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The role of the community and voluntary sector in identifying vulnerabilities to climate change in coastal areas and implementing climate adaptation responses

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Abstract

The *National Adaptation Framework* aims to reduce Ireland's vulnerability to climate change by establishing climate adaptation considerations as a priority at local, regional and national level. With coastal areas and habitats particularly susceptible to negative climate change effects, it is necessary to build resilience in these areas by devising coastal adaptation responses in collaboration with coastal communities. Policies and structures have also been put in place to create an enabling environment which facilitates community participation. However, the extent of community engagement and its current role in formulating and implementing coastal adaptation responses are unclear. This paper assesses the effectiveness of the enabling environment in encouraging community-led coastal adaptation solutions by identifying community and voluntary groups who are actively engaging with stakeholders at all levels of governance in key adaptation tasks. The findings reveal that the policies and structures for enhanced local participation in coastal adaptation responses are in place, but as only a small number of communities are actively

engaging in coastal adaptation solutions, further progress in their implementation is needed.

Keywords: Mainstreaming climate adaptation, community and voluntary sector, coastal areas

Introduction

The adoption of the 2015 Climate Action and Low Carbon Development Act has meant that climate adaptation is a government priority and climate adaptation considerations have been mainstreamed into all policymaking at local, regional and national level. The *National Adaptation Framework* (NAF) states that we need to adapt to avoid the worst effects of our changing climate and take advantage of any positive effects of it – by using an all-of-society approach (involving sectoral interests, private sector, communities and individuals) at national, regional, local and community level to:

- identify vulnerabilities to climate change;
- implement climate resilience actions.

While mainstreaming climate adaptation into all levels of governance is now a priority, the NAF emphasises that engaging local authorities, communities and businesses at local level is particularly important. According to the NAF, ‘Local understanding is also crucial to getting adaptation right. Adaptation is an important consideration for local authorities, businesses and the general public in terms of developing the capability to mainstream climate change adaptation ... [and] building resilience to the impacts of climate at a local level for communities and businesses can be achieved in an effective manner if it is integrated into existing planning policy structures (city and county Development Plans, etc.)’ (Department of Communications, Climate Action and Environment, 2018b, p. 11).

As significant coastal climate change effects are anticipated, this paper describes the current thinking with respect to how our coastal areas can adapt to climate change effects such as sea level rise and coastal erosion. While there is a discernible focus on coastal communities and their vulnerability to climate impacts in the current literature, there is a limited understanding of the extent to which coastal communities and the voluntary sector are involved in devising adaptation solutions for their areas. This research assesses their level

of participation in adaptation solutions by considering the results of a survey of stakeholders with responsibilities for marine and coastline management. In the survey, each stakeholder was asked if they had provided any assistance to or entered into partnership arrangements with community or voluntary groups in designing, implementing or monitoring adaptation responses in coastal areas.

This paper then discusses the changes that have taken place at European and national level, which imply that the community and voluntary sector will have a more significant role in responding to climate change in coastal areas than in the past. The paper deals with the emergence of various enabling factors that will facilitate greater community and voluntary sector involvement in coastal climate change adaptation. The paper then describes a consultation exercise that was undertaken to investigate the contribution of community and voluntary groups to climate adaptation in coastal areas in Ireland by considering:

- the role of the community and voluntary sector in identifying vulnerabilities to climate change and designing and implementing climate resilience actions in coastal areas;
- the level of engagement between the community and voluntary sector and national, regional and local government in Ireland.

The findings of the survey are used to estimate the extent to which national, regional and local-level government are engaging with the community and voluntary sector on the subject of coastal adaptation to climate change. Measuring the level of engagement also enables an assessment of whether the necessary enabling environment (which is required to support the whole-of-society approach to climate adaptation) has been created. The implications of this assessment for the objective of ‘mainstreaming’ climate change adaptation into national, regional and local-level policy and implementation are considered in the conclusions and recommendations.

A review of climate adaptation responses in coastal areas

Climate change is expected to have diverse and wide-ranging impacts on Ireland’s environment and coastal zones, with immediate risks from more intense and more frequent extreme weather events (Department of Communications, Climate Action and Environment, 2018b, p. 7). It is anticipated that severe weather conditions will have

a disproportionate impact on Ireland's extensive coastline (Falaleeva et al., 2011, p. 787) by generating higher levels of coastal erosion and inundation (Environmental Protection Agency, 2013, p. 3). The potential impact of coastal erosion is considered to be particularly significant, with up to 1,500km of the total coastline of 5,800km in the Republic of Ireland believed to be vulnerable (O'Hagan & Cooper, 2002, p. 546). Despite these elevated risks, national policies and guidance on the related issues of coastal erosion and coastal defence are considered to be weak (Cronin et al., 2017, p. 53). The vulnerability of coastal areas also means that coastal communities and habitats are particularly susceptible to the harmful effects of climate change (Department of the Taoiseach, 2019, p. 51).

