the cost of our borrowing will offer the possibility of getting out of this downward spiral and stabilising our public finances.

But where will the economic growth come from? Our Tiger years' propensity to borrow and spend has been replaced by it polar opposite – a propensity to repay debt and save. Public spending is being reduced and taxes are increasing. As a consequence of inflation fears on mainland Europe, interest rates are on the increase. Our domestic economic activity will contract not grow. Our only prospect for economic growth is from selling goods and services in the international market.

Throughout our recent period of economic madness another story was unfolding of a vibrant soundly based economic performance. A highly productive sector of the economy largely foreign owned and attracted to Ireland by a combination our unique status as the only English speaking member of the Euro club, a low corporate tax rate and the availability of a well-educated highly skilled workforce. This sector has been producing

high quality employment in high technology, knowledge based industries. I formed the view that this sector was dependent on the availability in Ireland, and in Dublin in particular, of highly skilled non-Irish employees who offered employers the vital combination of technical skills and foreign language competency.

My dissertation for my M.Sc. in Spatial Planning at DIT hypothesised that, preferences of this economically important group in regard to certain spatial matters; place and type of residence, commuting and quality of life were likely to be different to those of similarly high skilled Irish workers. The rationale for seeking to understand this group's attitudes to these issues was that these are matters over which national and regional planning policies have influence and can therefore, promote and enhance the attractiveness and competitiveness of Dublin as a destination for inward migration of these key workers.

In addition, the understanding of these matters may assist prospective employers in the making of decisions in relation to the location of new facilities that improves their attractiveness to highly skilled workers – both national and non-national.

There is however an international global context in which consideration of these matters needs to be placed as the economic drivers of this activity are the accelerating phenomena of globalisation, migration and urbanisation.

Globalisation & the Irish Economy

There are many facets of globalisation and it impacts upon economics politics, linguistics and culture. A clear consequence of increased globalisation is the growing economic interdependence of nations on each other and dependence on the world's economic performance.

Ireland is an active participant in the economic globalisation process. Our economy is one of the most open in the world and this assertion is supported by the results of every reputable survey of globalisation - AT Kearney Globalisation Index for 2007 placed Ireland as the 5th most globalised country in the world, 2009 Ernst & Young and KOF globalisation indices place Ireland in 3rd and 2nd place respectively. The reasons for our economic openness are due in part to our size which limits the extent to which we can meet our needs from domestic sources and to which our enterprises can produce efficiently without access to larger markets. This is not an uncommon phenomenon, small countries dominate the upper echelons of all these indices – Singapore, Hong Kong, Switzerland and Denmark are other small countries that feature regularly in the top 10.

FDI in Ireland

The principal manifestation of globalisation in Ireland has been significant FDI (foreign direct investment), predominantly by US multinational corporations. The FDI storey began in earnest in Ireland in 1970's and has evolved from being focused on low value assembly operations to high value knowledge based service provision. The drivers for this evolution have been our increasing levels of educational attainment, higher labour costs and the opening up of lower cost labour markets in Eastern Europe and Asia.

A particularly important aspect of the modus operandi of the multinational corporations is the manner in which they divide their international operations into 3 mega regions; EMEA (Europe, the Middle East and Africa), the Americas and Asia Pacifica & Japan. Typically a US multinational operating in Ireland will allocate responsibility to its Irish branch for the EMEA region. The map of the world below with the EMEA region shaded illustrates the sheer size and linguistic complexity of this region.

Map of EMEA Region

Whilst English is the lingua franca of US corporations, an Irish based operation with responsibility to provide services to EMEA region will need to communicate in the local language of the countries to which services are provided.

The Switch to Services in Ireland

The term Services refers to the diverse group of activities that comprise the tertiary sector of economic activity as distinct from the primary (extraction of natural resources) and secondary (transformation of resources into manufactured goods) sectors. The place of the provision of services is increasing spatially independent from the locations of both the procurers and consumers of services. This independence is a function of both the intrinsic nature of services and technological advances in, and the relative

cheapness of, communications. As an island on the periphery of Europe, this ability to deliver services from a remote location to distant markets is a key consideration.

In September 2008, Forfás published a strategy document for services called *Catching the Wave* which emphasised the growing importance of the services sector and the opportunities it offered to Ireland for future economic growth and employment creation. This report produced startling facts and statistics (see box) in relation to the importance of services to Ireland. In conclusion the report stated that

> "*Today services are the main driver of the economy, and the most likely avenue to sustainable growth, continued prosperity and improved living standards in the years ahead".*

A corollary however of the provision of international services rather than goods is that the provision of services requires more interaction with customers and colleagues across the EMEA region in languages other than English. Thus, this activity logically is based on Dublin being able to offer to prospective employers, employees with the appropriate range of linguistic and technical skills to provide these high value services to the wider world.

Language Skill Shortages in Ireland

An annual report is produced by the Skills and Labour Market Research Unit of Fás on behalf of the Expert Group on Future Skills Needs. The latest report - *National Skills Bulletin 2010* was published in July 2010.

This report concluded that despite high levels of unemployment and the absence of labour shortages, Ireland continues to experience skills shortages in certain areas. 7 specific areas were identified as suffering from skill shortages of which 3 (Marketing and Sales, Financial and Transport) had proficiency in foreign languages as a required skill - in all

circumstances in conjunction with another sector specific skill – IT skills for Marketing and Sales, accounting and debt collection for Financial and logistics management for Transport.

The possible responses to these skills shortages are to import the skills from abroad or to train Irish nationals. Clearly due to the lead times involved in language training, the importation of skills from abroad represents the most expeditious solution to an immediate skill shortage. In addition, even in the longer term there are additional problems in regard to Irish people acquiring adequate proficiency in foreign languages. It is therefore likely that even in the longer term, that Ireland will continue to depend on the importation of language skills from abroad. This is particularly true for the many languages which do not feature in the Irish curriculum such as Nordic and eastern European languages

Migration

The importance of the immigration into Ireland of non-nationals with appropriate skills leads me to consider the broader issue of migration.

The forces of globalisation, the reduced cost of travel in real terms and the increased permeability of international borders have facilitated migration. In 2006 it was estimated by the UN that there were 191 million immigrants in the world which was double the number of 50 years previously.

A Eurobarometer survey[1] on geographic and labour market mobility was undertaken in September 2005. A key finding of this survey was that in all cases, the higher the level of education, the greater the willingness to

[1] European Foundation for the Improvement of Living and Working Conditions Mobility in Europe: Analysis of the 2005 Eurobarometer survey on geographical and labour market mobility Office for Official Publications of the European Communities 2006

migrate. The survey showed that around 7% of the highly educated (that is, people who left full-time education after the age of 20) had moved within the EU since leaving the parental home, compared to 4% among the less educated.

In February 2008 the OECD produced a comprehensive study[2] on the profile of Immigrants in the OECD. Its principal conclusions were immigrants are:

- more likely to be member of economically productive (i.e. working) age cohorts,
- more qualified than the native-born of their host countries, and
- likely to suffer from a significant occupational employment gap (the term coined to describe the lower occupational achievement despite the higher educational attainment) compared to natives and this gap increases with the level of education of the immigrants.

Ireland's Migration

Ireland has a long history of migration – particularly emigration in the second half of the 19th century. However in the period 1987-2010 Ireland's migratory patterns reversed the established trends of net outward migration, with high levels of inward migration in the decade from 1997 to 2007 followed by a dramatic swing back to net outward migration in 2008 following the onset of a severe recession.

As part of my research I analysed the 2006 census data on immigration, the Irish section of the above-mentioned OECD report and an ERSI report

[2] Organisation for Economic Co-Operation and Development A profile of Immigrant Populations in the 21st Century: Data from OECD Countries OECD Publications February 2008

on the impact of immigration on the Irish labour market[3]. The principal facts and conclusions derived from this research were:

- Immigrants comprise some 13% of the Dublin population and 12% of the state in 2006,
- Immigrants comprise some 22% of the Irish workforce in 2006,
- Our immigrants are on average younger and better educated than Irish people
- There is clear evidence of an "occupational gap" i.e. we are not realising the full economic potential of our immigrant population
- We have one of the most mobile workforces in the world
- Unusually by OECD standards we both export and import significant proportions of highly skilled workers

It is clear from this analysis that Ireland is fully engaged in the migration process and importantly for the purposes of this paper that Ireland and Dublin has a pool of young, well educated immigrants.

The Creative Class and the Competition for Talent

The economic importance the mobility of highly skilled workers has been recognised by many commentators.

The Creative Class

The term Creative Class is associated with the American writer Richard Florida and his seminal book *The Rise of the Creative Class* which was first published in 2002. Briefly, the concept of the creative class is a broadening and refinement of the concept of an educated class. In essence the creative class approach categorises workers by the

[3] Barrett A The Labour Market Characteristics and Labour Market Impacts of Immigrants in Ireland ERSI 2005

complexity of their occupation rather than by either their educational achievement or the sector that they work in.

