

Chapter 7. “Rollback” in North Norfolk, United Kingdom

This chapter focuses on an area of North Norfolk, England, where an innovative “rollback” approach to adapting the local area to increased coastal erosion risk was trialled. The approach did not involve traditional coastal defence, which was considered uneconomic, but instead harnessed land-use planning policies with some “pump priming” funding to pursue a number of local projects.

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7.1. Institutional arrangements for coastal flooding and erosion risk

In the United Kingdom, policies for managing the risks associated with coastal flooding and erosion are devolved to the national administrations. For England, the Flood and Water Management Act 2010 has set out the requirement for a national framework for managing risk to be issued by the national environmental regulator, the Environment Agency. The current version of this framework has been set out in “Understanding the risks, empowering communities, building resilience: The national flood and coastal erosion risk management strategy for England” (Environment Agency, 2011). This sets out a high-level framework (Figure 7.1) which empowers various actors to plan for and manage risk, including future pressures such as sea-level rise (SLR).

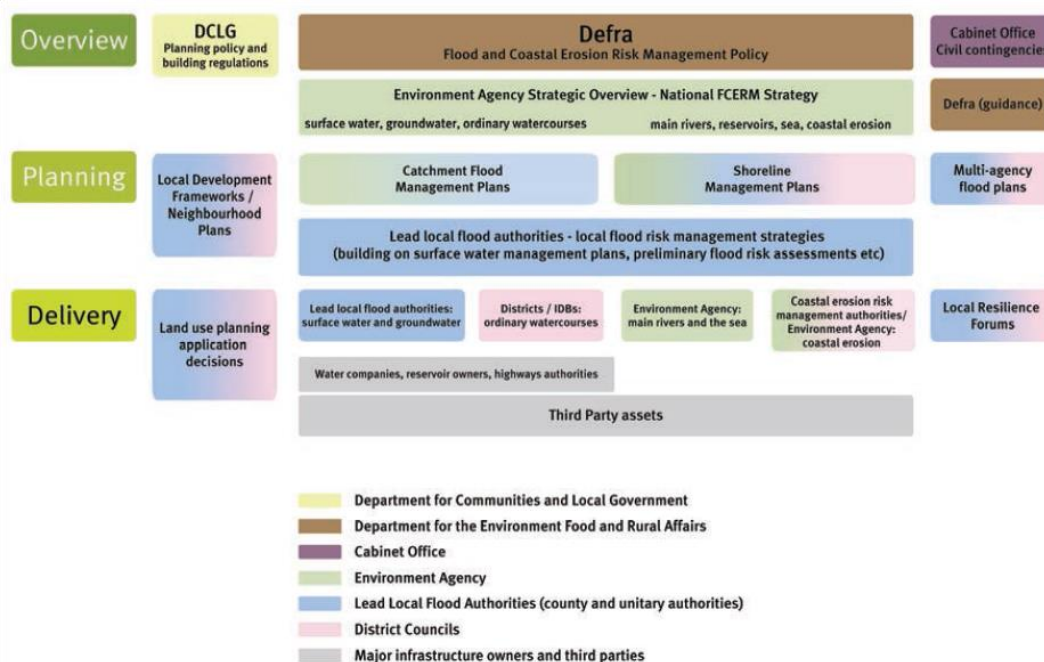
The key vehicle for strategic planning of coastal erosion risks in England has been the shoreline management plan (SMP). This is overseen by a coastal erosion risk management authority, a local authority whose functions include planning shoreline management activities with input from the Environment Agency and the delivery of coastal erosion risk management activities (using powers under a range of legislation). The SMP is a local strategic plan put together by groups of key stakeholders in defined coastal areas. First-generation plans were issued in 1996, and the current second-generation plans were generally completed in 2009. The SMPs take account of future projections of SLR driven by climate change.

An important aspect of the risk management framework is that it is largely permissive. This means powers are granted to authorities to act to manage risk, but there is generally no legal obligation to provide a particular level of risk management. As such, citizens do not have legal rights to protection levels or other outcomes. However, central and local governments make significant public resources available to manage risk, through political decisions supported by assessment of costs and benefits. Such resources have been deployed over many years to provide locally appropriate protection through coastal defence construction, as well as information provision such as mapping and warning. Land use and other local planning takes account of risk.

At the local level, environmental, economic and technical assessments do not always conclude, however, that tangible defence against risks is deliverable, even in the presence of factors such as expected sea-level rise, which is key to the case study described in this chapter.