Despite their rising vulnerability to climate change impacts, coastal areas are increasingly popular as a place to live, with notable increases in coastal populations since the 1980s (Devoy, 2008, p. 328). This was particularly the case during economic boom times, such as the period between 1998 and 2008, when demand for coastal properties reached unprecedented levels (Cooper & McKenna, 2009, p. 533). According to the Central Statistics Office (2016), 40 per cent of the 4.72 million total population of Ireland live within 5km of the coastline and, as the population is forecast to increase to 6 million by 2040 (Department of Housing, Planning and Local Government, 2018b, p. 10), this trend looks set to continue, with higher populations, increasing urbanisation and expanding tourism functions all leading to additional development pressures in coastal areas and a higher risk of coastal and marine ecosystem degradation. These pressures also have the potential to reduce the long-term resilience of coastal systems and give rise to higher levels of vulnerability among coastal communities from negative climate change impacts arising from extreme events (Duxbury & Dickinson, 2007, p. 320). The disproportionately negative effects of humans on coastal areas have been confirmed by the Intergovernmental Panel on Climate Change (IPCC), which has predicted that impacts from the lower end of future climate change predictions might have immense bearings on coastal and marine systems, as well as the economic and social systems that depend upon them (Harley et al., 2006).

These climate change effects in coastal areas have led to a growing number of homeowners whose dwellings are vulnerable to coastal erosion and who require the assistance of local and national-level government authorities in defending their properties. However, the absence of a national-level coastal strategy and weak guidance on

coastal management have led to reactive responses by authorities to coastal pressures arising from climate change (O'Hagan & Ballinger, 2010, p. 751) that are heavily reliant on grey (hard) infrastructure and engineered solutions (Flannery et al., 2015, p. 168) such as sea walls, rock armour and groynes. While traditional coastal protection in the form of grey infrastructure often finds favour with property owners due to its perceived permanence and durability, it may not be the correct solution in every instance. As there are different types of coastal adaptation problems in the coastal zone, there are also a range of solutions (Gibbs, 2015, p. 10) that do not involve grey infrastructure.

The move away from grey infrastructure to alternative approaches to coastal adaptation is being driven by a number of different factors. The cost of providing (and maintaining) engineered coastal protection solutions is often high but, more worryingly, they can also create a sense of complacency among coastal communities and facilitate a 'business as usual' approach to development and coastal activities in the face of climate change impacts (Cooper & Pile, 2014, pp. 96–7). This behaviour then enables the phenomenon of coastal squeeze, whereby coastlines become constrained between built structures (such as sea walls on the seaward side and built structures on the landward side) and are unable to naturally respond to climate changes (Cooper & Pile, 2014, p. 92). Concerns around social justice (due to public funding being used to protect private property) also need to be considered, particularly as coastal features such as beaches that are down-drift of constructed defences (such as sea walls) may suffer sediment starvation and beach erosion – a sequence of events that can deprive coastal communities (and future generations) of valuable coastal amenities. In addition, the ongoing requirement for coastal defences to be constantly upgraded to cope with continuously changing extreme events is a major consideration (McKenna et al., 2009, p. 166). The potential for negative impacts to coastal and marine environments from grey infrastructure solutions is also a significant factor.

Reactive approaches to coastal adaptation that rely on a small number of grey infrastructure solutions are not consistent with place-based approaches to adaptation, which are rooted in the realisation that biophysical and social differences between areas will determine their vulnerability to the number and range of climate change impacts that they are likely to experience (Cutter et al., 2000, p. 717). The acknowledgement that there are significant differences between areas

also means that local-level adaptation strategies are required which are informed by local knowledge (IPCC, 2007). A further justification for devising local adaptation strategies arises from the fact that plans are needed to mitigate the impacts on local communities (as they would be the first to experience them). Local adaptation planning also enables local authorities to fulfil their critical roles in structuring their responses to local impacts, mediating between individual and collective responses to vulnerability and governing the delivery of resources to facilitate adaptation (Measham et al., 2011, p. 890).

Local adaptation strategies that are devised in close collaboration with coastal communities can also lead to co-management arrangements whereby the monitoring and management of the coastline is shared between statutory authorities and community groups/voluntary sector. This type of 'polycentric' governance arrangement, which operates across different levels of authority, is distinct from 'unicentric' or top-down governance approaches, whereby national-level entities dominate and community/voluntary groups have either a limited role or no management role at all. Polycentric governance structures can be viewed positively as they are perceived to have the capacity to cope with environmental problems at multiple scales and provide for dynamic responses in the face of rapid change and uncertainty (Olsson et al., 2007). The evidence suggests that the proposition is true, with examples of collaborative management available from the Lower Hawkesbury Estuary in New South Wales, Australia, in which oyster farmers and government agencies developed formal and informal systems to manage risks to catchment, estuary and marine environmental health (Daniell et al., 2020, p. 13). Partnership arrangements between community/non-statutory interests and government authorities in the Thau Lagoon in France has also led to more integrated and effective management (Daniell et al., 2020, p. 13). Successful examples of positive and progressive co-management arrangements have also been identified between coastal communities and statutory authorities in developing countries, which have yielded a range of benefits that include lower enforcement costs and a sharing of knowledge and information on the resource under management, in addition to systematic learning between all parties (Adger et al., 2005).

