



Taking Managed Realignment Forward as a Policy Option for Coastal Management in England and Wales

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Foreword

Planning and investing in environmental solutions now for gains made (or losses averted) beyond the next political cycle has never been a decision that governments have taken readily or a concept that sits well with our national psyche. But that is exactly what is required if we are to adapt to the environment that climate change is likely to hand us within the next 100 years.

Climate change hits vulnerable groups hardest and coastal communities are particularly vulnerable to the effects of climate change, in particular sea level rise and the increasing risk of flooding and coastal erosion. We need to develop adaptable and sustainable coastal management policies which help coastal communities to manage their risk. Reaching agreement will be difficult because complicated issues like social justice are involved. What is clear, however, is that the financial, social and environmental consequences of business as usual means it is not an option.

As President of CIWEM I urge all our Members, the Government, media and general public alike to get involved with the debate.

Bob Sargent
President of CIWEM
October 2006

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Executive Summary

Around a third of the coastline surrounding England and Wales is currently protected by defences designed to reduce the risk to people and properties from coastal flooding and erosion. Scientists expect this risk to increase substantially in the future, mostly as a result of climate change. In some areas, maintaining the current line of defence will become increasingly cost-prohibitive and, more importantly, unsustainable.

Managed realignment is the process of allowing the coastline to move backwards or forwards with management to control or limit that movement (Defra, 2006a). It is one of four available policy approaches to coastal management (the others being hold the existing line of defence, advance the line of defence or no active intervention). CIWEM believes that for many parts of our coastline which are currently defended, managed realignment will be the only truly sustainable coastal management option for this century and beyond. Despite this, managed realignment has not been popular with coastal communities in England and Wales.

The principal objection from coastal communities is the very limited circumstances in which residents who lose land or property as a result of managed realignment are paid any form of compensation. Professionals with an interest in flood and coastal erosion risk management ranked the lack of compensation as the biggest constraint to implementing managed realignment (Defra, 2002). The current situation is socially inequitable since, without redress for losses incurred, the costs of managed realignment are borne by the vulnerable few, whilst the benefits are reaped more widely. Possible forms of providing redress to those who lose assets as a result of managed realignment include direct compensation, financial incentives for relocation, loans and compulsory purchase.

Another constraint to the implementation of managed realignment in England and Wales is the general lack of public understanding about the four different policy options for managing coastal flood and erosion risk, and managed realignment in particular. Operating authorities need to do even more to involve and inform local communities using a variety of public participation techniques and initiatives. The environmental, social and economic benefits achieved on the ground from a managed realignment approach need to be publicly demonstrated. Innovative tools, such as computer simulation games, could help the public to better understand the trade-offs involved in managing flood risk and might appeal to those deterred by more traditional learning styles.

A third constraint to implementing managed realignment is the often awkward relationship between operating authorities seen to be advocating the implementation of a managed realignment policy and coastal communities. Operating authorities could assign community liaison officers to build better relationships with coastal communities where managed realignment has been proposed. Liaison officers could help the operating authority to explain why managed realignment has been proposed and discuss the rights and choices residents have, as well as helping those whose opinions, aspirations and concerns often remain unheard, to make their views known.

Addressing these challenging issues that hinder the adoption of managed realignment will mean that we are better prepared for living in a climatically-uncertain future and can enjoy the economic, environmental and social benefits that come from the truly sustainable management of our coastline.

1. Introduction

For an island nation where £140 billion worth of assets¹ are at risk from coastal flooding or erosion (Defra, 2001), how we manage that risk is an issue that profoundly affects our nation's future. One and a quarter million properties in England and Wales are thought to be at risk of coastal flooding and erosion (Environment Agency, 2003), with the majority at risk from coastal flooding. Nine hundred thousand people are at significant coastal flood risk² (Hall *et al*, 2006).

Scientists have analysed how flooding and coastal erosion risk might change in the future under four future global scenarios (different socio-economic scenarios and resultant greenhouse gas emissions levels) as part of the *Future Flooding* research programme (Evans *et al*, 2004a,b). In every scenario, the annual probability of flooding over the next 100 years is expected to increase in all regions of England and Wales (Evans *et al*, 2004a). The proportion of national flood risk attributable to coastal flooding is also projected to increase. Average future coastal erosion rates over 100 years are predicted to increase under all of the scenarios, with predictions in the range of 82–123 metres up to 140–175 metres, depending on the global scenario (*ibid.*). Under all scenarios, extreme or very high rates of erosion are anticipated in estuaries such as the Severn, Thames and Humber and along the north Norfolk and Lincolnshire coast.