Capital costs for protection for those where it is viable are mostly met by the national Exchequer, albeit with increasing contributions from local partners (see Partnership Funding, (Box 2.4). Revenue costs such as maintenance of defences are often met by coastal local authorities, although such sources have undergone significant reductions in recent years. Conversely, flood defence maintenance is more often funded by the National Exchequer. Within local areas, some taxation may be used to support coastal protection, although local funding and financing is in practice heavily constrained. Occasionally, major business beneficiaries in areas (e.g. tourism facilities, energy infrastructure providers) may contribute funding.

Figure 7.1. Overview of flood and coastal erosion risk management in the United Kingdom



In terms of liability for damage, flood risk is generally covered by private insurance (currently supported by a publically subsidised pool, Flood Re), though coastal erosion is not. Private property owners are liable for erosion damage and loss. Disaster compensation has generally not been offered by public authorities as there is no funding or policy basis, though in the case of flooding, public grants for property resilience have occasionally been offered (though more for inland events). In the United Kingdom, as elsewhere, there are general benefits to living on the coast, though this can be offset by some coastal areas being economically peripheral (e.g. distant from employment centres). In areas where coastal defence investment becomes unjustified, perhaps departing from past policy, property value can quickly disappear, which can cause transitional difficulties.

7.2. North Norfolk and Happisburgh

7.2.1. The area and the Shoreline Management Plan

The area of focus is Happisburgh, a village on the northeast Norfolk coast. The coastline in this area is under inherent and active erosion pressure because of its geology and morphological conditions. This is in contrast with some neighbouring areas of coast which are more stable and indeed rely on the study area for sediment supply.

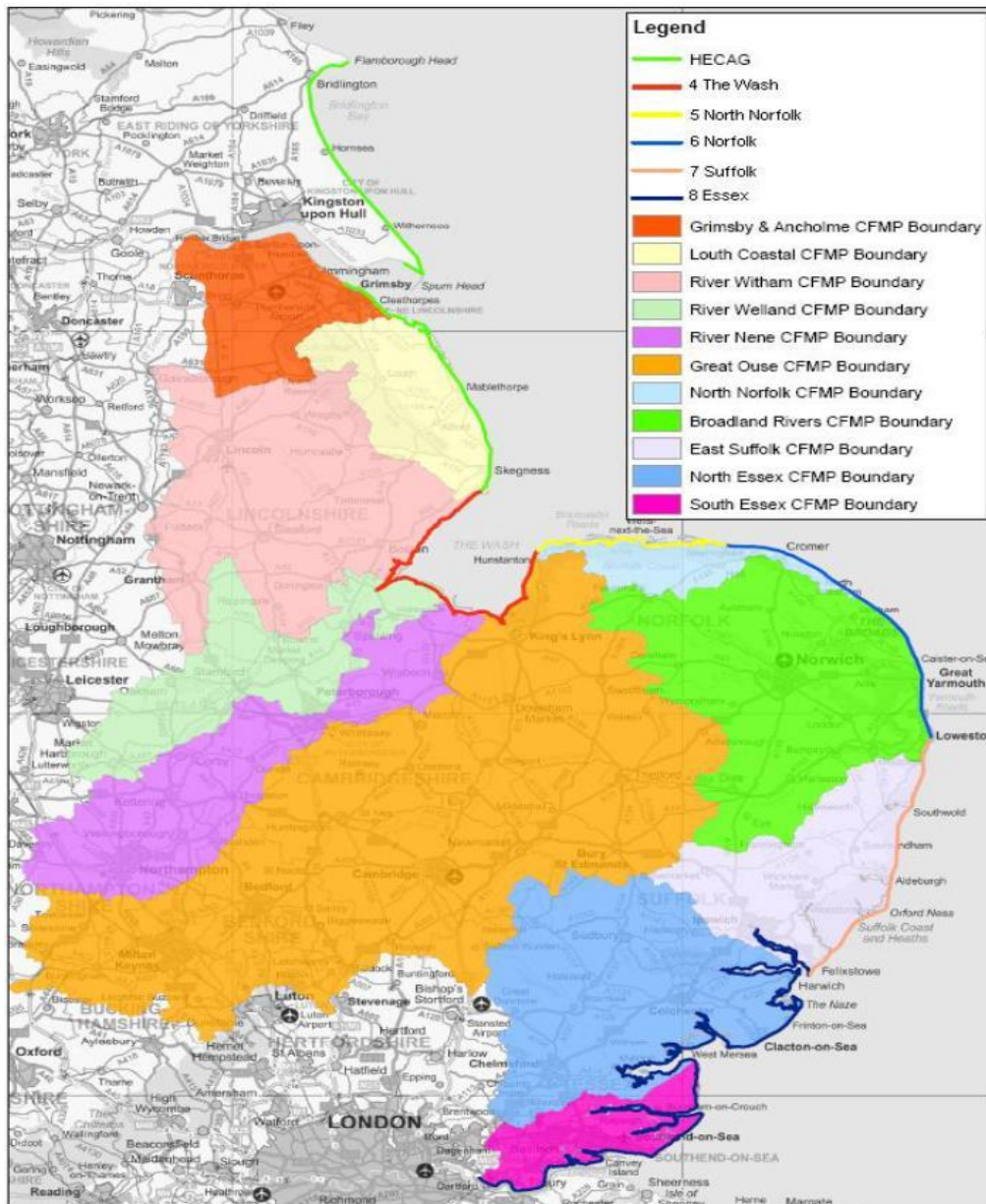
Happisburgh is a small, historic rural coastal settlement with a population of around 900 at the 2011 Census. The area is relatively deprived, with a position at around 25% in the English Index of Multiple Deprivation (where the lower the percentage, the more deprived).¹ Wider population density in the area is relatively low; the nearest significant town is around 10 kilometres away (North Walsham). The economy of the wider locality is largely driven by tourism and agriculture, though with some out-commuting to economic centres further afield such as Norwich, Great Yarmouth, and the more local tourism centres of Cromer and Sheringham.