The principal significances of the Creative Class in economic terms are its productivity and its increasing number in both absolute terms and in the proportion of the workforce that it comprises. Using US Census Bureau data from 1900 to 1999 Florida established that the Creative Class increased over this period from circa 3 million to 25 million an increase of over 1000% during a period in which the total population increased by 318%.

Florida noticed that the geographic spread of Creative Class was not even but rather it was concentrated in certain cities and regions. The question that Florida then sought to address was why creative people cluster in certain places? He suspected that the rationale for the location decisions which "creative" people made was more complex than simply the availability of suitable employment and that in addition to economic considerations that lifestyle issues were important.

Florida summed up these issues as the "3 T's of economic development" – technology, talent and tolerance. The T's he explained as follows:

Technology	the presence of high technology industry and highly quality educational amenities that offers employment prospects for creative people
Talent	the reservoir of creative people that offer high quality workforce to employers seeking to establish, maintain or expand operations
Tolerance	the openness to a diverse range of people and lifestyles

Florida devised a series of indicators for each of the T's and proceeded to score and rank US cities by reference to these indicators. He then investigated the relationships and correlations between the results of T indicators with economic performance and innovation and came to a number of significant conclusions, which can perhaps be best summarised by his final comment on the 3 T's

> *"There is much to gain from being an open, inclusive and diverse community. To succeed and prosper economically, regions need to offer the 3 T's of economic development. If they fail to do so, they will fall further behind*."

A related and important point that Florida made was that in his opinion the growing trend was that jobs followed people rather than vice versa, which would have been a more traditional understanding of the relationship between employers and employees. In particular he suggested that this relationship was more important in relation to the higher value employment that the creative class workers were engaged in. He further fostered the notion that cites were in competition with one another for both mobile high technology companies and the creative class.

Applying Florida's ideas to Dublin and the subject matter of this research it would seem self-evident that the more attractive the city can make itself to non-nationals more likely they are to choose Dublin as a place to migrate to and thereby generate the critical mass for their own support networks and labour pool for prospective employers.

The International Competition for Talent

Florida's concept of a creative class and the reversal of the traditional understanding of the dynamics of the relationship between the employers and employees is not a unique view. Whilst his early work was primarily

concerned with comparisons between US cities he addressed international aspects in his later work.

In 2008 the OECD published a Policy Brief[4] on this subject called *The Global Competition for Talent Mobility of the Highly Skilled*. The thrust of this paper was to explore the areas of the mobility of highly skilled people in the OECD. Its principal conclusions were:

- A knowledge based economy society relies on a mobile highly qualified workforce
- Migration of talent has become an important aspect in the determination of the profile and competiveness of workforces in the OECD area.
- The factors that drive migratory flows of talent are economic incentives – remuneration and career prospects.

The concept of jobs moving to people rather than vice versa is perhaps of particular relevance for the internationally traded services sector as the increasingly complex and varied skills required are difficult to locate and the place of operation is less dependent on geographical proximity to suppliers of inputs and customers. Cities are competing with one another for projects and the migrant workforce is a key element of that competition. The concept of the international competition for mobile highly skilled workers to drive economic growth is gaining international recognition and has the imprimatur of an august body like the OECD.

Dublin is involved in this competition and the target of this competition is the young highly skilled non-nationals.

It is clear from this consideration of the global and national economic context that our national economic performance is increasingly dependent

[4] Organisation for Economic Co-Operation and Development The Global Competition for Talent: Mobility of the Highly Skilled OECD Publications 2008

on the internationally traded services sector and our ability to compete in this sector is dependent on the availability of highly skilled non-nationals residing in Dublin. Furthermore it is clear that Dublin has in a relatively short period of time become home to a significant number of non-nationals who comprise some 20% of our workforce.

Having established the validity of the assumption in regard to the economic importance of highly skilled non-nationals living in Dublin I undertook a survey to investigate their attitudes to certain spatial matters.

The Survey

To investigate the attitudes of highly skilled non-nationals residing in Dublin, the approach taken was to conduct a survey of a sample of both Irish born and foreign born residents of Dublin to ascertain their attitude towards the issues of:

1. place and type of residence,

2. commuting, and

3. quality of life.

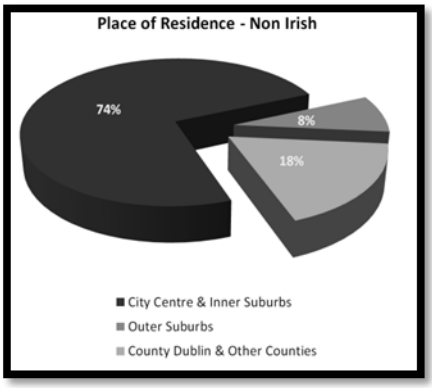
The survey was circulated to the employees of 3 major US companies with significant operations in Dublin. These companies are all involved in the provision of internationally traded services and all have as part, but not necessarily all, of their remit the provision of services to the EMEA region. One of the companies is involved in the financial services and the other 2 are in the technology software sector.

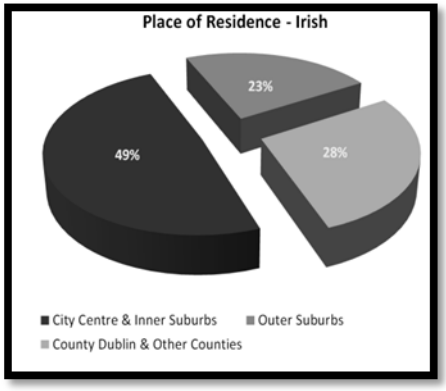
In total 293 responses were received of which 7 were filtered out as the respondents had left their country of their origin to come to Ireland before they were 16. The rationale for this filtering was that as the survey was attempting to investigate the difference between the attitudes of Irish and non-Irish, and the attitudes of these respondents may have been heavily influenced by growing up in an Irish milieu it was probable that their

attitudes would not be representative of non-nationals. The survey population was therefore reduced to 286. There were 181 (67%) respondents and 105 (37%) non-Irish. The average age of the two populations at 33 was the same.

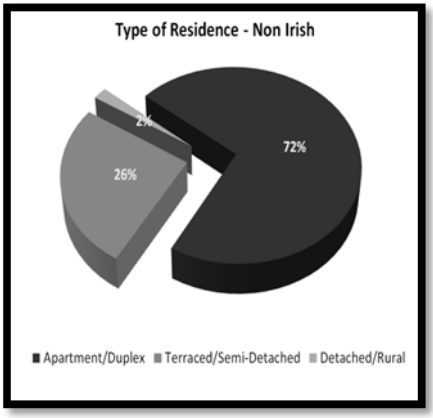
Place & Type of Residence

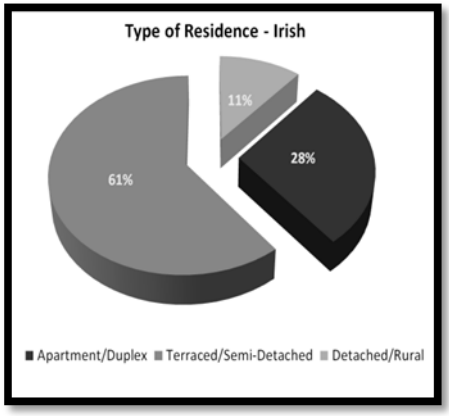
The results of the survey revealed that non-Irish lived in more central locations with some 74% living in the city centre or inner suburban locations (Dublin 1, 2, 3, 4, 6, 6W, 7 & 8) compared to 49% for the Irish. Conversely 23% of the Irish lived the outer suburbs compared to only 8% of the non-Irish. 28% of the Irish compared to 18% of the non-Irish lived in County Dublin (i.e. non-postal districts) Kildare, Meath or Wicklow.





There were also dramatic differences in the type of residence with non-nationals more likely at 72% to live in an apartment or duplex than the Irish at 28%. Some 61% of the Irish lived in semi-detached or terraced houses compared to 26% of the non-Irish.