As the limitations of traditional top-down approaches to coastal management (which rely on grey infrastructure/hard engineering solutions) become clearer, there is a recognition by the EU and member state governments that more flexible approaches are needed

to foster a more resilient coastline. While it is acknowledged that grey infrastructure solutions can continue to be used, the consideration of more ecosystem-based approaches to adaptation (or green measures) is recommended along with managerial, legal and policy approaches (known as soft measures) (European Commission, 2013, p. 8). Ecosystem-based adaptations form part of a suite of 'Nature-based Solutions' (NbS), which is an umbrella term for nature-based concepts such as green infrastructure and ecosystem services (Kabisch et al., 2017, p. 41). All of these concepts use nature to complement, improve or replace traditional engineering approaches (Kabisch et al., 2017, p. 39), and they can be found in a range of key EU policies such as those on biodiversity and climate change (European Environment Agency, 2015, p. 2). According to the European Environment Agency, the importance of NbS in policy terms is the result of their capacity to provide a wide range of functions and benefits in the same area. These functions can be environmental (conserving biodiversity and adapting to climate change), social (providing green space/opportunities for recreation) and economic (providing jobs and raising property prices). They also provide numerous opportunities for partnership approaches to adaptation between authorities, communities and other interested stakeholders. Their multifunctionality means that they provide a strong contrast to grey infrastructure solutions that often fulfil a single function and do not tackle several problems simultaneously (European Environment Agency, 2015, p. 1). In addition, NbS are considered to be less expensive, more robust and applicable to a range of governance scales (Kabisch et al., 2017, p. 36).

The inclusion of NbS as adaptation responses in key EU policies has proved to be influential in EU member states, including Ireland. The national land-use plan (the *National Planning Framework* (NPF)) includes a range of commitments to use green adaptation methods that use ecological properties to enhance the resilience of human and natural systems in the face of climate change (Department of Housing, Planning and Local Government, 2018, p. 120). The NPF also makes it clear that NbS will not be confined to national-level planning by the inclusion of National Policy Objective 58, which states that integrated planning for green infrastructure and ecosystem services will be incorporated into the preparation of statutory land-use plans (Department of Housing, Planning and Local Government, 2018, p. 166). Additionally, the NAF also emphasises the importance of using NbS to utilise ecological properties to enhance the resilience of human and natural systems to climate change impacts, with the reinstatement

of dune systems to act as buffers against coastal storm damage being used as an example (Department of Communications, Climate Action and Environment, 2018b, p. 25). Furthermore, the NAF urges local government to provide local leadership on climate adaptation and use its influencing role to engage with community groups as a means of increasing the resilience of the environment, society and economy and their ability to respond to change (Department of Communications, Climate Action and Environment, 2018b, p. 24). All local authorities are also required to prepare and adopt local adaptation strategies (Department of Communications, Climate Action and Environment, 2018a, p. 11).

Therefore, there has been a clear evolution in the adaptation policy framework over the last ten years. This is demonstrated by the acceptance at EU and national level that traditional top-down coastal management approaches that rely on grey infrastructure solutions are limited with respect to delivering resilience, and that multifunctional NbS solutions, which are implemented using co-management governance arrangements, can provide flexible and viable alternatives. The inclusion of specific policies in the NAF to investigate the use of NbS to build resilience and to involve communities in devising local-level adaptation strategies means that coastal communities and the voluntary sector are likely to play a greater role in the future – both in formulating adaptation plans and devising and implementing adaptation solutions to climate change impacts. The next section considers if the enabling environment for realising the potential of community and voluntary groups in rolling out climate adaptation solutions is in place.

An assessment of the enabling environment for the community and voluntary sector in climate change adaptation in coastal areas

Given the emphasis in the current policy framework for NbS (or green and soft adaptation measures) and the potential for a higher level of participation by the community and voluntary sector in these solutions, an assessment of the enabling environment that aims to foster additional engagement is required. This section considers the following:

- the number of community and voluntary groups engaged in environmental/climate adaptation actions;

- the policy support for community and voluntary sector engagement in climate adaptation;
- the administrative/governance structures in place to ‘enable’ effective engagement between statutory authorities and community and voluntary groups;
- the policy support from sectoral stakeholders.