One of the implications of these increasing risks is that coastal defences will be more easily over-topped and require more frequent and more costly maintenance to provide the same degree of protection in the future. Currently, defences protect over a third of the coastline of England and Wales and the annual cost of flood and erosion risk management is around £500 million. Under the medium-high CO₂ emissions scenario for climate change, approximately one third of current defences could not be maintained in the future given present expenditure levels (Defra, 2001). This figure may rise, however, given that Defra recently announced that it needs to cut £15 million from the annual spending on maintaining flood defences (Dey, 2006). The *Future Flooding* report warned that maintaining the status quo with regards managing coastal flood and erosion risk is not a viable option (Office of Science and Technology, 2004); doing so would lead to unacceptable risk for coastal communities.

In considering the future, all scenarios have to be taken seriously. Adaptability needs to be built into our risk management systems so that coastal communities are not unduly compromised. CIWEM believes that managed realignment is a valuable tool in achieving this; creating a more flexible approach to defence. Indeed, it offers the only truly sustainable coastal management option for some parts of our coastline which are currently defended.

In a coastal context, managed realignment is the process of allowing the coastline to move backwards or forwards with management to control or limit that movement (Defra, 2006a). It is not a universal panacea; clearly, along certain parts of the coast, continuing to hold the current line of defence will be necessary even in the long-term. Yet if we truly understand the impact climate change is expected to have on the risk of coastal flooding and erosion, we should not dismiss managed realignment as an unpopular practice solely for habitat-creation purposes. Rather, we should be seeing it as an opportunity to manage coastal flood and erosion risk in a sustainable manner which will balance impacts on people and the environment in a climatically-uncertain future.

¹ Privately-owned properties and agricultural land in England and Wales

² Significant flood risk is where the annual probability of flooding is greater than 1.3%

Managed realignment is not universally popular though. It has been variously described as 'giving in to the sea' and the 'message the public don't want to hear'. Even the Defra Managed Realignment Review describes it as a "politically less acceptable coastal management option" (Defra 2002, p6). As long as managed realignment is seen in this manner, it will remain out of favour with the public and it is very unlikely to be endorsed and implemented by democratically-elected local authorities.

This report looks at how we can overcome some of the constraints that prevent managed realignment being taken forward as the chosen policy option. It looks at the controversial and emotive issue of compensation provision and relocation where managed realignment leads to the loss of private assets and considers how a socially-equitable outcome can be achieved. It then considers how public awareness of managed realignment can be raised and better relationships forged with coastal communities. These are key issues that Government policy must address if managed realignment is to form an integral part of our flood and coastal erosion risk management policy.

2. Policy Background

2.1 Strategic Policy

Making Space for Water is the Government's new strategy for flood and coastal erosion risk management in England. It covers the next 20 years and builds on the *Foresight Future Flooding* programme and lessons learned from previous flood events (Defra, 2004a). The strategy takes a more integrated and holistic approach to flood and coastal erosion risk management by looking at the different sources of flooding and covering issues such as planning that are beyond the remit of Defra (Defra, 2005).

The defining principle of historic and current governments' flood and coastal erosion risk management policy is the permissive nature of operating authorities' powers to undertake work to manage these risks. Consequently, if individuals experience loss as a result of flooding or coastal erosion, even if this is as a result of managed realignment, it is government policy that they should not be compensated for such loss. Funding from the Government's flood and coastal erosion risk management budget can only be used to purchase or lease land affected by managed realignment where 'quantifiable beneficial use' arises. This includes situations where:

- Land is acquired for the construction of defences (this only applies to land under the footprint of the structure)
- Land will contribute to the performance of a defence (e.g. land seaward of a defence)
- Land is acquired by authorities for the purpose of providing compensatory habitat due to the loss of Natura 2000 designated habitat elsewhere as a result of new defences or sea level rise

(Defra, 2003)

In Wales devolution has meant that policy is less well-developed at present, although policy looks to be taking a broader approach based on integrated coastal management. In May 2006 the Welsh Assembly Government produced an Environment Strategy for Wales, which includes targets for flood and coastal erosion risk management. The strategy states that one of the areas of focus for the Government will be developing technically, environmentally and economically sustainable solutions to manage the risks and consequences of flooding and coastal

erosion (Welsh Assembly Government, 2006). Work to develop the organisational structures and detailed policies needed to meet these targets is ongoing.