The vulnerability of the area to coastal erosion has been assessed in the SMP for this part of Norfolk (East Anglian Coastal Group, 2012^[1]). SMPs cover the whole coastline of England and Wales, and are non-statutory documents for coastal defence planning. Alongside catchment flood management plans, the SMPs are a form of high-level plan in the Flood and Coastal Erosion Risk Management National Strategy published by the Environment Agency (see above). The SMPs are put together collaboratively by groups representing coastal interests (flood management authorities, local authorities and others). They present plans taking account of the prevailing UK Climate Projections science report on future SLR, with supporting modelling estimating the interaction between this, sea flooding and rates of coastal erosion.

The latest (second) edition of the SMP covering the area from Kelling, on the north coast of Norfolk, to Lowestoft Ness, about 90° clockwise around the coast to the east, was finalised in August 2012 by the East Anglian Coastal Group. Happisburgh is broadly in the centre of this stretch of coast. Along with others, the overall plan area was defined at national level with regard to broad-scale coastal processes (morphology). There is little observed transfer of sediment between this plan area and others, which makes it an independent cell in which interdependencies are “internalised” and hence suitable as a planning “unit”. Within the plan area, however, there is significant transfer of sediment between areas. By nature or design, areas of economic importance such as Sheringham, Cromer and Great Yarmouth are either morphologically stable, protected or receivers of sediment. Other localities in the plan area are inherent suppliers of sediment, even if this is or has been moderated by coastal management.