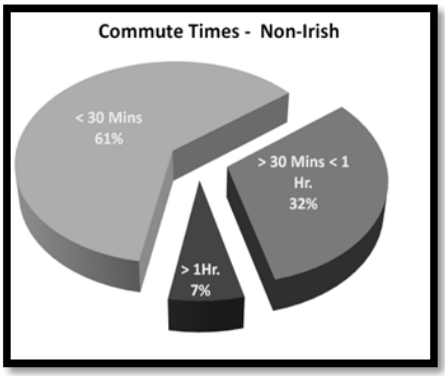


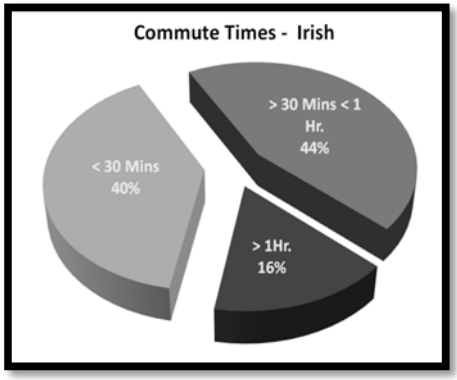
As a control to ensure that the results of the residence type question was not a product of factors other than preference (such as availability of rented accommodation), the participants were asked what was their preferred type of residence. The results confirmed the significant differences between the groups' attitudes to different types of residence with 42% of the non-Irish opting for an apartment/duplex compared to only 10% for the Irish. 50% of the Irish stated a preference for a detached house compared to 33% for the non-Irish.

Commuting

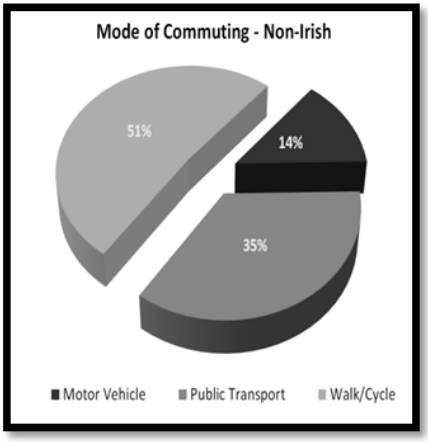
The non-Irish were much less likely (48%) to have a car that the Irish (77%). Interestingly the non-Irish at 34% have higher access to a car parking space at their place of work than the Irish at 29%. The lower car ownership was therefore due to other factors – perhaps the transitory nature of their residence in Dublin or the type and location of residence with less need for a car and less plentiful car parking availability.

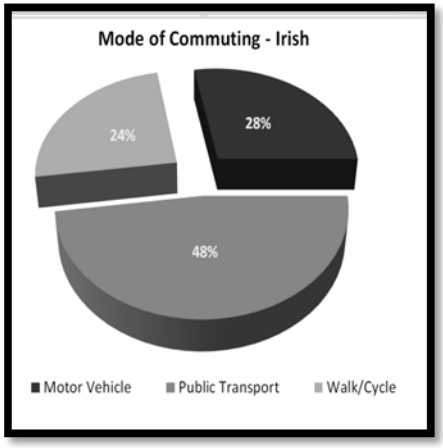
The average commuting times of non-Irish respondents is shorter with 61% spending less than 30 minutes compared to 40% of the Irish. 44% of the Irish spend between 30 minutes and an hour compared to 32% for non-Irish. 16% of the Irish spend more than an hour compared to 7% of the Irish. There is no doubt that the more dispersed residence pattern of the Irish is the principal causal factor of these differences.





There are dramatic differences in the modes of commuting for the groups with 28% of Irish driving compared to 14% of the non-Irish. 48% and 22% of the Irish used public transport or walked/cycled respectively compared to 35% and 51% for the non-Irish.



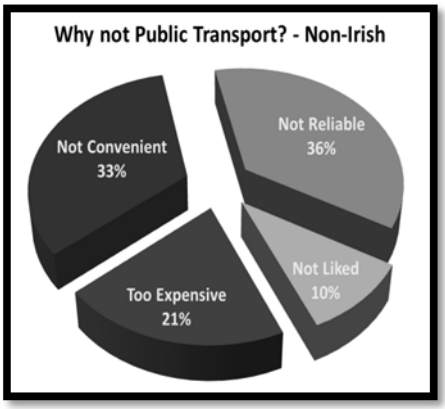


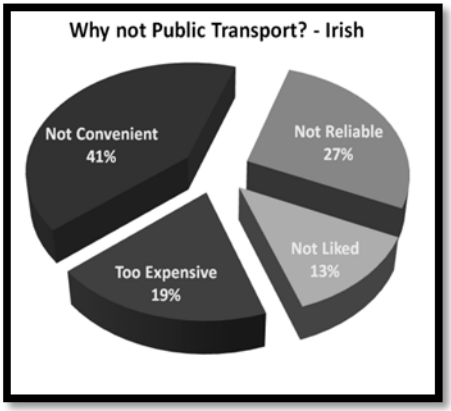
Ownership of a car but not access to parking at work may have influenced these commuting decisions. There is no doubt, however, that the more central locations of the non-Irish's residences would facilitate walking and cycling. It is also probable that more central locations would be on average be better served by public transport.

Again as a control to establish whether the responses to the commuting mode question were a product of factors other than preference, the participants were asked what their preferred mode of commuting was. Interestingly, the responses reveal that the differences are not as pronounced as the responses related to current mode of commuting. 29% of the Irish expressed a preference for driving compared to 20% of the non-Irish. Marginally more Irish and non-Irish would like to drive to work. The Irish would like to walk/cycle more than they currently do (36% versus 24%) and use public transport less (35% versus 47%). The non-Irish would like to use public transport less (28% versus 35%) with the same results for currently and would like to walk/cycle (51%).

Participants were also asked if they did not use public transport what the reason for not using it was. The answer options were:

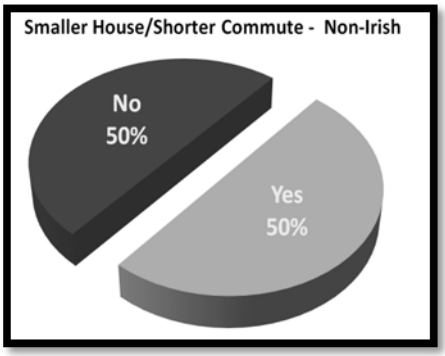
- Not convenient,
- Not reliable,
- Not Liked
- Too expensive

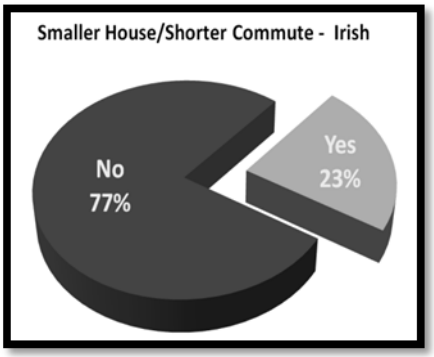




The results revealed less significant differences than the groups' actual mode of transport, but there were differences nonetheless. The Irish respondents' most common response was *Not Convenient* at 41% and then *Not Reliable* 27%. The equivalent figures for the non-Irish were 33% and 36% respectively. An interesting aspect of the results of this question is that the different predominant perception. The Irish predominant response (*Not Convenient*) seems to be predicated on not using public transport because of its inconvenience whereas the non-Irish predominant response (*Not Reliable*) seems to be predicated on reliability, which suggests that they may have tried it and found it unreliable. The more dispersed residence patterns of the Irish who are more likely to live in less central locations which are less likely to be well served by public transport is in my view the reason for the higher *Not Convenient* response.

A critical question asked the participants would they prefer to live in a smaller house with a small or no garden in order to reduce their commuting time. The non-Irish (50%) were more prepared to sacrifice house and garden size for a shorter commute than the Irish (23%). This question was in my view the most important as it was clearly related to the groups' values in regard to this key spatial issue.





Quality of Life

Participants were asked to state which of the listed options of *Strongly Agree, Agree, No Opinion, Disagree and Strongly Disagree* most accurately reflects their level of agreement or disagreement with 15 statements related to the following aspects of quality of life in Dublin.

- Dublin being a good place to live,
- Safety,
- Cleanliness
- Quality of cultural activities
- Friendliness,
- Quality of public transport,
- Expensiveness,
- Cost of renting,

- Cost of houses,
- Quality of cycling infrastructure,
- Safety of cycling
- Promotion of cycling,
- Easiness of culture to integrate into
- Welcome to non-Irish, and
- Assistance of our official agencies for Non-Irish residents to settle in.

It is clear from an analysis of the responses that the attitudes of the non-Irish to Dublin are very different to those of the Irish.

Applying scores to the responses as follows:

Strongly Agree	*+2*
Agree	*+1*
No Opinion	*0*
Disagree	*-1*
Strongly Disagree	*-2*

aggregating and analysing the results revealed that there were only 3 of the 15 responses where the non-Irish and Irish were within 20% of each other's score. These were in response to the statements "*Dublin is a good place to live*", "*Dublin is a friendly city*" and "*Dublin is an expensive city*". The differences in the groups' opinions on the other statements are very divergent from each other's.