2.2 Shoreline Management Planning

Initially Shoreline Management Plans (SMPs) were produced for each individual sediment sub-cell³ around the coastline of England and Wales. These non-statutory plans provided a large-scale assessment of the risks from flooding and coastal erosion and provide a long-term policy framework for how these risks should be managed. They were generally produced by a coastal group comprising operating authorities with jurisdiction in the geographical area covered by the SMP.

In England, Defra produces guidance for coastal groups developing SMPs and the same guidance is currently used in Wales. The guidance has been recently updated and a series of revised SMPs is being developed to reflect this guidance. The new SMP2s reflect the changing nature of coastal risk, new data and wider changes to Government strategy, but also importantly the broader appreciation of other coastal management issues such as tourism and navigation. They take a 'behavioural systems approach' whereby an understanding of the interactions and linkages in the coastal system such as energy and sediment pathways is developed. For this reason, estuaries with significant interactions with the open coast are also included in SMP2s. The chosen SMP policy for each policy unit can be one of four options: managed realignment, hold the existing defence line, advance the defence line or no active intervention. The SMPs however go beyond merely a statement based on one of the four policy options, they identify objectives (the intent of management) and how the physical processes can be best steered to meet these objectives. Inherently, therefore, the plans will be looking towards an approach of managed realignment where possible.

Defra consultation has just closed on giving the Environment Agency a strategic overview of coastal flood and erosion risk management. These quite controversial plans would put the Environment Agency in charge of producing SMPs in partnership with maritime local authorities (Defra, 2006b).

2.3 Planning Policy

The planning system is an important tool in managing the risk to people and properties from coastal flooding and erosion. Until this year, however, the Environment Agency wasn't a statutory consultee on all development planning applications in flood risk areas. In 2004-2005 Local Planning Authorities in England alone permitted 248 applications, despite the sustained objection of the Environment Agency on the grounds of flood risk (Environment Agency, 2006). However new planning policies on development and flood risk, England's Policy Position Statement 25 (DCLG, *in preparation*) and Technical Advice Note 15 in Wales (WAG, 2004), will help planners consider whether development can reasonably be sited in an area at lower risk of flooding. Planning policies on unstable land and coastal planning already guard against new development in areas at risk of coastal erosion.

3. Managed Realignment Experience

Managed realignment is the process of allowing the coastline to move backwards or forwards with management to control or limit that movement (Defra, 2006a). It can involve the intentional breaching or removal of a coastal defence with retreat to

³ The coastline of England and Wales has been divided into sediment cells and sub-cells which form the basic units of coastal management.

higher ground or the construction of new landward defences; the removal of existing defences to allow controlled retreat of a cliff face to a more sustainable defence line; changes to the height or length of a defence; or infilling between defended areas to provide a more consistent line of defence.

There are two generic coastal environments in which managed realignment has been adopted: low-lying estuarine sites and soft-cliffed open coast sites. Estuaries are at risk from both flooding and erosion; examples of managed realignment include large schemes on the Humber and Blackwater estuaries involving the intentional breaching of defences to create intertidal habitat. The risk at soft-cliffed open coast sites is predominantly from coastal erosion. The open-coast managed realignment sites are located in clusters around Cardigan Bay in Wales and in England along the Dorset/Hampshire/West Sussex, north Norfolk and north Devon coasts.

The main benefits of managed realignment of the open coast are reduced coastal defence costs, improved efficiency and sustainability of defences elsewhere along the coast and a more natural coastal system. It may also bring increased opportunities for recreation and tourism. Where managed realignment of estuaries takes place, there are often additional benefits from the creation of nationally-important intertidal habitats such as mudflat and saltmarsh habitats. Intertidal habitats are important in their own right and for the species they support. Managed realignment can help meet the UK Biodiversity Action Plan objectives for the creation of these intertidal habitats. Consequently, managed realignment at estuarine sites has often been undertaken in partnership with governmental and non-governmental conservation organisations (e.g. English Nature, Wildlife Trusts, RSPB and the National Trust). The importance of intertidal habitat creation, particularly in light of the requirements of the Habitats Regulations⁴, helps explain why there are only half as many open coast managed realignment sites as estuarine sites, and why up till now nearly all managed realignment projects in England and Wales have been on land owned by conservation organisations or on agricultural land purchased from the landowner by agreement.