The examination reveals that there is a large number of community and voluntary groups in Ireland, with 29,000 non-profit organisations identified by the Department of Rural and Community Development (DRCD), one-third (9,900) of which are registered as charities (DRCD, 2019, p. 15). However, the number of groups that focus on the related areas of environmental issues and climate change is considered to be lower, with a total of 15,000 active environmental non-governmental organisations (NGOs) in Ireland, who have in excess of 35,000 members contributing more than 6 million hours annually to environmental projects.¹ Therefore, there are a significant number of community and voluntary groups who are engaged in environmental projects and activities. While quantifying the number of community and voluntary groups who are focused solely on climate adaptation in coastal and marine areas is more difficult to gauge, it is known that 1,100 volunteers participated in the 2019 Coastwatch survey (Coastwatch, 2020, p. 3).

Furthermore, the assessment reveals that there is strong policy support for the community and voluntary sector engagement in areas such as education, training, health, community care and climate action (DRCD, 2019, p. 19) as this can be seen in the provision of different services and supports that are available to complement measures in many government policies and strategies. The national-level strategy for community and voluntary sector engagement also includes an objective to strengthen community resilience by supporting communities to identify their own needs and develop actions based on these needs, as well as empowering communities to take ownership of initiatives that strengthen their capacity to meet emerging challenges such as climate change (DRCD, 2019, pp. 19–21). The role of the community and voluntary sector in raising awareness and supporting engagement with climate change and in contributing to climate policy development is also recognised. In addition, objectives are included in the strategy to support, develop and enhance capacity in community

¹ See <https://ien.ie/>

and local development in the local government sector (Objective 10) in the areas of climate change adaptation and mitigation (Objective 11), and to achieve increased capacity through proactive engagement (DRCD, 2019, p. 31).

It is important to note that a strong role in climate action is envisaged for civil society (that includes community and voluntary groups) in the NAF through the National Dialogue on Climate Action mechanism (Department of Communications, Climate Action and Environment, 2018b, p. 53). Local authorities are also encouraged to provide local leadership on the issue of climate adaptation and to use their influencing role through their statutory community networks – i.e. the public participation networks (PPNs) and local community development committees (LCDCs). A commitment to work with communities can also be found in the *National Climate Action Plan*, which pledges to ‘work through systems and initiatives for development education to involve and empower community groups, the education sector and young people in progressing climate change solutions’ (Department of Communications, Climate Action and Environment, 2019, p. 132). This is to be achieved by developing usable ‘toolkits’ for individuals and community groups and by providing training and support which will enable them to enhance their capacity and understanding of climate action. Other actions that are designed to promote engagement include establishing community outreach programmes, developing pilot projects and providing funding under Project Ireland 2040, as well as promoting climate action initiatives to local community groups who are part of the PPNs (Department of Communications, Climate Action and Environment, 2019, pp. 136–7).

Local-level structures are also in place to improve engagement between local authorities and community and voluntary groups on a range of issues, including climate action. With 15,000 community organisations registered, the PPNs in 31 local authorities in Ireland (Department of Communications, Climate Action and Environment, 2019, p. 137) provide a direct link between communities and LCDCs and, by doing so, facilitate their engagement in local-level decision-making. Each LCDC produces a local economic and community plan, which provides a framework for ‘developing, coordinating and implementing a coherent and integrated approach to local and community development’ (DRCD, 2019, p. 17). In addition to PPNs, a regional structure of four climate action regional offices (CAROs) is now in place to provide local authorities with centres of expertise

within their regions. The CAROs have a role in regional-level governance by ensuring consistency between the various local authority plans and by dealing with cross-boundary issues within and across their regions (Department of Communications, Climate Action and Environment, 2018b, p. 75). The CAROs are also required to engage and support initiatives by schools, NGOs and others who are engaged in climate actions to enable the transition to a low-carbon and climate-resilient future at a local and regional level (Department of Communications, Climate Action and Environment, 2018a, p. 19).

In order to create an all-of-society approach to dealing with climate change, the NAF identifies twelve economic sectors as key stakeholders in the economy, national government (departments/agencies) and local government – all of whom have produced sectoral adaptation plans that identify sectoral climate change vulnerabilities and propose appropriate adaptation responses (Department of Communications, Climate Action and Environment, 2018b, p. 41). The potential of partnerships with the community and voluntary sector for delivering climate adaptation projects is recognised in two of the nine sectoral adaptation plans that have been produced. In the *Built & Archaeological Heritage Climate Change Sectoral Adaptation Plan*, a specific action is included to ‘engage communities in high-risk areas to create evaluations of vulnerability and priorities for response to local heritage in order to conduct risk and vulnerability assessment for climate change impacts on heritage’ (Government of Ireland, 2019b, p. 70). A specific action has also been included in the *Biodiversity Climate Change Sectoral Adaptation Plan* to ‘Design and implement a citizen engagement and awareness campaign on climate change and biodiversity conservation to capture case studies, tell stories and engage citizens in data collection and monitoring’ (Government of Ireland, 2019a, p. 53).