Figure 7.2. Norfolk Shoreline Management Plan area in the wider context

Number 6 in legend, includes related catchment flood management plans

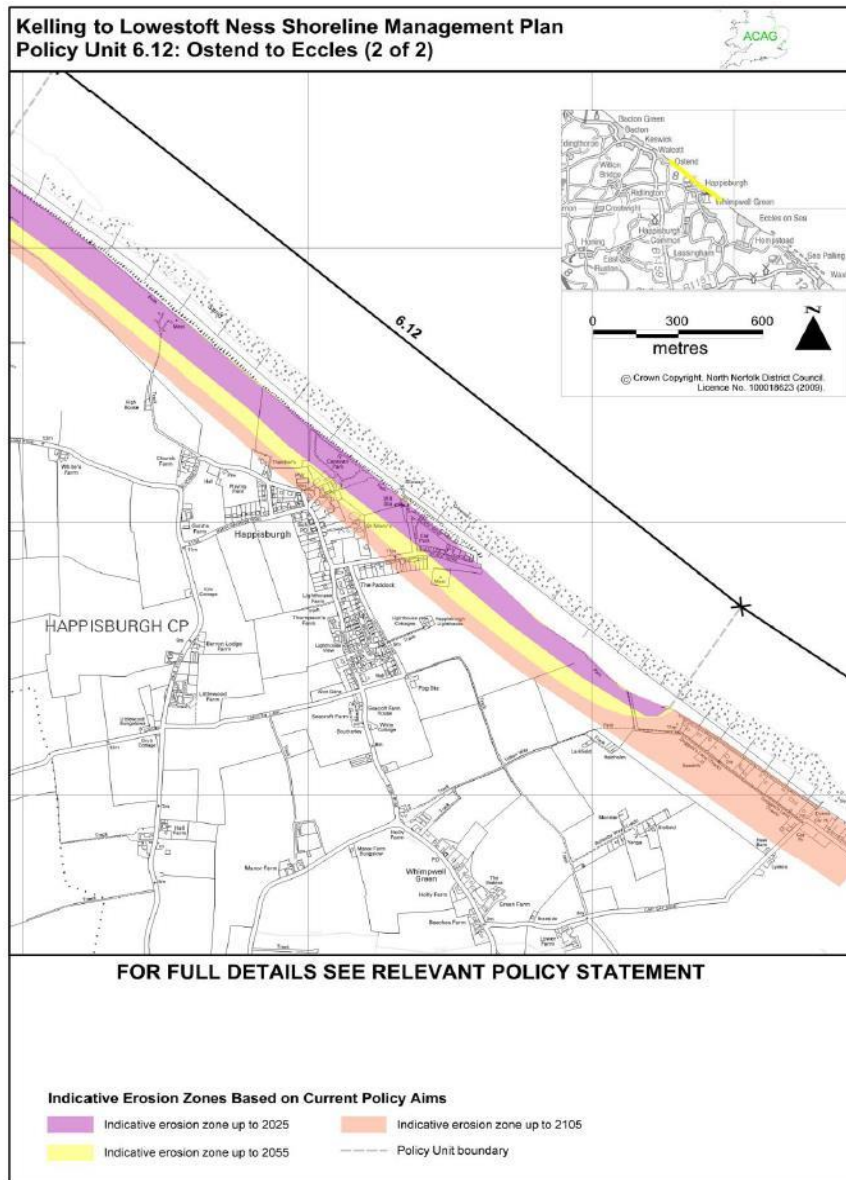


Source: Kelling to Lowestoft Ness SMP, 2012 (AECOM and East Anglian Coastal Group).

7.2.2. Shoreline Management Plan recommendations for Happisburgh

Figure 7.3 presents the assessment of risk from coastal erosion for the frontage including Happisburgh. From the mid-2000s to 2025 (purple band), an area of erosion was identified leading to the forecast loss of around 15 properties, land at a caravan (tourist) park, the coastguard station and other land. Further loss of another five or so properties and other land was identified in the period from 2025-55 (yellow band). Finally, for the last epoch of the plan (2055-2105), a further 15-20 properties was projected to be lost to erosion (red band).

Figure 7.3. Extract from Norfolk Shoreline Management Plan for Policy Unit 6.12 including Happisburgh



Source: Kelling to Lowestoft Ness SMP, 2012 (AECOM and East Anglian Coastal Group).

Taking account of the inherent morphology of the area and the impacts and economics of different management policies for the locality, the SMP concluded:

In the long term it will not be appropriate to defend Happisburgh due to the impact this would have on the SMP shoreline as a whole, as the coastal retreat either side would result in the development of this area as a promontory making it both technically difficult to sustain and impacting significantly upon the alongshore sediment transport to downdrift areas. Although there are implications, such as loss to erosion of residential properties and amenities at Happisburgh, these are not sufficient to economically justify building new defences along this frontage.

Therefore, the long-term plan is to allow natural functioning of the coast through allowing it to retreat. However, in the short term the council will make every effort to minimise the rate of coastal erosion at this location, using appropriate temporary measures, including maintenance of the existing rock bund, with a view to allowing time for measures to be introduced to allow people to adapt to the changes in the medium and long term.²

7.3. The local adaptation response

Whereas in the current survey of OECD member country approaches to coastal risks, “adaptation” can often mean providing defence, in the case of Happisburgh and many areas on the English east coast, “adaptation” has a very different meaning. As highlighted in the SMP extract above, the economic and environmental justification for defence at Happisburgh was weak: the clear implication was that the affected community would need to “adapt” to coastal change in other ways. In essence, this meant using land-use planning and other mechanisms to move, over time, the community onto land out of risk.