Of particular concern is the fact that in their response to all statements other than 4 (out of 15) the non-Irish indicate less agreement to positive attributes and more agreement with negative attributes of the quality of life in Dublin. The exceptions are, "*Dublin is a clean city*", "*Dublin is a safe city to cycle in*", "*Dublin's culture is easy to integrate into*" and "*Dublin is a*

welcoming city to new residents from other countries". It is noteworthy that both of the first two were still negative responses to positive attributes.

In summary, the Non-Irish have a lower opinion than the Irish in regard to the quality of life in Dublin. The results of this section of the survey are I believe of great concern if we accept the premise that these workers are of significant economic importance to Dublin.

Conclusion

It is clear from the review of the national and international economic context that highly skilled non-nationals are of vital importance to Dublin's and Ireland's economic prosperity.

The results of the survey establish that preferences of the highly skilled workers who migrate to Ireland in relation to their type and place of residence and attitudes to commuting and quality of life issues are significantly different than the preferences of Irish with similar levels of skill and age.

Spatial planning has a role to play. Key workers coming to Ireland have different attitudes and preferences to spatial matters than Irish nationals. Non-nationals now make up a sizable proportion of our population, their different needs should be provided for. Failure to accommodate their requirements may not discourage them from coming but it may result in them leaving earlier than they would have otherwise. Planning in essence involves, inter alia, making appropriate provision for the future needs of our population. It stands to reason that if we have a new and growing cohort of non-national residents we need to understand their needs and if appropriate and practicable provide for them. A corollary is that if this cohort has different spatial arrangement needs and these needs are provided for in an unplanned fashion it may have spatial consequences which may be sub-optimal.

On the assumption that our forward planning process takes account of the likely demand of the projected future population in regard to both type and location of residential accommodation based on the preferences of the city' residents, then it is imperative that if the preferences of a sizable and growing element of the population who may have different preferences in regard to these matters are taken into account.

The logical conclusion of a preference for smaller more centrally located residential units would be more intensive residential developments which would impact on a number of spatial related issues such as:

- The provision of residential units - quantum, location and configuration
- The provision of infrastructural, social, educational and community services related to the residential units – including schools, parks, community centres and transport

Planning can make a difference to this key sector of our population and contribute to economic performance.

Employers who aspire to employ highly skilled non-nationals should be aware of their different preferences. Cognisance of these differences should inform in part location decisions.

Topical Planning Issues affecting Wind Energy Development in Ireland

Aiden O'Neill

Introduction

Renewable energy development is a vital component of Ireland's strategic policy to ensure a secure supply of energy and combat climate change.

The Government has mandated that 40% of all electricity consumption must be met from renewable sources by 2020, the highest such target in Europe.

It is understood that, unlike other renewable sources, the more advanced wind energy sector will make the most significant contribution to the achievement of this target.

In planning terms, the Department of Environment, Community and Local Government's Wind Energy Development Planning Guidelines, (2006) set out the broad parameters within which the planning system is to respond to this challenging target, and most Planning Authorities have, or are in the process of, preparing Wind Energy Strategies to provide detailed guidance at the local level.

Meanwhile, EirGrid has now completed its work in offering transmission grid connections to wind energy projects, and there is currently approximately 1,500 MW of renewable energy connected to the electricity network.

However, as Ireland currently relies on imports for approximately 90% of its energy supplies, which is not expected to change significantly in the period to 2020, and in the context of the ERSI's 'Review of Irish Energy Policy' (April, 2011), which advocates that the REFIT incentive be dropped in certain circumstances, in the context of this article, the achievement of these targets will require consensus and collaboration among all players in order to strike a balance between the need to deliver on binding targets for

renewable energy and the proper planning and sustainable development of the Country.

While there are undoubtedly issues such as volatility in prices that are the biggest challenge to achieving the 2020 targets, the purpose of this article is to set out some of the challenges facing the wind energy sector following recent experiences of the planning system in Ireland.

Context

The Government's 2007 Energy White Paper sets a target of RES-E (Renewable Energy Sources for Electricity) 40% for Ireland by 2020, and it is widely acknowledged that wind energy will contribute the vast bulk of this target.

The National Climate Change Strategy 2007 acknowledges that electricity generation from renewable sources provides the most effective way of reducing the contribution of power generation to Ireland's greenhouse gas emissions, as part of our contribution to the EU's commitment under the Kyoto Protocol.

The Renewable Energy Directive (2009/28/EC) requires Ireland to achieve a target of RES 16% by 2020.

In response to the Directive, Ireland submitted its National Renewable Energy Action Plan (NREAP) to the EC in July, 2010. Implementing and delivering on this national renewable energy action plan will be a challenge and will require enhanced co-ordination and collaboration between all relevant Government Departments and state bodies.

The European Wind Energy Association (EWEA)'s January, 2011 analysis of Member states' Renewable Energy Action Plans indicates has indicated that the EU will exceed its 2020 target of generating 20% of its energy consumption from renewable sources, and that Ireland will lead the way, according to the analysis, with over 36% of its total electricity demand met with wind power.

To help ensure that this target is met, the Renewable Energy Feed In-Tariff (REFIT) has been implemented to incentivise investment in onshore wind by providing a guaranteed price for such electricity.

Much has been achieved to date: Ireland currently has 1,425MW of installed wind energy across the Republic, with over 1100MW contracted and 3900MW having received grid connections in the last phase of Grid Connections (Gate 3), with a further 11GW of wind energy projects awaiting Grid connection.

The first EirGrid Annual Renewable Report 2010 indicates that Ireland is playing a lead role in Europe in adding wind power and other renewables to our energy supplies. Ireland is on target to achieve its target of 40% of electricity from renewable sources by 2020, and in achieving that target, the Country will have one of highest levels of wind power as a percentage of system demand in Europe

The growing importance of wind as a key energy resource for Ireland was reaffirmed recently as a record power output level of 1,323 megawatts – enough to power more than 850,000 homes – was recorded on Monday April 4th at 9.45am (EirGrid).

Assessing Wind Energy Development Impact on Habitats and Designated Sites

There are a number of planning issues that need to be examined in the course of preparing an application for wind energy development, and while many of these can be addressed, a major issue that continues to challenge developers is how to comprehensively assess the impacts on designated sites, in particular protected wild bird species.

Having regard to the provisions of the Birds and the Habitats Directives, in particular Article 6 of the Habitats Directive, the Department of Environment, Community and Local Government's Appropriate Assessment Guidelines, 2009 and the provisions of PART XAB of the Planning and Development (Amendment) Act, 2010 (yet to commence) where a proposed wind energy development will give rise to significant adverse direct, indirect or secondary impacts on Natura 2000 sites, (either individually or in combination with other projects), permission will only be granted where there is no alternative solution and where they are in the interests of public health and public safety, or there are imperative reasons of overriding public interest in favour of granting permission, including those of a public health and public safety.

A difficulty arises in the availability of detailed up-to-date and accessible scientific information to inform the assessment.

In the An Bord Pleanála Appeal case of PL03.237524, for example, the An Taisce submission on the West Clare Renewable Energy Ltd's response to the Third Party Appeals against the decision by Clare County Council to grant permission for the largest community-owned wind farm at Slieve Callan, it was contended that the First Party had not adequately assessed the impact of the proposed development on the hen harrier population.

The An Taisce submission is substantiated by reference to an observation by BirdWatch Ireland which indicates that part of the site lies on the western edge of the proposed West Clare Uplands Important Bird Area (IBA), so designated because it is claimed to support breeding Hen Harriers. It appears this information had not been made available prior to that point.

A further difficulty arises in determining what constitutes a significant impact, and what constitutes adequate mitigation measures to the satisfaction of all parties.

This is borne out in recent examples of wind energy developments in Cork, Clare and Galway (PL04.235947, PL04.235949, PL03.236950, and PL07.236964), which were refused by An Bord Pleanála, on the absence of definitive scientific evidence that the proposals, either individually or cumulatively, would not impact on the hen harrier, an Annex I species listed for protection in the Birds Directive on the conservation of wild birds.

In respect of the appeal case PL04.235949, An Bord Pleanála overturned the Inspector's recommendation and refused permission for two no. 5 turbine windfarms at Rockhill East and West (PL04 .235949) for the following reason:

> *The proposed development is a new wind farm to be located on lands within the boundaries of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle Special Protection Area (Site Code 004161). This area, which extends into three counties, has been so designated particularly because it contains the largest concentration in Ireland of the hen harrier, an Annex 1 species listed for protection in the Birds Directive (Directive 2009/147/EC on the conservation of wild birds). It is the policy of the planning authority, as set out in the Cork*

County Development Plan, 2009, to protect the conservation value of all European sites, including Special Protection Areas.