This assessment has demonstrated that there are a significant number of community and voluntary groups in Ireland who are active in environmental and climate-related projects at a local level. It has also revealed that there is a strong policy framework in place and formal support structures at national, sectoral and local level in which the community and voluntary groups can engage. Therefore, it is possible to conclude that the key elements for an effective enabling environment for community action in climate change adaptation are now in position and operational. The contribution of community and voluntary groups to climate adaptation projects in coastal areas is considered next.

Methods

In order to investigate the extent of partnerships with, and the contribution of, community and voluntary groups to climate adaptation in coastal areas, it was necessary to consider relevant case studies in Ireland. However, an analysis of the relevant literature revealed that case examples were rare and that a survey needed to be undertaken to establish if other case studies could be found. A research methodology was devised which involved the identification of coastal climate adaptation projects in which community or voluntary groups had a significant role. The application of the methodology comprised three key steps:

- completing a consultation exercise (comprising an email survey) to identify candidate case studies in which community or voluntary groups had participated in climate adaptation projects in coastal areas;
- undertaking a filtering process to ascertain the extent to which the candidate case studies were community-led;
- selecting the relevant case studies for detailed investigation.

Noting that the project is ongoing, this paper is largely focused on the method and findings of the consultation exercise, as well as the filtering process of identified candidate case studies.

The consultation exercise to identify candidate case studies

The consultation exercise began with an email survey of statutory providers of funding, technical assistance and other resources for marine and coastal areas. Noting that community and voluntary groups would require such resources to engage in climate adaptation projects, statutory providers (which included government departments, agencies and other statutory organisations with marine and coastal responsibilities) were identified and contacted by email to ask if they had provided any assistance to, or entered into partnership arrangements with, community or voluntary groups in designing, implementing or monitoring adaptation responses in coastal areas. Therefore, the survey was very specific in respect to the type of coastal climate adaption projects that it sought to identify. Coastal local authorities, voluntary groups and organisations (such as An Taisce and Coastwatch), and higher education institutions were also contacted. The consultation exercise took place between February and October

2019 (i.e. pre Covid) in three separate phases and it yielded a response rate of 85 per cent (with forty-five responses received from the fifty-three organisations contacted).

The survey results are set out in Table 1. It reveals that many of the respondents who were contacted were actively engaged in activities with community and voluntary groups, and a wide range and diversity of projects were identified. This demonstrates that some national-level

Table 1: Results of the consultation exercise

<i>Governance level</i>	<i>Government dept/agency/local authorities/others</i>	<i>Response rate</i>	<i>Candidate cases</i>
National level	Government departments (Department of Communications, Climate Action and Environment; Office of Public Works; Department of Culture, Heritage and Gaeltacht) (3)	100%	None
	State bodies/agencies (Irish Marine Institute, BIM, Environmental Protection Agency, HC, LAWCO) (5)	100%	None LAWCO (exception*)
Regional level	Regional assemblies (3)	66% (note: one position vacant)	None
	CAROs (4)	100%	1 case study identified
County level	18 coastal local authorities	83% (15 out of 18)	6 case studies identified
Voluntary sector	16 (incl. An Taisce (9 officers) & Coastwatch)	75% (12 out of 16)	8 case studies identified
Third-level education sector	4 (NUI Galway, UCC, Queen's University Belfast & Sligo IT)	100%	2 case studies identified
Total			17 case studies identified

* LAWCO exception (LAWCO suggested a case study in the south west after NUI Galway and An Taisce had put forward the same case study).

agencies (such as Bord Iascaigh Mhara (BIM), the Heritage Council (HC) and the Local Authorities Waters and Communities Office (LAWCO)) have a strong track record in working with communities and the voluntary sector through their networks of regional officers. This was evident from the funding and advice that they had provided to communities and voluntary groups and from their active engagement in community-level projects.

The consultation exercise generated seventeen examples of coastal climate adaptation projects in which the community or a voluntary group were understood to have had a notable or significant role.

A feature of the consultation exercise was its ‘top-down’ approach from national level down to local-level organisations. A ‘bottom-up’ consultation was not undertaken as direct contact with individual community groups (and representatives of community and voluntary groups) was not possible due to GDPR requirements. However, representatives of environmental groups were contacted and asked to disseminate an email seeking relevant case studies, but no further candidate case studies were uncovered.

The filtering process to ascertain ‘community-led’ case studies

The seventeen candidate case studies identified during the consultation exercise were notable for their diversity and the tasks that community and voluntary groups had completed in partnership with statutory authorities. It was necessary to analyse these case studies to ascertain which would be suitable for further investigation in the research and which should be discounted. A two-phase filtering process was devised;

- Phase 1: Constructing a simple spectrum (shown in Figure 1) of community/voluntary group engagement, which identified key tasks in coastal adaptation projects. This approach of using spectrums to reflect the wide range of possibilities for engagement in climate adaptation projects is considered helpful when studying the interactions that exist in practice (Kelly & Kelly, 2019, pp. 54–5).
- Phase 2: Devising a simple scoring system to capture and record the work of the community and voluntary groups who were engaged in the key adaptation tasks.