The first managed realignment schemes in Britain were undertaken in the 1990s in the Suffolk and Essex estuaries (although in reality under the guise of 'holding the line' there were open-coast realignment schemes being promoted since the 1980s, for example at Pwllheli and Sea Palling). By 2002, managed realignment had been proposed or implemented in 39 of the 1100 management units in England and Wales (Defra, 2002). Of the 39 schemes recorded in 2002, 16 were identified as opportunistic rather than arising from the strategic shoreline management planning process in England and Wales (Defra, 2002). Whilst Ledoux *et al* (2004) noted that this amounted to a limited body of managed realignment casework, that can no longer be said to be true. There have been a considerable number of schemes in recent years which have utilised a managed realignment approach and several major estuarine managed realignment projects are currently in progress. Practitioners have developed practical and technical experience from these schemes and new guidance such as the CIRIA report on design and construction of managed realignment and the RSPB/CIWEM saltmarsh creation handbook has also been useful in developing practitioners' confidence in the procedure.

Technical issues are no longer preventing managed realignment being taken forward as the preferred policy but rather social issues, including the lack of public support for managed realignment and the perceived inequitable scenario where some landowners are not compensated for the loss of or damage to their land and assets

⁴ The Conservation (Natural Habitats, &c.) Regulations 1994 state that if Natura 2000 designated habitat is lost as a result of essential development, replacement habitat must be created in compensation.

arising from managed realignment. To date, only a handful of managed realignment schemes in England and Wales have resulted in the loss of property. Where property loss has occurred, it has mostly been single dwellings or farm buildings that were lost. Nevertheless, managed realignment in some lowly (and perhaps even moderately) populated coastal areas is likely to be necessary in the future if we are to achieve the objective of a sustainable coastline, given the increasing risks arising from climate change.

4. Compensation and Relocation

4.1 Compensation

As already outlined, the circumstances in which compensation is payable to those who lose assets as a result of managed realignment are currently very limited. Where payment is provided, it is either for the loss of land and associated assets or for their use (e.g. the lease of land). Clarity on the issue of compensation has been a rallying cry from various stakeholders since the mid-1990s. One such organisation is Friends of the Earth who called for government to address the issue of compensation and use the flood and coastal erosion risk management budget to buy-out people's property in less built-up coastal areas which are at risk, so that the coast can be managed in a more sustainable manner (Friends of the Earth, 1997). Furthermore, in 2002, a survey asked professionals interested in flood and coastal erosion risk management what they considered to be the biggest constraints to implementing managed realignment. Insufficient financial compensation was the constraint most frequently mentioned; 38 percent of the respondents believed it to be a 'very important' constraint (Defra, 2002). The researchers concluded that implementing further managed realignment schemes might be difficult without some general provision for compensation (*ibid.*).

Why is compensation such an emotive issue then? Certainly many people see the current compensation policy as ludicrously unjust: whilst there is a legal obligation to provide replacement Natura 2000 designated habitat for birds when undertaking managed realignment, many homeowners receive no such replacement home or compensation for losses they incur. Individuals are not prepared to relinquish private property or land (even as part of a strategic plan that benefits the wider community) unless they receive satisfactory recompense.

Opponents argue that providing unrestricted compensation from the public purse is equally unjust. They see it as financially rewarding the naïve decision of people to purchase property where there is a known risk and worry that it is setting a precedent for victims of other types of natural disasters. There are also concerns that compensation will distort the flood risk insurance market and would lead to property speculation (Defra 2004b) in areas potentially at risk of flooding or erosion in the future and earmarked for managed realignment.

The provision (or lack of) compensation can also impact upon public acceptance of managed realignment schemes. Research at Thorngumbald (renamed Paull Holme Strays) and Brancaster managed realignment schemes suggested that one reason the local communities were broadly supportive of the scheme was that the asset-owners were deemed to have been fairly paid for the land they had to surrender (Defra, 2002).

The Government is currently opposed to providing compensation, except in the limited situations where it is already available, recently restating that there is no "reason to assume that [...] individual losses would be compensated for from public funds" (Defra 2006a, p13). Evidently though compensation is deemed a major barrier

to implementing managed realignment and it is hard to envisage anything like local public support for managed realignment unless local people feel that the cost of realignment has been borne equitably.

