RSES Submissions,
Northern & Western Regional Assembly
The Square,
Ballaghaderreen,
Co. Roscommon,
F45 W674

7th February, 2019.

Re; Submission to the Draft RSES for the Northern & Western Region

A Chara,

I wish to make a submission on the Draft Regional Spatial & Economic Strategy for the Northern & Western Region. The Draft Strategy is generally considered to be both informative and ambitious and it is clear from reading the document that a considerable emphasis has been placed on future economic development of the region. The standard of presentation is also considered to be very high and this enhances the legibility and clarity of the document.

This submission concentrates on two specific subject areas – those of coastal areas in the Northern and Western Region and how coastal areas need to adapt to our changing climate change. The submission focuses on how the Regional Assembly and the constituent Local Authorities should respond to climate induced changes in coastal area. It is set out under the following sub headings;

- The Coastal Zone in the Northern and Western Region
- Climate Change in the Northern and Western Region
- The Requirement to Plan for Climate Change
- How to adapt to climate change / climate adaptation
- Implementing Climate Adaptation Measures

Each of these sub headings is considered in turn.

The Coastal Zone in the Northern and Western Region

The coastal zone in the Northern and Western region assumes a high degree of significance in environmental, economic and social terms. It accommodates a wide range of unique habitats and natural features of interest which must be carefully managed to ensure their long term use and conservation. The coastal zone (and adjacent marine areas) make a very significant (and growing) contribution to the economy of the region through the marine and ocean economy, tourism (the importance of which is demonstrated by the Wild Atlantic Way) and other services which depend on it. The coastal zone is also home to many large and small coastal communities as more than 40% of the population of Ireland (1.9 m people) live within 5 km of the coast (CSO, 2017). Given its importance, it is somewhat surprising to note that the northern and western coast line was not included as a sub section in Chapter 5 –

Environment Natural Heritage of the Draft RSES. This would enable the Strategy to include a profile of the coastline and perhaps most significantly, highlight the challenges that it will face over the period of the strategy (assumed to be 21 years from 2019 – 2040) due to anticipated changes in climate and sea level.

The coastal zone (and adjacent marine areas) are an incredibly significant resource for the northern and western region. According to O'Hagan & Cooper, the Northern and Western Region is home to almost half (48%) of the national coastline (2707 km out of a total of 5675 km). However, such an extensive coastline also brings challenges as 66% of the national coastline at risk of erosion and change can be found in the Northern and Western region.

County	Total Coastline (km)	Coastline at risk	% of County Coastline at risk	% of National Coastline at risk	Ranking
Mayo	1168	652	55.82	42.20	1
Galway	689	170	24.67	11.00	2
Donegal	650	130	20.00	8.41	3
Kerry	684	108	15.79	6.99	4
Wexford	264	100	37.88	6.47	5
Cork	1118	91	8.14	5.89	6
Sligo	195	69	35.38	4.47	7
Clare	366	53	14.48	3.43	8
Wicklow	61	43	70.49	2.78	9
Louth	90	39	43.33	2.52	10
Limerick	95	30	31.58	1.94	11
Waterford	170	22	12.94	1.42	12
Meath	21	21	100.00	1.36	13
Dublin	99	12	12.12	0.78	14
Leitrim	5	5	100.00	0.32	15
Total	5675*	1545		100.00	

Table 1: Republic of Ireland Coastline at Risk (in descending order of significance) (O'Hagan & Cooper, 2002, p. 547)

The risks to the coastline are not confined to erosion. McLoughney & Sweeney (EPA Governance and Climate Change Report, 2012) have identified the coastal areas of Clare, Galway, Kerry, Sligo, Donegal, Cork and Mayo as being particularly susceptible to Sea Level Rise (induced by climate change change) due to its low lying coasts which are less than 1 metre above sea level. Therefore, it is clear that the higher risks for the vulnerable counties in the Northern and Western Region will need to be assessed at both a regional and county level addressed by appropriate adaptation strategies. It is strongly recommended that an objective is included in RSES to identify the coastal areas that are vulnerable to climate change in the Northern and Western region.

Climate Change in the Coastal Zone of the Northern and Western Region

The likely impacts of climate change in the coastal zone of the Northern and Western Region has been considered by a range of authors in recent years and a consensus view is emerging. The majority of commentators believe that the Ireland (and the Northern and Western