The two-phase filtering process ensured that the groups who participated in activities such as recording and monitoring coastal change, devising adaptation responses, managing and maintaining

adaption solutions (e.g. through governing structures such as management or steering committees) or implementing the agreed adaptation solutions were awarded scores that reflected these ‘key’ adaptation tasks. The use of the simple scoring system then enabled the level of engagement in each of the candidate case studies to be measured, and the cases that achieved the highest scores were selected for further investigation.

Figure 1: The spectrum of community involvement for measuring the extent to which community and voluntary groups were engaging in climate adaptation projects in coastal areas

Spectrum of Community/Voluntary Group Engagement in Climate Adaptation Projects in Coastal Areas

The results revealed that the candidate case studies were diverse, with variable levels of engagement. As community-led case studies were sought, a minimum engagement score of three was required to warrant more detailed investigation of a case. Therefore, candidate case studies that achieved a score of one or two (i.e. tasks such as beach clean-ups) were discounted as unsuitable for further investigation as they were not regarded as key adaptation tasks. Using the filtering process, six of the seventeen candidate case studies were found to have achieved an engagement score of three or more, and these six case studies (which focused on activities such as dune regeneration, coastal erosion and tidal river flooding) were selected for further analysis in the research.

Collecting and analysing the data from the selected case study areas

Once the six candidate case studies were selected for detailed investigation, it was arranged for data to be collected from the selected case study areas through fieldwork and by carrying out semi-structured interviews with representatives from the community and voluntary groups who were involved in each of the adaptation projects. This stage of the research was severely disrupted by the Covid pandemic due to major restrictions on inter-county travel that prevented field work from taking place. Once all data sets have been collected, a qualitative assessment of the data is planned.

Discussion of results and findings

This section provides a discussion of the results of the survey undertaken as part of the consultation exercise to identify candidate case studies for detailed investigation. Following an overview of the results, a discussion of the findings obtained at national, regional, local and community level are then presented.

Overview of results

Overall, the consultation exercise revealed that the number of case studies (seventeen) of community-led coastal adaptation projects in Ireland is limited. Based on the overall results, the following observations are possible:

- Many government departments, agencies, and regional and local authorities are engaging with community and voluntary groups on a wide range and diversity of environmental projects, with the statutory stakeholders providing significant levels of funding, technical assistance and other resources. However, very few national-level government departments and agencies are involved in projects with community or voluntary groups that are focused on climate adaptation in coastal areas.
- Despite good engagement of environmental groups in coastal environmental activities (e.g. 540 Coastwatch surveys returned in 2019 and 300 An Taisce Beach Clean events took place – which could be interpreted as 840 participating groups), only a fraction of community and voluntary groups who participate in these activities get involved in key adaptation tasks such as monitoring and recording coastal changes in their areas or designing and implementing adaptation responses to climate change effects.

- Due to the small number of community and voluntary groups participating in key adaptation tasks, the opportunities available to national-level government departments and agencies and local authorities (at county and local level) to develop partnerships and engage in adaptation projects with the community and voluntary sector are limited.
- The low level of activity among community and voluntary groups on adaptation projects in coastal areas could serve to undermine a key policy objective (of the NAF) which seeks to mainstream climate change adaptation into all areas of local authority activity and to build resilience to the impacts of climate at a local level for communities (Department of Communications, Climate Action and Environment, 2018b, p. 11).

The survey results also demonstrate how engagement between community and voluntary groups and statutory authorities and others differs across levels of governance, and these differences are considered in the following sections.

National level

The findings reveal that virtually all engagement with community and voluntary groups on coastal adaptation projects is taking place at a local level, with sixteen out of the seventeen candidate cases for climate adaptation being identified by organisations working with community sector representatives and by county councils. The highest level of engagement has taken place between representative bodies for the community and voluntary sector and a limited number of local authorities – all of whom have worked with community and voluntary groups on adaptation projects in coastal areas. This finding also confirms the view expressed in the NAF that local authorities represent a key stakeholder for implementing adaptation actions at a local level (Department of Communications, Climate Action and Environment, 2018b, p. 75).

While engagement with communities and the voluntary sector was highest at county level and community level, the findings also revealed that no candidate case studies were identified at national level and, perhaps most surprisingly, very few referrals were provided to other government bodies/agencies and local authorities who were engaging with community and voluntary groups on coastal climate adaptation. Therefore, engagement levels between statutory authorities and the communities and voluntary sector on climate adaptation issues increase as we progress down through governance levels. Although

this position may change with the implementation of sectoral adaptation plans (as some plans had not been adopted at the time of the consultation exercise), this finding may undermine the multi-scalar all-of-government approach that is necessary to create a suitable ‘enabling’ environment for widespread adaptation to take place.