Several other wind farm projects, many of which have yet to be constructed, have already been permitted in and about the Special Protection Area. Having regard to the submissions made in connection with the planning application and the appeal and in the absence of more definitive, scientific evidence, the Board is not satisfied that the cumulative effect of the proposed development together with other existing and permitted wind farms in the area would not have a significant, adverse impact on the hen harrier population in this particular Special Protection Area, by reason of disturbance/displacement.

The proposed development would, therefore, conflict with a development objective indicated in the development plan for the conservation and preservation of a European site, insofar as the proposed development may adversely affect a species of bird or its habitat, namely the hen harrier, specified in Article 4 of the Birds Directive, which formed the basis of the classification of the European site.

The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

In deciding not to accept the Inspector's recommendation to grant permission, the Board noted that he questioned the cumulative impact of wind farm developments on the ecology of the area. The Board also noted the Inspector's opinion that the Board could consider refusing permission because of this factor and his comments in relation to a future Special Protection Area wide study of the impact of wind farms on key species. The Board took account of the specialist evidence submitted in relation to the impact of the proposed wind farm on the ecology of the area, including on the hen harrier population, and concluded that there is a need for greater research based evidence to

establish the overall capacity of the Special Protection Area to accommodate additional, *new wind farm development, whilst maintaining its natural heritage.*

The Board considered this appeal at the same meeting together with two other proposals for wind farms in the general area, from the same applicants (Reg. Ref: PL 04.235930 and PL 04.235947).

The Board noted that some work is in progress in respect of the impact of individual wind farms, but sufficiently definitive results are not evident to date. It concluded that there is a need for greater research based evidence to establish the capacity of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle Special Protection Area to absorb additional large scale wind farm development over and above those already existing or permitted without affecting the integrity of this Natura 2000 Site to function as a habitat for the hen harrier.

The Board determined that the situation is further complicated by lack of certainty in respect of the total number of wind turbines likely to be constructed on foot of existing planning permissions in the three counties concerned (Cork, Kerry and Limerick). The recent amendments to planning legislation, which facilitate an extension of the life time of existing planning permissions, are an additional factor. The Board considered that a distinction could be made between one of the three appeal cases (PL 04.235930) and the other two (Reg. Ref: PL 04.235947 and PL 04.235949), insofar as the first case concerns an extension onto an already permitted wind farm (albeit not yet constructed), whilst the other two concern entirely new developments, cumulatively of significant scale.

In this context, clear guidance is required as a matter of urgency on the approach, methodology, extent of survey work and level of mitigation to assess such impact, and cumulative impact, in order to give more certainty to those involved in the planning process.

It is of particular importance, given the fact that windfarms with more than 25 turbines or having a total output greater than 50MW, are now classified as Strategic Infrastructure Development under Section 78 of the Planning and Development (Amendment) Act, 2010, given effect by SI No. 477 of 2010 which came into effect on 5th October, 2010.

Part of the solution may lie in the Board's assessment of PL04.235947:

> *The Board took account of the specialist evidence submitted in relation to the impact of the proposed wind farm on the ecology of the area, including on the hen harrier population, and concluded that there is a need for greater research based evidence to establish the overall capacity of the Special Protection Area to accommodate additional, new wind farm development, whilst maintaining its natural heritage.*

In this regard, serious consideration among all parties should be given to the development of an information database and a programme of key studies to provide a research resource to assist in advancing and assessing wind energy proposals, including appropriate mitigation measures, in or near Natura 2000 sites.

This is supported by the EU Guidance on 'Wind energy development in accordance with the EU Nature Legislation', (October, 2010), which suggests that all players involved in the wind energy industry have a key role to play in building up the scientific information base on the interactions between wind farms and wildlife to ensure a faster decision-making process.

Designation of Areas Suitable for Wind Farm Development

A related issue arises in relation to the identification and designation of suitable areas for Wind Energy, in the context of Section 3.5 of the Wind Energy Development Planning Guidelines, 2006. Section 3.5 of the 2006 Guidelines suggests the identification of key areas on Development Plan maps of good wind energy resources that can be exploited in a manner that is consistent with proper planning and sustainable development.

In this regard it is noted that most Planning Authorities have now prepared detailed Wind Energy Strategies, in some cases, at great expense, and the industry is responding to these changes.

On foot of the variation to Cork County Council's Wind Energy Policy in 2010, for example, separate applications for wind turbines were submitted by Depuy; Jannsen Biologics; Novartis; and GlaxoSmithKline.

However, in some instances, including the An Bord Pleanála appeal PL04.235947 and PL04.235949, the fact that some locations are identified as being suitable for wind energy developments does not necessarily lend any particular favourable status to the assessment.

In fact in the two cases listed, the Board Inspector took the view that *'it would not be a designation with the same status as a zoning or scenic amenity designation, rather a general indicator that applications may be judged favourably in these areas if they fulfil the general requirements as set out in the current Development Plan (2009) or the DoEHLG's, Windfarm Guidelines'*.

In two recent examples in Co. Clare, the location of a site in a strategic area for wind energy development, as defined by the then 2009 Wind Energy Strategy for Clare (now updated and incorporated as Volume 5 in the Clare County Development Plan 2011-2017: see below), is further demonstration of this issue.

In the An Bord Pleanála appeal reference PL 03.236950 for the development of 2no. wind turbines at Booltiagh townland, near Connolly, Co. Clare, the 2009 Wind Energy Strategy identified the site as part of a Strategic Area, however, the Board refused permission on the basis that it was not satisfied, based on the details submitted with the application and appeal, that the proposed development, by itself and in conjunction with existing and permitted windfarm developments in the vicinity, would not have a significant adverse ecological impact on the habitat of the hen harriers.

Conversely, the Inspector recommended a refusal of permission to the Hibernian Wind Power Limited's application for a wind energy development of 11no. wind turbines and all associated works at Boolynageragh, Lissycassey, Co. Clare (An Bord Pleanála register reference PL03.236376), despite the fact that the site was identified as a strategic area in the 2009 Wind Energy Strategy for Clare. In this instance, the Board overturned the recommendation of the Inspector and granted permission for 9no. turbines.

In a further demonstration of this issue, An Bord Pleanála recently refused permission for a 12 turbine windfarm development in Westmeath proposed by Galetech Energy Developments in Westmeath, (An Bord Pleanála

reference PL25.237728). The Board considered that given the site was located in the vicinity of Lough Ennell, in an area of good quality, small scale landscape, containing the remnants of 18/19th Century Demesnes of particular significance in terms of amenity, tourism and heritage and that the area also contained a large number of new houses the insertion of a windfarm into this landscape would constitute a dominant and obtrusive feature in the area, which would interfere with the character of the landscape which it is necessary to preserve. This decision was arrived at notwithstanding the site's location within an area of "medium capacity" in the Windfarm Capacity Map of the Westmeath Development Plan, 2008.

The situation is further complicated by the IWEA's proposition that some wind energy developments could be appropriate in locations contiguous to suitable areas.

It is also further compounded by reference to the Gate 3 grid connection offer programme, where, it would appear that in some instances, offers have been made for proposals which have not yet secured planning permission and for which there are significant planning policy barriers to overcome in securing permission.

Ultimately, the acceptability of a particular wind energy proposal is to be determined by proper planning and sustainable development criteria.

In this regard, it may be that the identification of suitable areas in each Planning Authority area in the context of Section 3.5 of the Wind Energy Development Planning Guidelines, 2006, may need to be reconsidered.

It is acknowledged that Clare County Council has updated its Wind Energy Strategy in response to this and other issues. The updated Wind Energy Strategy, now incorporated as Volume 5 in the Clare County Development Plan 2011-2017, has been informed by a detailed Strategic Environmental Assessment and Appropriate Assessment to give greater clarity to the assessment of wind energy proposals in strategic areas. The decision by An Bord Pleanála on the largest community-owned 31no. wind farm by West Clare Renewable Energy Ltd at Slieve Callan (PL03 .237524) confirms the validity of this approach.

As an alternative, and least costly, option, Development Plans could focus on identifying those areas where wind energy proposals would not be permitted, such as exceptional landscapes of a national interest, including the Burren, Glenveagh National Park, and Killarney National Park, but that,

outside those locations, proposals would be assessed on their own merits against a specific set of criteria, having regard to the proper planning and sustainable development of the area.

A further option could be to establish a wind energy zone for the Country at a national level, prepared in conjunction with all relevant stakeholders, and predicated on the best available evidence across the range of relevant issues, including wind speeds, designated sites, grid connection, and accessibility. Again, proposals would be assessed on their own merits against a specific set of criteria, having regard to the proper planning and sustainable development of the area.