During the first decade of this century, the SMPs being conducted around the English and Welsh coasts highlighted a growing need for some communities to explore new approaches to adapt to coastal change, where traditional defence approaches were proving economically and environmentally unsustainable. Between 2010 and 2012, the Department for Environment, Food and Rural Affairs (Defra) made available a grant scheme to local authorities to test such approaches, known as the Coastal Change Pathfinder Programme. One of the largest recipients of funding was North Norfolk District Council (NNDC), which put forward a range of innovative projects to test adaptation approaches in the real world of the Norfolk coastline, in conjunction with existing, but novel, approaches to land-use planning. In Happisburgh, this included the following projects to “roll back” important properties and features to new sites:

- nine residential properties at short-term risk of loss to erosion in Beach Road
- an important local business, a caravan park, at risk of partial short-term loss
- a car park used by visitors to the beach, and beach access.

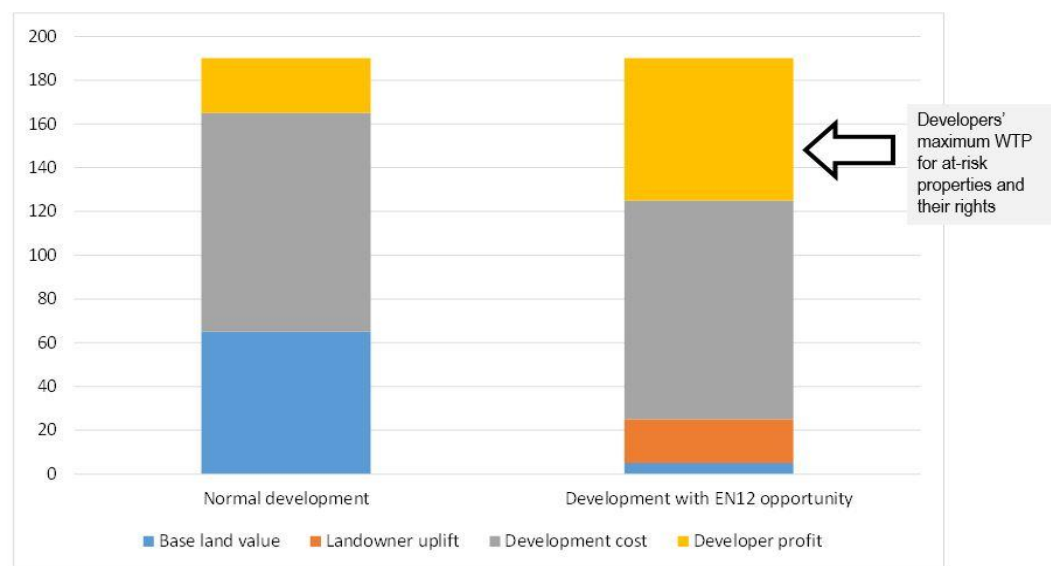
This case study focuses on the biggest of the schemes, the Beach Road residential rollback. However, some information on other projects advanced by the NNDC as part of the Pathfinder Programme is provided towards the end of this case study. Further detail is available in Regeneris (2011^[2]).

7.4. Beach Road project: Overview

This project was an attempt to pump-prime development activity which was, in principle, already enabled through a novel local land-use planning policy known as “EN12”. The policy grants development opportunities to owners of properties at risk of coastal erosion, according to the risk “contours” set out in the SMP. Owners of residential properties have an opportunity to develop on land not otherwise allocated for residential use, provided their existing property is at risk of loss within 20 years. A similar opportunity is afforded to business properties; in this case, the loss period is 50 years. The development opportunity is tradable in conjunction with the property, and the idea is that those finding themselves at risk acquire a tradable value which can offset some of the financial loss associated with properties facing erosion. The value of the opportunity is enhanced through the “planning gain” associated with enabling development of land not already allocated for residential

use (e.g. agricultural land). This element, in particular, should in theory make buying the development opportunity (and associated at-risk property) attractive to developers, yielding funds to help existing property owners to move. Figure 7.4 illustrates the economics of the approach.