	Sea Level Rise (SLR) in Ireland	**Impacts of SLR on Marine Environment and the Coastal Zone**	**Regional Variations of Impacts**
Devoy, Robert (2008)	Low vulnerability to SLR, estimated to be 1 mm per annum (p.327)	Increased frequency of extreme weather events with associated coastal flooding and erosion (pp. 330 – 331)	North and north west coasts particularly susceptible to more frequent and intense storms (p. 331)
Boelens *et al* (2005)	SLR of 0.5 m by 2100 will take place (p. 5)	Increased intensity of storms, leading to greater coastal erosion and flooding (p. 26) Biodiversity change with species loss and new arrivals, changes in nearshore salinities and sediment loading from higher discharge rates of rivers (p.26).	Exact nature of changes and effects not easily predicted but are likely to vary from location to location and be influenced by the degree and rapidity of temperature change and other climate associated variables (p. 19)
McGrath *et al* (2008)	SLR of 0.35 m by 2100 cab be expected (p. 13)	Increase in the frequency and intensity of cyclones, as well as increases in maximum values of wind and rain associated with them – leading to increased risks of storm damage and flooding. Increase also in storm surges and maximum wave height (pp. 12- 13)	West Coast is the most vulnerable due to the influence of the Atlantic weather systems and sea levels. (pp. 12 – 13)
EPA (2003)	Range of between 0.09 m and 0.88 m identified with median value of 0.48 m selected by 2100 (P. 220)	Range of impacts including impacts on distribution of species of fish Inundation and land loss in low lying coastal areas such as salt marshes (and associated biodiversity loss) (p. 209) Increased erosion and flooding in coastal areas and along rivers	Impacts are variable on a regional level but salt marshes in the south and west are showing signs of accretion (p. 209)
Wang *et al* (2008)	SLR in the range of 18 – 59 cm by 2100 (excl. the effects of scaled up ice discharge) (p. 83)	Increasingly intense cyclones and associated strong winds (p. 90- 91) Slight poleward shift of the storm tracks (p. 83) SLR will worsen the effects of storm surges (p. 83)	More frequent storm surges (and coastal flooding) and a noticeable impact during winter in the north Atlantic (p. 83)

Table 2; *Anticipated Rates of SLR in Ireland and its likely effects on Irish Marine and Coastal Areas*

Region) are at a relatively low risk of inundation due to sea level rise but higher sea levels combined with changes to prevailing weather patterns (driven by a warming climate) are likely to lead to;

- A higher number of storm surge events.
- More frequent and intense storm events with higher extreme values of wind and precipitation that will bring an increased risk of storm damage and flooding in vulnerable Irish coastal areas.
- An increase in sea temperature and extreme wave height (from higher energy marine environments).
- Greater freshwater runoff from river basins due to increases in winter rainfall. (Devoy, Boelens et al & McGrath et al – see table 2 for full references);

The above phenomena are projected to have significant physical impacts on the coastal zone as a result of inundation (resulting in land and biodiversity / habitat loss), flooding and erosion, all of which are detailed in table 1. It is important to note that these impacts of climate change and SLR on Ireland will be variable but some areas will be more vulnerable than others. According to Devoy, the western and north western coasts may be among the worst affected from the more frequent and intense storms predicted as this part of the country lies on the path of the major northerly North Atlantic Storm Tracks (2008, pp. 329 – 330). This view is shared by Boelens et al, who points out that wave levels in the north west of Ireland are the highest in the country and these are expected to further increase with climate change (2005, p. 20). Wang et al (2008, p. 88 – 89) have found the largest increases in frequency of storm surges on the west and north west coast.

These findings reveal that the coastal zone in the Northern and Western Region is highly likely to experience significant impacts from our changing climate. This places an obligation on all Planning Authorities (at Regional and County / City level) in the Northern and Western Region to be proactive and devise effective adaptation strategies to mitigate against climate change in coastal (and other) areas. Therefore, the Draft RSES should include a firm emphasis on the vulnerability of the Northern and Western Region to climate change and require constituent Local Authorities to devise and prepare adaptation strategies at County Level.

Climate Change and the Requirement to Plan for It

The policy landscape with respect to climate change changed dramatically in Ireland in 2015 with the enactment of the 2015 Climate Action and Low Carbon Act in December 2015. This change means that it is now a statutory requirement for policies at all levels of the government (National, Regional and Local) to take climate change (and hence sea level rise) considerations into account. It is been acknowledged and accepted by the Government that climate change is happening and that proactive adaptation planning is needed to enable us to cope with its effects. This fact is revealed by;

- The identification of climate change (and sea level rise) in the National Risk Assessment Report (2018) as a strategic risk to Ireland. It is also notable that funding has

been made available under the National Development Plan 2018 – 2027 for climate adaptation.

- The National Planning Framework (NPF) includes a specific objective (4b, p. 103, 2018) to *'address the effects of sea level changes and coastal flooding and erosion and to support the implementation of adaptation responses in vulnerable areas'.* This places a requirement on Regional and Local Authorities to address the effects of sea level changes and coastal flooding and erosion and to develop adaptation responses.

- The EPA state of the Environment Report (2017) calls for the development of a full range of adaptation 'options' to deal with the impacts of climate change and SLR. Significantly, the report also calls for clear information to be provided on funding and available finance to develop same. It is recommended that this call is reiterated in the Draft RSES for the Northern and Western Region.