4.2 Relocation

An alternative to providing individuals with compensation could be for authorities to incentivise relocation to a specified place. The advantage of relocation is that the location of development can be directed in accordance with local and regional spatial plans and in proximity to existing infrastructure. Either an entirely new community can be developed, or there can be roll-back to landward parts of the remaining settlement not at risk from coastal flooding or erosion. Residents may dislike this idea however, preferring to have the freedom to take the compensation and relocate in an area of their choosing near friends or family.

Relocation and compensation are both issues where strong opinions have been voiced on both sides of the debate. Coastal communities are for the most part sceptical about managed realignment because they see the lack of financial provision for losses incurred (through compensation or relocation) as socially inequitable. The National Trust (2005b) warns that the consequence of not assisting those living in areas at risk, is that those who can afford to manage their risk by moving elsewhere will do so, potentially leaving the less-well off in ghetto communities facing the looming threat of losing their assets to the sea. If managed realignment is to be taken forward as a policy option, government must adequately address these issues because we can't maintain the status quo.

5. Ways Forward: Compensation and Relocation

To take managed realignment forward, consideration needs to be given to how social equity can be achieved. Social equity incorporates notions of fairness and justness. It is a common component in many definitions of sustainability.

The UK government states that:

“For a policy to be sustainable, it must respect all five principles: we want to live within environmental limits and **achieve a just society**, and we will do so by means of sustainable economy, good governance, and sound science.”

(Sustainable Development Unit, 2006. *emphasis added*).

For managed realignment, like other policy responses, social equity/justice is a major barrier to the policy being truly sustainable (Evans *et al* 2004b). A socially equitable outcome would be where the costs of managed realignment are fairly distributed amongst those who receive the benefits. As already noted, current policy means that some people significantly disadvantaged by managed realignment receive no redress. Without such redress, managed realignment is inequitable and unfairly disadvantages smaller coastal communities. Social justice is a theme that coastal campaigners themselves have taken up; in Norfolk, campaigners are attempting to stall the adoption of a second generation SMP “until social justice is built into it” and the case for compensating homeowners is included (Downes, 2006a).

There are several different ways of providing redress for those forced to relocate as a result of managed realignment. Authorities can provide compensation for loss; provide loans or financial incentives for relocation; purchase affected property and rent it back to the former owners; or serve compulsory purchase orders. In this section the different methods are outlined along with some of the considerations that need

to be taken into account. These aren't fully costed policy proposals and there are no doubt other ways of achieving a socially equitable outcome, but the purpose here is rather to provoke debate about how a complex, long-term and widely-accepted problem should be solved and what considerations need to be taken into account.

5.1 Compensation

5.1.1 Eligibility for compensation and other considerations

Clearly neither providing universal compensation to all those who experience loss as a result of coastal flooding and erosion, nor withholding compensation in all scenarios is going to be financially practicable and socially equitable or even a vote-winning strategy for democratically-elected authorities.

Whilst there is a substantial argument that compensation should be considered for those who incur losses on account of managed realignment, there is much less of an argument to provide compensation to those who incur losses as a result of a no active intervention policy. This is because a no active intervention policy is selected when there is little risk from coastal erosion or flooding (i.e. low probability or low socio-economic impact) or where if action was taken it would result in unacceptable risks elsewhere. When coastal defences are present but the decision is taken to no longer actively maintain them, the defences will still have a residual life and can provide a degree of protection for many years to come. In contrast with managed realignment the defences are actively breached, altered or removed rather than left to fail naturally (and hence there is little residual protection as is usual in the case of no active intervention). The provision of compensation for losses as a result of managed realignment is arguably therefore more justified than for losses as a result of the implementation of a no active intervention policy.

So should compensation be available to all asset owners who lose property or land due to managed realignment? As noted previously, some landowners already receive compensation from the public purse for land lost as a result of managed realignment because they qualify under the quantifiable beneficial use scenarios. Others have found alternative sources of funding from conservation organisations which have been willing to purchase suitable land for habitat creation or replacement and land banking. Their willingness to purchase land may well increase in the next few years as maps outlining priority areas for wetland creation and enhancement are produced as part of the Wetland Vision for England project. Nevertheless this still leaves many homeowners without compensation.