The Department of Environment, Community and Local Government's Wind Energy Development Guidelines for Planning Authorities (2006) should be revised to include such criteria. Such revisions should be established in partnership with all relevant stakeholders, and could include, for example:

- compliance with the policies and objectives of the relevant Development Plan
- evidence of existing or proposed connection to the grid network
- suitable soil strength and ground stability conditions, such that there is minimal risk of land slippage, and minimal risk of pollution of watercourses
- an assessment of the impact on the local road network serving the proposed development
- an assessment of the cumulative impact of a number of wind energy developments on the natural environment, and
- an assessment of the community benefit of the proposed development

There should also be specific policy support for the clustering of wind energy developments, and a requirement that the Wind Energy Development Guidelines be subject to regular review and update.

Conditioning of Time Limits for Wind Energy Developments

Finally, in the context of the strategic support for renewable energy development, a further issue arises in respect of the conditioning of time limits on permitted wind energy developments.

Section 7.20 of the Wind Energy Development Planning Guidelines, 2006 states that '*the inclusion of a condition which limits the life span of a wind energy development should be avoided, except in exceptional circumstances'*.

However, in almost every instance, invariably such a condition is attached to decisions to grant permission from An Bord Pleanála, with the time period limited to either 20 or 25 years from the date of commissioning of the development, and the reason cited is generally '*to enable the Planning Authority to review its operation in the light of the circumstances then prevailing'*.

There does not appear to be any exceptional circumstances to warrant the time limitation.

As such, wind energy developments with such conditions attached are effectively given temporary permission, with their continuation requiring a further planning application for permission, which may or may not be successful.

In order to give certainty to all parties, due regard must be had to section 7.20 of the Wind Energy Development Planning Guidelines, (2006) in all future applications for wind energy developments.

In fact, the Wind Energy Development Planning Guidelines should be updated to include specific support to intensify or extend the life of existing wind energy developments and associated infrastructure in locations where it can be demonstrated that such developments can be accommodated with minimal impact on the environment.

Conclusion

Ireland currently relies on imports for approximately 90% of its energy supplies, this is not expected to change significantly in the period to 2020, and is an important reminder that Ireland needs to accelerate the move towards maximising its own resources.

Indeed, it is understood that Ireland needs to install over 300MW per year for the next nine years to deliver on its 2020 targets of 40% of electricity from renewable energy sources (IWEA)

In this regard, the specific priorities have been identified by Minister Rabbitte for the Department of Communications, Energy and Natural Resources at the Irish Wind Energy Association (IWEA)'s conference in March, 2011, to include closer working with the Department of Environment, Community and Local Government on Natura 2000 sites; the need to work with UK and EU counterparts; and to move to position Ireland as a renewable energy exporter, are to be welcomed.

In addressing these priorities, consideration should be afforded to the issues raised in this article, to give more certainty to all parties involved in the process, namely:

- The requirement for detailed up-to-date and accessible scientific information resource to inform the assessment of wind energy developments, particularly in relation to their impact on designated sites and Habitats;
- Clearer guidance on assessing the cumulative impact of a number of wind energy developments;
- A review of the propriety of identifying suitable areas, and investigation of potential alternatives, to give greater clarity to the assessment process; and
- The avoidance of conditions imposing time limits on wind energy developments.

Supporting Evidence-Informed Spatial Planning in Ireland: A Research Perspective

Cormac Walsh[5], and Rob Kitchin[6]

Abstract

The Irish Planning Institute has recently highlighted the need for 'coordinated and comprehensive research on planning and development matters at a national level' to support evidence–based planning in Ireland (President's address, Autumn Conference 2010). New legislative requirements and a rapidly changing planning and development environment have served to highlight the need for a robust evidence and research base to support decision-making and monitoring at local, regional and national levels. The National Institute for Regional and Spatial Analysis (NIRSA) has since its foundation played an active role in articulating and implementing an applied research agenda for spatial planning in Ireland providing tools, analysis and research support on a wide range of issues. The recently launched All-Island Research Observatory (AIRO) provides a freely available spatial data portal where key statistics, indicators and mapping can be easily accessed in a user-friendly manner. The International Centre for Local and Regional Development (ICLRD), of which NIRSA is a founding partner, is very active, working at the interface between research, policy and practice with a particular focus on issues of North-South cross-border cooperation through spatial planning. Through participation in the ESPON programme, NIRSA is active in disseminating

[5] HafenCity University Hamburg. Postdoctoral research fellow, NIRSA, NUI Maynooth until November 2011, cormac.walsh@hcu-hamburg.de
[6] Director, NIRSA, NUI Maynooth

research findings and policy implications at a European level and translating them to an Irish context. This paper provides a research perspective on some of the key challenges and opportunities associated with the further development of an evidence-informed approach to spatial planning policy and practice in Ireland. In particular, experience in NIRSA points to the positive benefits of a dynamic interactive relationship between research, policy and practice, which is well positioned to respond to a rapidly changing economic, planning and policy environment.

Introduction

The need for planning and development decision-making in Ireland to be supported by a strong evidence and research base has never been clearer. The Irish planning system has become progressively more complex over the last twenty years with increased and more sophisticated demands and expectations placed on spatial plans at all levels of governance: central, regional and county. With more than 400 City/County Development Plans and Local Area Plans, seven sets of Regional Planning Guidelines, over 20 Ministerial Guidelines and a National Spatial Strategy, there is a strong imperative for coordination between planning authorities and across the planning system in Ireland. Spatial plans are also increasingly expected to provide strategic frameworks for economic development and recovery, supporting the 'Smart Economy' and the international competiveness of strategic Gateways (Forfás and National Competitiveness Council 2009, Forfás 2010). Furthermore, European Union Directives and increased environmental awareness in Ireland have placed significant demands on the planning system to take account of a wide and broadening range of environmental concerns from river basin management and flood risk to urban biodiversity, green infrastructure and sustainable travel. Finally, the 2010 Planning and Development (Amendment) Act introduces further requirements in relation to consistency with river basin management plans,

mandatory objectives regarding climate change, mitigation, and evidence-based core strategies for land-use zoning and population distribution.

The development legacy of the past decade is characterised by an oversupply of private sector residential and commercial development and critical shortfalls in public sector housing, infrastructure and services provision. This has placed into sharp relief, the need for greatly improved spatial and functional coordination between planning authorities, semi-state agencies and government departments as well as greater consistency across the spatial planning hierarchy (see Walsh 2010a). Recent experience has also raised questions of probity and process integrity in the planning system (Gleeson 2010).

The current context of economic recession, budgetary crisis and oversupply of residential and commercial development has meanwhile led to renewed calls for a re-evaluation of the role of the planning system in regulating development in Ireland. Critical questions are asked in relation to the capacity of the planning system to guide the spatial distribution of development, support sustainable and socially equitable regional development and regulate markets (see Convery et al. 2006, Bartley 2007, Kitchin et al. 2010, Williams et al. 2010). Kitchin et al. (2010), in particular, attribute the current over-supply in housing and commercial development to the failure of the planning system to act as a counterbalance to the pressures of development and the lack of a sufficiently evidence-based approach to decision-making in planning. Murphy et al. (2011) argue that recent legislative changes to the planning system in Ireland serve to facilitate elite interest groups in society at the expense of the 'common good'. Lloyd (2011, p19) contends that 'much remains to be done' in order to realise the potential of spatial planning as a 'transformative process' in Ireland. In his closing address to the 2011 Irish Planning Institute Annual Conference, outgoing Chairperson of An Bord Pleanála, John O' Connor (2011), noted that 'many sections of Irish society are now in the process of evaluating how things were done in the past and how matters can be

improved for the future'. He argued that the planning profession must participate fully in this process of 'national re-appraisal'.

It must be recognised, however, that the legislative and policy framework for planning in Ireland has not remained static in this context of heightened complexity and increased demands and expectations. Rather, the reforms of the planning system incorporated within the 2000, 2006 and 2010 Planning and Development Acts, mean that the current system in many respects is fundamentally different from that in place in the 1990s. The 2010 Amendment Act, in particular, entails a substantial realignment of the relationship between central and local government, with a specific requirement for consistency between local plans and regional and national strategies. The introduction of core strategies specifically seeks to respond to the need for an evidence-based approach to planning and to land-use zoning in particular, ensuring zoning objectives correspond to the settlement strategies and population targets identified in local, regional and national plans. O' Connor (2011) argues that 'a more sustainable, coherent, evidence-based and objective approach to zoning will avoid a repeat of the disorderly sprawl of inefficient and wasteful development and restore credibility to the planning system as a whole'. The shift to more strategic approaches to spatial planning, since the 1990s, has been supported and informed by the parallel development and application of expertise in spatial analysis, spatial strategy making and regional development.

In view of a heightened climate of anticipation around re-evaluation and system strengthening in Irish planning, this article provides, firstly, an overview of the research contribution to evidence-based spatial policy in Ireland to date. It subsequently discusses some of the current challenges relating to spatial planning in Ireland, from a research perspective.