Despite the absence of candidate case studies at national level, the research demonstrated that some national-level agencies (BIM, HC and LAWCO) have a strong track record in working with communities and the voluntary sector through their networks of regional officers. This was evident from the funding and advice that they have provided to communities and voluntary groups and from their active engagement in community-level projects. However, the vast majority of the community partnership projects in which these agencies were engaged have focused on more sectoral-specific issues (e.g. marine and coastal resources or riverine environmental quality) and could not be described as coastal adaptation projects. This significant finding highlights that:

- more work is needed to ‘mainstream’ climate adaptation considerations into the work of the national-level agencies concerned (and to meet the relevant requirement of the NAF);
- strong potential exists for national-level agencies to support ‘community-led’ climate adaptation projects (through funding and technical assistance) in the future.

Regional level

The CAROs proved to be a valuable resource in the survey by disseminating the request for case studies throughout their network at regional level – an action which led to a candidate case study being put forward for consideration. This result was particularly encouraging due to the fact that all four CAROs were a recent addition to the climate action governance structure at the time of the survey (i.e. the CAROs were established in November 2018, or four months prior to the commencement of the survey in February 2019).

The survey also demonstrated that the CAROs have developed good links with representatives of community and voluntary groups, such as An Taisce, as the email enquiries to the CAROs were widely circulated and they generated a notable number of referrals and candidate case examples. While strong links could be discerned between the CAROs and local and community-level groups and organisations, connections (and referrals) between the CAROs and

national-level government departments and agencies were less evident in the research findings.

Contact was also made with each of the three regional assemblies at regional level on the basis that it is a NAF requirement that climate adaptation and building resilience is integrated into existing planning policy structures. Although, the contacts showed no evidence of partnerships on coastal adaptation projects between the regional assemblies and the community and voluntary sector, this finding was anticipated given the role of the CAROs at regional level.

County level

The results revealed that local authorities are particularly important with respect to working with communities and the voluntary sector on coastal adaptation projects as a total of six candidate cases were identified by them. However, given that there is considerable diversity among the eighteen local authorities who have coastal functions, a number of observations from the findings are possible.

The level of engagement on adaptation projects between local authorities and coastal communities/voluntary groups was found to vary significantly throughout the country, with some councils being particularly proactive and participating in partnership approaches with community and voluntary groups in coastal adaptation projects (such as beach management and dune regeneration), while others appear much less engaged. This point is reflected in the fact that the candidate case studies that were identified in the consultation exercise came from a small number of counties. This suggests that some are more effective than others at supporting and enabling 'community-led' climate adaptation projects. In addition, no examples of joint approaches (between two or more local authorities) to working with the community and voluntary sector on coastal adaptation projects were uncovered in the survey.

However, this finding is likely to be influenced by the fact that there are significant physical differences in the coastal areas for which local authorities are responsible, with some counties having notably short coastlines (such as Leitrim (5km) and Meath (21km), respectively), while a small number of local authorities in the west and north west of the country (Mayo, Cork, Donegal, Kerry and Galway) have extensive coastal areas and are responsible for 76 per cent (4,309km) of the entire national coastline. These physical differences between county coastlines can significantly limit the ability of some local authorities to engage in partnerships with community and voluntary groups on

coastal climate adaptation responses. Urban local authorities (such as Galway City Council and Dublin City Council), which are dominated by engineered or man-made coastlines, are also likely to have more limited options for engaging in community coastal adaptation projects.

The manner in which coastal adaptation is managed within local authorities is also of interest. The survey revealed that, in many instances, planning departments appeared somewhat detached from the adaptation projects identified in the research. All email inquiries on community-led coastal climate adaptation projects were made initially to the planning departments, but in all cases they were referred to different sections and departments within each of the coastal local authorities. This finding was surprising given the NAF requirement to mainstream climate change considerations into all areas of local authority forward-planning activity (including development plans).

The survey also revealed that the governance structures within local authorities for climate adaptation in coastal areas are notably diverse as a range of different sections are responsible for the management of coastal areas. Depending on the local authority, coastal management functions could be found in the parks department, the environment section, the heritage section, or the roads and infrastructure division. This lack of visibility of the coastal management function led to multiple referrals within local authorities of the initial email enquiry. This feature of the local governance structure can reduce the visibility of the coastal management function of local authorities and make local authority functions less transparent if their assistance is required by community and voluntary groups. This feature may also inhibit the mainstreaming of climate adaptation issues (for coastal and other areas) into all areas of local authority activities.

It was also significant to note that, during the survey, none of the email enquiries on community-led coastal adaptation projects were referred to the local climate adaptation teams (which are a requirement for local authorities under the NAF) or to the PPN officers who would work with the community and voluntary groups that are of interest in the research. The above findings suggest that the target of mainstreaming of climate adaptation in local authority functions (as required under the NAF) remains an ongoing process.