- The EPA has also stated the need for 'more effective governance structures' (State of the Environment Report, 2017, p. ix) to deal with the challenges of climate change and sea level rise. The report states that further and deeper vertical and horizontal integration of adaptation actions is required along with the participation of 'multiple stakeholders' to include business interests and local communities. The 'linking' role of the Regional Assembly in this governance structure (between National and County / City level) should be clear in the RSES with respect to devising adaptation strategies for climate change.

- The National Adaptation Framework (2018) makes clear that the planning system will be central to providing appropriate responses to climate change and devising suitable adaptation measures at national, regional and local level. Therefore, it follows that clear guidance on climate change adaptation should be included in the RSES for the Northern and Western Region.

In view of the above points, it is submitted that the Regional Assembly have a clear mandate and a defined role with respect to planning for climate change in the Northern and Western Region. It is submitted that the RSES provides an excellent opportunity to exercise this role and provide effective guidance for constituent Local Authorities in adaptation planning.

How to adapt to climate change in the Coastal Zone

It is understood that is difficult to be prescriptive with respect to climate adaptation measures and given the diversity of coastal and marine environments, 'one size fits all' solutions would not be appropriate. However, it is clear that the coastal zone in the Northern and Western Region is vulnerable to climate and that action is needed while appropriate adaptation strategies can be prepared. Therefore, an approach is needed that helps to reduce risk and which reflects the 'precautionary principle'. It is submitted that the most suitable approach is to simply apply the advice of the EPA in their 2003 Report - Climate Change; Scenarios and Impacts for Ireland (EPA, 2003, p. 220) where they state that the recommendations of R.W.G. Carter to controlling land use in the coastal zone are sensible and comprise of the following;

- No new building or new development within 100 metres of 'soft' shoreline (amended from 50 metres)
- No further reclamation of estuary land
- No removal of sand dunes, beach sand or gravel
- All proposed coastal defence measures to be assessed for environmental impact.

It is strongly recommended that this EPA guidance is included in the RSES for the Northern and Western Region to enable constituent Local Authorities to comply with EPA guidance and take account of climate change considerations in planning for their coastal zones.

Furthermore, the RSES should require constituent Local Authorities to;

- Identify and map coastal areas that are most at risk of coastal erosion / change and sea level rise and to provide for buffer zones to limit negative impacts of climate change.
- Include a preference in their development plans for '**working with natural processes'** when undertaking coastal protection works (which is consistent with the Marine Strategy Framework Directive MSFD). This will promote natural resilience to climate change in coastal zones.
- Only use hard engineering responses in coastal locations as a last resort or to protect critical infrastructure
- State that all options including planned retreat from the coastline, prohibition of new development in vulnerable coastal zones and facilitating intertidal zone migration will be considered when engaging in adaptation planning for the coastal zone.

Including the above recommendations in the RSES would help all Local Authorities in the Northern and Western Region to take account of climate change concerns and enable them to devise effective adaptation strategies that would mitigate against negative impacts in their coastal areas. It should also be stated that some of these responses (such as establishing coastal buffer zones) could result in win / win outcomes for coastal communities (and tourism) by providing protections against climate change and creating new habitats and public amenities (for walks, cycling, viewing points, etc).

Implementing Climate Adaptation Measures

As planning for climate change is a relatively recent concept in Ireland, the EPA State of the Environment Report in 2016 correctly identified a need for 'more effective governance structures' to deal with the challenges of climate change and sea level rise. The EPA also stated that further and deeper vertical and horizontal integration of adaptation actions was required along with the participation of 'multiple stakeholders' to include business interests and local communities. In view of the above finding, there seems to be a clear role for the Regional Assembly in governance at the regional level. This would enable the Regional Authority to form effective links between national and local levels of government by developing appropriate policies and devising adaptation actions.

It is recommended that consideration should be given to;

- Forming a multi-disciplinary climate change committee at regional level. This committee could be made up of members from the climate change committees of constituent Local Authorities. This could provide a valuable forum for individual Local Authorities to discuss ideas and actions and craft co-ordinated responses to climate change in the region.

- Establishing links with the recently launched Climate Awareness Regional Office (CARO). This could lead to more effective regional level initiatives on raising awareness of climate change and engaging with communities.

- Developing a role for the Regional Assembly in the development of the National Dialogue on Climate Action.

It is recommended that the above ideas should be explored with a view to including them in the final RSES as they would provide the Northern and Western Regional Assembly with a central role in regional governance and planning for climate change.

Conclusion

The RSES provides an excellent opportunity for the Regional Assembly to highlight the importance of planning for climate change to both constituent Local Authorities and residents of the Northern and Western Region. Including the recommendations set out in this submission will ensure that the RSES for the Northern and Western Region reflects the priority that is given to climate change considerations at national level. The proposed recommendations should also help to provide guidance for the Local Authorities in the region who are keen to continue planning for climate change.

Yours sincerely,

Paul Lawlor BA, MRUP, MSc (MSP), MIPI
School of Transport Engineering Environment & Planning
TU Dublin

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