The Concept of Evidence-Informed Planning and Policy-Making

In recent years, there has been an increased emphasis on evidence-based approaches to public policy. The role of scientific evidence is possibly most

obvious in the case of international climate change policy, where scientific consensus is central to gaining political support, but has implications for all areas of policy, including spatial planning. Morphet (2011, 77) in a recent book entitled 'Effective Practice in Spatial Planning' and based on experience in the UK, identifies three principal questions which evidence-based policy has sought to provide answers to:

- What needs to be done?
- What has worked before – here and elsewhere?
- Did a particular approach work to solve the problem or improve outcomes?

Evidence may thus be used to identify particular areas or issues where attention is required, to justify a particular policy intervention, to identify what the likely outcome of a particular policy may be or to evaluate the extent to which a particular policy achieved its aims. The role of evidence and expertise in policy-making may be contested, however. In a planning context, it may well be asked whether the opinion of professional experts should be given a greater 'weight' than the views and concerns of local residents. Flyvbjerg (1998) in his highly cited study of planning in the Danish city of Aalborg raises further questions about the ways in which evidence is used in political-decision-making. He asks whether evidence is used to justify decisions that have already been made or actually to inform the process of decision-making. This may be seen as a critically important question in relation to any discussion of evidence-based approaches to planning in Ireland. In practice, evidence-based policy can lead to reduced transparency, obscuring rather than illuminating the reasons behind particular decisions.

Davoudi (2006) is also critical of simplistic or 'instrumental' views of the policy-research interface. She argues that an instrumental view assumes

that either research drives policy or research is shaped by policy concerns (see Figure 1 below). Policy driven by research and 'hard evidence' can, of course, be problematic as little room may be left for democratic input and political leadership. On the other hand, a scenario where research agendas are shaped by policy requirements can lead to a very selective approach, where the 'bigger picture' or concern for more fundamental issues may be lost (Davoudi, 2006, 15). She suggests an alternative approach based on an 'enlightenment model' of *evidence-informed* rather than evidence-based policy. Under this approach, the relationship between research and policy may less direct. Research projects may serve to inform wider public debate, rather than providing answers to specific policy problems. It may be argued that research focused on understanding particular phenomena in society is more valuable in the long-term than approaches which focus on providing as much information as possible about a problem. Kahn and St. Clair (2011) similarly take a more holistic view of the research-policy interface. Drawing lessons from policy initiatives in the Boston Metropolitan area for the Irish context, they identify the need to address the challenge of being 'data rich but insight poor'.

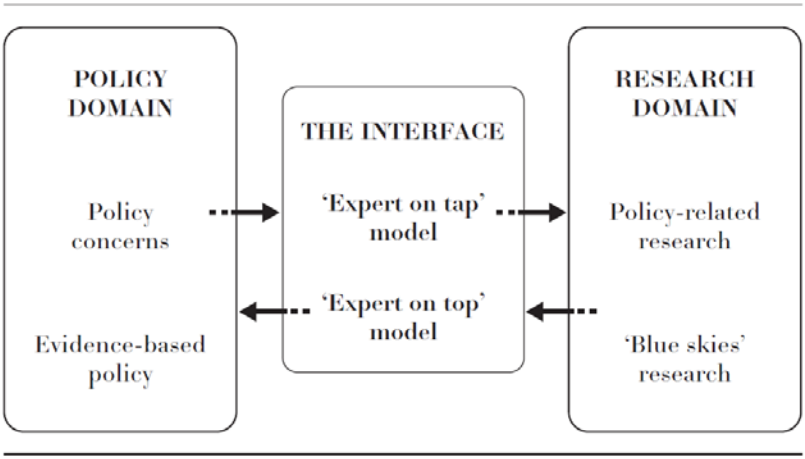


Figure 1: Simplistic instrumental perspectives on the research/policy interface (Davoudi, 2006, 15).

How has research supported the development of evidence-informed approaches to spatial planning in Ireland since the 1990s? This article focuses on the work of the National Institute of Regional and Spatial Analysis (NIRSA) and related organizations, the International Centre for Local and Regional Development (ICLRD) and the All-Island Research Observatory (AIRO).

The authors acknowledge, however, that other third level institutes are also active in supporting evidence-informed planning in Ireland. Urban Institute Ireland, the School of Geography, Planning and Environmental Policy (both University College Dublin) and the School of Spatial Planning (Dublin Institute of Technology) have significant research profiles in this area, while the Planning and Sustainable Development Programme at University College Cork is emerging as a focus for practice-orientated applied research. Indeed the *Professional Planning Interface Seminar Series* at University College Dublin (starting May 2011) has been organized (in conjunction with the IPI and Royal Town Planning Institute) with the specific aim of disseminating UCD research to the professional planning community. The President of the Irish Planning Institute (IPI) has recently argued that a coordinated multi-institutional and multi-sectoral approach is required in order to gain maximum value from existing efforts (Daly 2011) and enhanced coordination between research institutes, the planning community and other stakeholders can only be welcomed. The capacity of research institutes to support evidence-informed policy and planning and to actively engage with practitioners in applied research projects is critically dependent on the availability of dedicated funding to support such initiatives. In the current context of massive reductions in strategic core funding and significant uncertainty around academic resourcing more generally, there is a strong imperative to maintain existing competences and develop strategic inter-institutional and cross-sectoral linkages (see Department of Education and Skills 2011).

The Contribution of NIRSA: Research Informing Policy and Practice

Since its foundation in 2001 as a university research institute at the National University of Ireland Maynooth, the National Institute for Regional and Spatial Analysis (NIRSA) has sought to engage with policy and practice in the field of spatial development and planning in Ireland. The Institute was initially funded under Cycle 2 of the Irish Government's 'Programme for Research in Third Level Institutions' (PRTLI2) as part of the National Development Plan, 2000-2006. Although centred in NUI Maynooth, it is a collaborative project involving researchers from a number of social science disciplines, located in four partner institutions (NUI Maynooth, Mary Immaculate College, University of Limerick, Institute of Technology, Sligo and Queen's University Belfast. NIRSA's remit is to undertake fundamental, applied and comparative research on spatial processes and their effects on social and economic development in Ireland[7].

In an early example of engagement with the spatial planning policy community, researchers in the Department of Geography at NUI Maynooth formed a key role in the background research programme to the preparation of the National Spatial Strategy (NUI Maynooth and Brady Shipman Martin 2000, Brady Shipman Martin, NUI Maynooth and Fitzpatrick Associates 2000). This extensive programme of research focusing in particular on urban and rural development issues from a spatial perspective was put in place to ensure the NSS was evidence-based. This process of engagement across the research/policy interface was, however, also critical in ensuring that the key concepts of the NSS were informed by the most recent academic thinking on European spatial planning and regional development (Walsh 2009). Following the establishment of City/County Development Boards (CDBs) as a new framework for cross-

[7] This article focuses primarily on the applied research work of the Institute.

sectoral community development planning, NIRSA provided a strong evidence-base for the new CDB 'Strategies for Economic, Social and Cultural Development', through the preparation of socio-economic and demographic profiles in 2003. These profiles used consistent datasets and enabled local patterns to be compared with those in contiguous counties and benchmarked against national trends. Subsequent updates were later used to inform the preparation of County Development Plans in Kildare and Meath (Walsh et al 2005, Roche et al 2006). This approach to engagement focused on both empirical spatial analysis and concept development and application, has informed the applied research work of NIRSA since its inception ten years ago.

Facilitating and Informing Cross-Border Cooperation through Spatial Planning

The signing of the Good Friday Agreement in 1998 and the establishment of the North-South Ministerial Council and associated implementation bodies in 1999, made it possible to think in terms of cross-border relationships and all-island perspectives for the first time in thirty years. It became increasingly evident that strategic and evidence-informed approaches to spatial planning could play a significant role in fostering and understanding these new relationships. The active support and keen interest of Prof. Francois Vigier and John Driscoll from the Centre for Urban Development Studies at Harvard University, subsequently led to the development of a North-South-US partnership[8], known as the International Centre for Local and Regional Development specifically focused on applied spatial planning research and evidence-informed policy (see O' Connor T., 2011).

[8] The core academic partners of ICLRD are NIRSA (NUI Maynooth), University of Ulster, the Institute for International Urban Development, Cambridge, MA and the Centre for Cross Border Studies in Armagh.