Community level and the higher education sector

The community level was most important for identifying candidate case studies, with representative groups for the community and

voluntary sector (such as An Taisce and Coastwatch) identifying the highest number of candidate cases – or eight from an overall total of seventeen. This demonstrated a good level of engagement between representative groups and the community and voluntary sector. It also illustrates the significance of these representative groups as a source of technical assistance and support. It clearly indicates the importance of the Clean Coasts beach cleans and Coastwatch surveys as a means of raising awareness of marine and coastal management issues, and of harnessing the efforts of community and voluntary groups into climate adaptation projects. This survey finding may also indicate that a significant number of community or voluntary groups that require advice and assistance on coastal adaptation projects get in touch with representative groups, such as An Taisce and Coastwatch, or local authorities in the first instance.

The survey revealed that there are strong links between An Taisce (with their network of regional officers who work with local-level volunteers in their Clean Coasts programme, among other activities), the CAROs and other voluntary groups with an environmental interest. While similar links with local authorities were evident through collaborative activities such as workshops and lectures, the level of engagement and collaborations between county councils and the representative groups such as An Taisce was variable. Links between representative groups such as An Taisce and national-level government departments and agencies were less visible.

The findings demonstrated that the higher education sector also makes a notable contribution to coastal climate adaptation activities. The higher education institutions who took part in the survey put forward a range of current and legacy climate adaptation case studies, with two of these case studies being considered as candidate case studies. It was also clear from the survey that there are notable links between the higher education sector, the representative groups (such as An Taisce), the local authorities, and the community and voluntary groups.

Conclusions and recommendations

Accelerating climate change impacts along the Irish coastline require adaptation solutions to mitigate negative effects and minimise disruptions to coastal communities and habitats. A lower reliance on grey infrastructure coastal defence structures to protect coastlines now seems likely, with greater attention on NbS and management

measures for reasons of cost, environmental sustainability and social equity. The acceptance that local knowledge is needed to formulate effective 'place-based' adaptation strategies, along with the strong policy background that calls for additional engagement, will mean that communities and voluntary groups are likely to play a larger role in devising and implementing adaptation solutions in the future.

Other enabling factors are likely to boost the increased participation of coastal communities in adaptation projects for their areas. For example, national and sector-level policies have been adopted to foster and support engagement, while local governance structures such as the PPNs will enable communities to participate in local-level decision-making. Greater awareness of climate change impacts, growing coastal populations, and the large number of community and voluntary groups with an environmental focus are also likely to contribute to a higher level of engagement on climate adaptation planning and action by communities along our coastlines.

A survey of stakeholders with marine and coastal responsibilities at all levels of governance was undertaken to assess the current level and extent of engagement by community and voluntary groups in coastal adaptation projects. The survey revealed seventeen candidate case studies, of which six were considered to be community-led. The following conclusions and recommendations can be made:

- Acknowledging that Ireland is at the beginning of the climate adaptation process, the number of community and voluntary groups engaging in adaptation projects in coastal areas is low – particularly given the significant number of Irish community and voluntary groups who are active in environmental and climate-related projects at a local level. More determined attempts must be made to engage with community and voluntary groups and to develop partnership approaches to devise adaptation solutions for coastal areas. Further research is needed on the candidate case studies in order to identify the barriers experienced by the community and voluntary groups involved in these projects.
- The highest levels of engagement with community and voluntary groups are taking place at community (with organisations such as An Taisce and Coastwatch) and local authority level. Additional engagement is needed at regional and national level to create an enabling environment and to mainstream climate adaptation to all levels of governance. The research revealed that government departments and agencies are continuing to concentrate on sector-

specific objectives in their activities, with a more limited focus on climate adaptation. While this may change as sectoral adaptation plans are implemented (and partnerships with community and voluntary groups are formed), continuous monitoring is needed to ensure that climate adaptation actions are devised and implemented at national and sectoral level.

- Local authorities play an important role in developing partnerships with community and voluntary groups and devising climate adaptation projects. However, their overall performance is uneven, with some local authorities making more progress than others. The reasons for the varying level of performance should be the subject of further study.
- Representative groups at community level, such as An Taisce, have been the most successful at building partnerships with community and voluntary groups in adaptation projects in coastal areas, and the approaches they use to promote engagement could provide lessons for local, regional and national-level government actors and agencies. Stronger links are needed between community-level representative groups and local, regional and national authorities to facilitate knowledge sharing on adaptation and to improve coordination between all governance levels. These links should be facilitated using existing governance mechanisms provided at regional level either by the CAROs or the regional assemblies.

The research has revealed that progress has been made in mainstreaming climate adaptation policies, which can be found at national, regional and local level – a factor that makes a positive contribution to creating the required enabling environment for building resilience. However, more evidence is needed to demonstrate that these policies are being implemented across all levels of governance, particularly with respect to encouraging communities and the voluntary sector to engage in coastal adaptation projects.

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