Figure 7.4. The theoretical economics of the North Norfolk “EN12 Rollback” planning policy



In Figure 7.4, which uses purely illustrative figures for development values albeit loosely based on local averages, the left-hand column shows land value (blue), development costs (grey) and developer profit (yellow) for a conventional development on already-designated residential land. The right-hand column shows the equivalent for a development using an EN12 Rollback opportunity. Because the latter allows development on land not currently allocated for residential use, land costs can in theory be much lower (e.g. agricultural land value – the blue bar). For the same development costs (in grey), and assuming the same end-market value for the property is achieved, the development profit element is therefore potentially much higher. In reality, this profit element will be split between the developer (yellow) and the landowner (brown) through negotiation and depending on market conditions and relative market power of the two parties. In this example, it is assumed the landowner captures a quarter of the profit that would otherwise have gone to the developer.³

The difference in profit (yellow bars) between the two scenarios indicates the theoretical developer’s willingness to pay for an EN12 Rollback opportunity, discounting any residual value of the at-risk property to which it is attached. At first glance using these illustrative figures, this might be a little less than a third of the market value of a new property. In practice, the value passed on to the at-risk property owner will have to be less than this for the transaction to be attractive to the developer. For these reasons, on this illustration, it is clear that the value of the EN12 Rollback opportunity realisable by an at-risk property owner would not be expected fully to pay for a relocation. However, the greater the residual life of the at-risk property (say for rental⁴), the greater the potential total proceeds, indicating that early action on the part of at-risk property owners is advisable.

As “EN12” was a new arrangement in the NNDC’s planning policy (now adopted on a more national basis), it was felt appropriate to use some of the Pathfinder Programme funds to test the idea, providing demonstration and “pump-priming” benefits. The first stage was

to negotiate to purchase identified properties in Beach Road, Happisburgh. These properties were, in practice, at near-term risk (within 20 years), had limited remaining economic life and some were already in poor condition through understandable lack of investment (Figure 7.5). In theory, a valuation of these properties was their “at-risk” value plus the value of the EN12 Rollback opportunity (in concept, as above). In practice, because the project was breaking new ground, the NNDC ultimately paid an estimated theoretical value based on potential future rental valuations for the remaining property life, the valuation of the rollback opportunity and a disturbance payment. In reality, the NNDC paid approximately GBP 700 000 (for nine properties, in 2011). On an average per-property basis, this was around 45% of the overall average price in Norfolk at the time ((n.a.), 2018^[3]).

Figure 7.5. Properties in Beach Road, Happisburgh before the rollback scheme



Source: Eastern Daily Press.

The economic analysis above does not adequately convey some of the practical challenges of rollback schemes. In the case of Beach Road, there were difficulties associated with seeking planning consent within the community for a site not in a currently designated residential area, and negotiating purchases both of at-risk properties and replacement sites. However, at the time of writing (2018), implementation of the scheme is nearing completion. Properties on Beach Road were demolished once purchased by the NNDC, with the area landscaped, and a new site for nine replacement units was eventually found. Planning consent was achieved and an agreement reached with a developer to buy the site with associated permissions. It is hoped construction will soon be complete. Receipts to the NNDC after costs totalled GBR 250 000, which went some way to offset the GBR 700 000 outlay for the original properties and the associated administrative and other costs. As such, while the scheme is not close to being self-financing,⁵ it has proved an important trial with numerous research and demonstration benefits.

7.5. Cost-benefit analyses and assessment of trade-offs

The costs and benefits of the Beach Road rollback scheme have been assessed on two occasions, in 2011 and 2015. Both of these analyses were conducted before the completion of the scheme and it would perhaps be valuable to revisit these assessments now that the project has been completed. In 2011, Regeneris Consulting concluded the societal benefit-cost ratio of the Happisburgh rollback was 0.7:1. Essentially this seemingly poor result was because the scheme ultimately replaced one set of properties with a similarly beneficial set, at a cost in terms of administration, demolition, etc. Regeneris did estimate in 2011, however, that “when using an investment model and without factoring in the management costs or void rental periods, when the EN12 opportunity value is applied, the model is financially self-supporting”.

Understandably, this assessment focused primarily on tangible property-related values and was not able to quantify the wider benefits of facilitating the continuation and regeneration of Happisburgh as a viable community. Such wider values remain a challenge for benefit-cost analysis and include health and stress impacts, reputational damage to the area, crime and other impacts associated with the area becoming increasingly “blighted”, and a social opportunity cost to the community of focusing on erosion issues rather than wider community development.