The International Centre for Local and Regional Development (ICLRD) has been instrumental in providing independent and international expertise as well facilitating North-South collaboration in spatial planning. The ICLRD has worked closely with practitioners and community groups at a local level as well as with the key government departments, North and South. Its activities have directly supported and informed the development of key policy initiatives including the *Framework for Collaboration for Spatial Planning on the Island of Ireland* (DRD and DoECLG, 2011, ICLRD 2006) and the Memorandum of Understanding between Newry and Mourne District Council and Louth Local Authorities signed in Brussels in March of this year. Recent research projects of the Centre have explored and made recommendations across a range of planning related themes including river basin management, shared services and the development of a spatial monitoring framework for the island of Ireland. In each case the focus is on applying expert knowledge and research insights to inform particular problems and challenges identified by practitioners and policymakers (Creamer et al. 2011, Peel et al. 2011, Walsh et al. 2011).

A key feature of ICLRD's working model is combining the development of long-term relationships with policy-makers and practitioners working in the North-South cross-border and all-island context. This long-term engagement and capacity to act as an expert and independent voice or 'critical friend' is complemented by a commitment to high-quality applied research with clear conclusions, outputs and recommendations. Research projects are directly informed by international experience and good practice, with recent studies drawing directly on case studies in Basle, Boston, Germany and Spain. ICLRD training programmes, conferences, seminars and workshops furthermore provide opportunities for local authority professionals and elected representatives to engage in evidence-informed discussion, debate and active learning[9].

[9] See the ICLRD website- www.iclrd.org for further information.

Developing and Applying a Spatial Data Evidence Base

In 2007, NIRSA published a large-scale census atlas, based on the small area population data from the 2002 and previous Censuses of Population (Walsh 2007). For the first time, the underlying geography behind a wide range of demographic and socio-economic statistical indicators was graphically illustrated at the scale of 3,400 Electoral Divisions. The atlas (launched by the late Dr. Garrett Fitzgerald) provided a first confirmation of the extent of the demographic and socio-economic changes of the Celtic Tiger era and more importantly identified the new and distinct spatial patterns associated with development patterns since the 1990s (see also Walsh & Walsh 2008). In spatial planning terms the atlas is particularly significant in providing a benchmark for the National Spatial Strategy. This atlas was followed in 2008 by the *Atlas of the Island of Ireland*, which provided a fully comparable set of maps of Ireland North and South drawing primarily on 2002 Census data for the Republic of Ireland and 2001 Census data for Northern Ireland (Gleeson et al. 2008). This atlas was produced as the first major output from the All-Island Research Observatory (AIRO) in conjunction with ICLRD.

The All-Island Research Observatory started off as a pilot project (under the title Cross-Border Regional Research Observatory), based at the Cross-Border Centre for Community Development in Dundalk Institute of Technology in 2006. The initial aim of the project was to provide precise and reliable regional intelligence that would enable a better understanding of the dynamics of the cross-border region and aid the formulation of strategic policy development and cross-border cooperation (Kitchin et al. 2007, 30). Five years later, the All-Island Research Observatory (AIRO), now based at NIRSA in Maynooth, acts as research unit and data portal, focused on providing high quality spatial data for practitioners and policy-makers across the island. AIRO's web-based data portal was formally launched on November 25th 2010 (AIRO online). It provides an invaluable resource for planning practitioners, particularly in relation to the preparation of core strategies for City/County Development Plans. Thematic modules

currently available on the AIRO system focus on a range of issues including housing vacancy and supply, social inclusion and unemployment. At the regional scale, AIRO is also actively involved in the process of developing a common set of indicators for monitoring the Regional Planning Guidelines[10].

Providing a European Perspective

Since 2002, NIRSA has played an active role in the ESPON research programme. ESPON was set up in 2002 as the *European Spatial Planning Observation Network* and funded by the INTERREG 2000 – 2006 Programme. It aimed to provide detailed spatial information for the EU and to set up a network of spatial research institutes across Europe. The establishment of ESPON was also strongly influenced by the *European Spatial Development Perspective*, the key European Union spatial policy document published in 1999 (CEC 1999). It was recognised that a comparable Europe-wide evidence base using consistent definitions was needed to support the future development, monitoring and application of European policy on spatial development issues. Since 2007, ESPON has been renamed the *European Observation Network for Territorial Cohesion and Development*. The results of the ESPON programme are intended to provide a direct support for integrated spatial planning and territorial development policy at European, national and regional levels (see Dühr et al. 2010, ESPON 2010). Most recently, the ESPON programme provided a strong evidence-base for the *Territorial Agenda of the European Union 2020,* agreed at a ministerial meeting under the Hungarian Presidency of the EU in May 2011 (see ESPON Ireland 2011).

In its role as the official Contact Point for the ESPON programme, NIRSA works with the Department of the Environment, Community and Local

[10] See the AIRO website at www.airo.ie for further information on AIRO.

Government, as well as regional and local authorities to ensure that the added value and practical relevance of ESPON to spatial planning is realised in Ireland (see Bartley 2009)[11]. ESPON provides the European context for spatial planning in Ireland; it is a valuable reference point for new and innovative methodologies and frameworks for analysis and can provide a valuable source of funding for spatial planning research in Ireland. The Dublin Regional Authority is currently (2010-2012) directly involved in the ESPON programme as a stakeholder in a project focussed on 'Territorial Performance Monitoring' (ESPON online). This project has specific application to the monitoring and implementation of the Regional Planning Guidelines for the Greater Dublin Area and will be a key source for developing indicators for monitoring the implementation of the NSS and Regional Development Strategy for Northern Ireland. NIRSA has also participated directly in ESPON research projects, focussing on variety of themes including agriculture and territorial impacts of the Common Agricultural Policy, urban-rural relationships and metropolitan governance[12].

Conclusions: Responding to Current Challenges

Spatial planning policy and practice faces particular challenges in the current context of fiscal austerity and economic recession. In response recent policy statements and reports highlight the need to prioritise investment at key locations and to the Gateway cities in particular, in order to drive regional and national competitiveness (Forfás and National

[11] See the ESPON Ireland website at www.espon-ireland.ie for further information on ESPON in Ireland. This website is administered and managed by NIRSA in its function as ESPON Contact Point for Ireland.

[12] Teagasc (agricultural research agency), the Coastal and Marine Research Centre (University College Cork) and the National Centre for Geocomputation (NUI Maynooth) have also actively participated in ESPON research as project partners.

Competitiveness Council 2009, DoEHLG 2010). It is further argued that spatial planning through the NSS, RPGs and City/County Developments is the critical to providing an evidence-informed and spatially balanced approach to decision-making on capital infrastructure investment (DoEHLG 2010, 33). It is evident, however, that the capacity of spatial planning strategies to inform decision-making in this context is critically dependent on ability of the planning system to shape development outcomes and regulate the property market (see Walsh 2010b, 2011). To be effective, spatial planning strategies must have the capacity to:

a) Steer the geographical distribution of development;

b) Provide a reliable indication of the intensity, quantity and type of development anticipated over the period of the plan.

The introduction of core strategies for City/County Development Plans and the requirement for consistency across the spatial planning hierarchy should serve to increase the capacity of the spatial plans in this regard. It is evident, however, that a key part of the challenge rests at the interface between planning practice and political decision-making. Open forum discussion at recent events[13] hosted by NIRSA and ICLRD has highlighted the significant challenges involved in changing mindsets and gaining acceptance for more sustainable, evidence-informed approaches to land-

[13] NIRSA, ICLRD & Border Regional Authority: *Developing Core Strategies: Adopting a Bottom-up Approach,* Athlone, 9th March 2011, http://www.airo.ie/news/developing-core-strategies-adopting-bottom-approach-all-presentations-and-discussion-now-availa. ;

ICLD Sixth Annual Conference: Doing More with Less, Challenge and/or Opportunity? Sligo, 20-21st January 2011, http://iclrd.org/web/category/conferences/.

use zoning (ICLRD, January 2011, NIRSA, ICLRD & Border Regional Authority, March 2011). Reflecting on experience in Aberdeen, invited speaker David Jennings (2011) demonstrated that it is possible to achieve political agreement on spatial plans that make hard decisions, even where this means that one urban centre is designated for development at the expense of another.

The current context of oversupply of both housing and commercial development coupled with economic recession further dictates that significant areas of the state are unlikely to see significant development over the next five years or more. A reappraisal of the role of spatial planning and policy must thus consider the prospect of planning for decline as well as planning for growth. Ireland may have much to learn from experience in Eastern Europe over the past decade where planning for 'shrinking cities', where current trends of demographic and socioeconomic decline are expected to continue in the medium-term (see Müller and Siedentop 2004, Pallagst 2010, Charles 2011).

The key challenge for evidence-informed planning in Ireland is to ensure that future plan preparation and decision-making is informed by a continuous monitoring of spatial development trends and assessments of need and future development prospects. Within this context, the spatial planning research community can provide external and independent expertise, acting as a 'critical friend'; facilitate access to spatial datasets and analytical tools and assist in concept and strategy development. Spatial planning researchers, will, however, also to continue to push the boundaries, asking difficult questions and querying established assumptions.

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