Risk and Policy Analysts (RPA) revisited the cost-benefit assessment in 2015 as part of a further *ex post* evaluation of a number of rollback schemes facilitated by the Coastal Pathfinder programme, and drew similar conclusions. The estimated range of benefit-cost ratios for rollback schemes involving new development was 0.5-1.1:1. More generally, RPA concluded:

Overall evidence from the Pathfinder projects suggests that rollback, with the right policies and mechanisms in place, is a feasible adaptation option that is desirable from the perspective of the local authority and the individuals at imminent risk of coastal erosion. Rollback options may also be cost-beneficial based on the economic assessment. Buy-in at the community level can be more difficult to achieve, but effective communication can increase awareness and understanding of the situation (in terms of the options available in the wider context of coastal erosion issues) and thus increase desirability. The problems encountered in the Pathfinder projects provide valuable lessons for other local authorities in terms of expected issues and how to overcome them. The key areas to focus on when identifying the usefulness of rollback include:

- *Understanding the make-up and geographical scale of the community, including demographics*
- *Understanding community expectations*
- *Investigating community understanding of the inevitability of erosion*
- *Identifying what the local authority can and should provide*
- *Assessing the specific needs of individuals*
- *Recognising which skills are needed*
- *Accepting that rollback is likely to require long-term planning (2015^[4]).*

7.5.1. Notes on other NNDC schemes

The Beach Road “rollback” scheme was one of several coastal adaptation schemes promoted by the NNDC in Happisburgh and elsewhere in the district as part of Defra’s Coastal Change Pathfinder programme. Summary notes on other key schemes follow.

Happisburgh – Manor Caravan Park

Manor Caravan Park was identified as being at erosion risk and as a key aspect contributing to the vibrancy of Happisburgh. As part of the wider projects to assist the village, the park was included in the Pathfinder. Assistance was achieved through a grant to assist the business to develop and deliver options to enable it to adapt to coastal change. The grant assisted the owners to identify a rollback site away from the coastal erosion risk zone while still remaining in Happisburgh, thus retaining its economic input into the village.

With the discharge of Planning Conditions in 2018, the remaining element of the Pathfinder grant was provided to the park to assist with the installation of essential services as part of the wider relocation.

The new site will begin to open in spring 2019. The rollback of the park is a significant undertaking by the owners and was the first encouraged and initially facilitated rollback of an at-risk holiday park.

Trimingham Village Hall

The Trimingham coastline is identified in the adopted SMP with a policy of “managed realignment” as coastal protection is not considered technically feasible, environmentally acceptable or economically viable. Due to this, the SMP also highlights the need to develop alternative measures to assist with managing the impacts of a changing coast.

Trimingham has a number of coastal adaptation needs and the Pathfinder provided an opportunity to relocate the “Pilgrims Shelter” (village hall) away from erosion risk. An initial grant was provided to Trimingham Parish Council to assist with the purchase of land, the application for consents and to act as seed funding to assist with attracting further funding.

Following significant effort by the Parish Council and local community, the additional funds were raised for the new Village Hall culminating in the successful opening of the facility in summer 2018. Discussions are now underway with regards to the repurposing of the “Pilgrims Shelter” and guidance is being provided by the NNDC Economic Development Team as to how this building may be integrated into the Deep History Coast initiative while also continuing to provide a valuable local function.

The replacement of the Village Hall at Trimingham is a successful example of one aspect of adapting the coast and its communities to coastal change. This was only achieved through initial identification of a need, funding to kick start the project, and determination and hard work by key members of the local community.

Trimingham – Residential properties

Further coastal adaptation has occurred at Trimingham with the demolition and replacement of four dwellings which were at risk of coastal erosion (all were served with prohibition orders). The NNDC provided guidance for a private initiative to utilise the NNDC rollback planning policy and facilitated access to Defra’s Coastal Erosion Assistance Grant⁶ to assist with the demolition of the properties.

The four properties now have planning consent for replacement in nearby Mundesley. The original dwellings, now demolished, no longer pose a potential threat of collapse onto the adjacent cliffs (a Site of Special Scientific Interest) with the risk of future beach debris and potential environmental hazards.

This is one of only two completed examples in North Norfolk of the private use of residential rollback. This has only been achieved through provision of assistance and guidance by the NNDC, the availability of a Defra assistance grant, and significant effort and risk undertaken by a private individual.

7.6. Lessons learnt and conclusions

The Coastal Change Pathfinder programme has provided valuable lessons and helped work through the issues associated with rollback and other adaptation interventions in the real world. The Beach Road residential rollback project has been a success in terms of facilitating a new development site out of the erosion risk area – even if construction has yet to complete – removing blighted properties at short-term risk. Some of the key lessons of the Beach Road scheme in particular include:

- The rollback and replacement of properties be it residential, community or commercial, is possible and can lead to significant local benefits. However, analysis of the finances of such schemes and real-life experience suggests that it is unlikely that without support, guidance and some funding that such approaches will be delivered by the private sector alone. Against a backdrop of poor cost-benefit returns for traditional defence measures, there was interest in exploring if rollback could provide a more economically advantageous solution. However, economic assessment of rollback schemes on the same basis as defence schemes (i.e. focusing on property impacts) has fairly consistently yielded a relatively poor cost-benefit ratio. With hindsight, this is to be expected to the extent economic appraisal characterises such schemes as simply replacing existing capital assets (properties), and indeed foreshortening the lives of existing assets, but at a cost. That said, this kind of assessment has often not been able to take into account all the wider socio-economic benefits associated with maintaining and regenerating communities blighted by risk.
- In practical terms, community acceptance of rollback schemes is challenging when there remains a perception that coastal protection is a “right”. Any new development, be it for rollback or otherwise, is often challenging due to the common stance in communities of “not in my back yard”.

The main ongoing issues faced for relocation/rollback post-Pathfinder are primarily threefold:

1. Local authorities’ planning policies (supported by the National Planning Policy Framework) usually encourage relocation/rollback only within a restricted area and the option only exists when the asset is threatened within a certain time frame (20 years). The restricted area aims to keep housing/assets within the threatened village or area. This has the effect of discouraging rollback as asset/homeowners may want to move elsewhere or there may be no suitable sites within the defined area. This leads to assets remaining within the risk zone. The fact the policy only applies when the asset is within 20 years of risk discourages early adaptation. Asset/home-owners prefer to hold onto their property until the last moment, for example, in case a defence scheme is put into place. The property then remains within the risk zone

and the rollback is not utilised. The town of Hemsby is an example of this, where properties are being demolished right on the edge of the cliff, as there is no early adaptation incentive.

2. There is no facilitative funding, and purchasing a rollback site within the restricted area is not possible. Outside of the Pathfinder programme, there has generally not been funding available for adaptation and so asset/home-owners hold onto their property until the last moment. When trying to purchase a rollback site, landowners of potential sites realise that the individual(s) with the rollback opportunity are likely to gain planning permission, and so the price of the land is increased dramatically (sometimes tenfold, in contrast to the conservative theoretical example set out earlier in Figure 7.4). Again, this leads to property remaining within the risk zone as the rollback cannot be utilised.
3. Securing planning permission is extremely challenging. Obtaining planning permission for new rollback developments in the countryside is constrained by other policies/matters (presence of Areas of Outstanding Natural Beauty and other designated areas, pressure from local groups, etc.). Again, this leads to property remaining within the risk zone as the rollback cannot be utilised.

Rollback has the potential to avoid most of the costs and impacts associated with inaction in the face of coastal erosion risk. However, experience post-Pathfinder suggests that the key to devising a successful rollback scheme is to provide incentive for early uptake and gain community support.

Notes

¹ In principle, this means the area could benefit from enhanced funding for reducing coastal erosion risk through the government’s Partnership Funding scheme, though this is contingent on the SMP recommending action.

² Summary of plan recommendations and justification, Policy Unit 6.12, Ostend to Eccles (2012 SMP p.95)

³ In practice this is rather conservative and landowners have sought to capture much greater value (see “lessons learnt and conclusions” section), but this example seeks to set out the theoretical “best case” for the value of the EN12 opportunity.

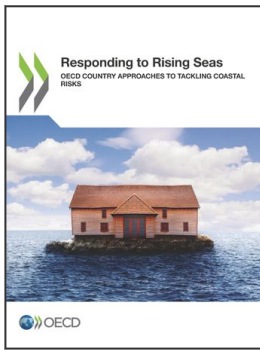
⁴ The EN12 Rollback opportunity is only usable once, so if the property was sold on again it would be at its inherent at-risk value.

⁵ Some stakeholders in the Pathfinder scheme entertained a hope that such “rollback” approaches could ultimately become self-financing, though in practice it is clear that this would only be possible with very significant value uplift for replacement properties: implying that replacement would not be like for like but involve significantly different kinds of development.

⁶ This is a fund made available by the national government to contribute towards demolition costs. It is separate from the Coastal Change Pathfinder programme.

References

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