Compensation needs to be tied to a specific asset since ownership of it could change hands. Owners may expect compensation based on the value of a similar asset protected by defences according to a hold the line policy (since property blight is likely to dramatically reduce the market value once the possibility of undertaking managed realignment is made known). It is probably unrealistic however to expect there to be sufficient funds to compensate everyone at the no managed realignment rate. It may be necessary to consider making entitlement to compensation means or vulnerability tested or to provide compensation at less than the no managed realignment value of the property.

5.1.2 Financing a compensation scheme

Providing compensation will be costly even if strict eligibility criteria reduce the numbers of claimants. Funding could either come through general taxation or a specific tax on the beneficiaries of coastal defences.

Given that operating authorities largely have no statutory obligation to carry out coastal defence works, people whose assets are protected from coastal erosion or flooding by holding the existing defence line are fortunate beneficiaries. They receive this significant benefit from public funds principally because taken collectively, the nature of their assets behind the defence is such that the benefit from maintaining the current protection at least equals the cost. Beneficiaries of coastal defence could be asked to pay for this benefit by contributing to a fund to compensate others forced to relocate as a result of managed realignment because the cost of maintaining the current line of defence outweighs the benefits in their locality. In effect it is asking those that benefit the most, to pay the most.

Revenue collected would need to be pooled centrally for allocation because some regions will have significantly higher proportions of people facing relocation than others where the number of coastal defence beneficiaries will outweigh the number of people facing relocation. The problem with expecting the beneficiaries to pay is that they are in effect being asked to pay for a service (the maintenance of a hold the line policy) which the operating authorities have no obligation to provide or even continue to provide in the future. Beneficiaries are unlikely to be content with this.

An alternative, and arguably the most equitable arrangement, would be for funding to come from the public purse, since the nation as a whole benefits from managed realignment by avoiding having to pay to maintain a hold the line policy and from a sustainable approach coastal management. This approach is widely suggested (e.g. Friends of the Earth, 1997) but as already noted the difficulty is that the cost savings from undertaking managed realignment are likely to be accrued some time after the managed realignment takes place and properties are put at risk.

5.2 Relocation

5.2.1 Relocation incentives

Authorities could incentivise relocation instead of providing compensation. Financial incentives or subsidies (such as provided by Regional Development Agencies) could be used to re-direct homeowners away from coastal areas at significant risk of flooding or erosion to other appropriate areas. Communities threatened by managed realignment could receive priority assistance in relocating. If entire communities are to be relocated, considerable negotiation will be needed to appease those with different preferences relating to the site or type of relocation as well as satisfy local plans. Furthermore, the new community will not be an exact replica of that which was lost and it may not always be feasible to relocate an entire community in a single location. The result could be that some neighbours or friends are unable to relocate together. Small rural coastal communities are the archetypal neighbourhoods in which community spirit and a common identity is well-developed and cherished and for whom relocation might be particularly distressing. Yet these small communities are precisely the type of settlements where managed realignment or no active intervention policies are likely because it is uneconomic to continue to hold the current line of defence.

Coastal locations are traditionally popular retirement locations. The six councils in England and Wales with the highest percentages of residents at retirement age (all over 24 percent) are Dorset, Conwy, Torbay, East Sussex, Isle of Wight and Devon (Office for National Statistics, 2002). These are all coastal localities and thus a considerable number of elderly people could be affected by managed realignment and the need to relocate. Relocating can be particularly stressful for the elderly and their housing requirements may be more exacting than that of other age groups (e.g.

their need for proximity to healthcare services, public transport or adapted housing). Careful planning would be needed to ensure that their needs are catered for.

If new developments are designed, the displaced individuals could be actively involved in the process of planning their new community, leading to a greater sense of ownership. The authorities may also require new planning powers to establish new areas of development. There are already new developments planned for south east England as part of the Government's Sustainable Communities Plan, although the wisdom in re-locating people here is debatable since in the Thames Gateway alone over 36,000 homes are proposed for areas at risk from tidal flooding (Greater London Authority, 2005).

Another consideration is what to do about historic buildings, particularly those protected by statutory heritage conservation designations. In the longer-term there is a need to face up to the loss of or historic buildings to the sea (as they have always been) where the risk is high and can't be managed appropriately by other methods. The National Trust is the leading charitable organisation preserving the historic environment in Britain. Encouragingly, it avows not necessarily to seek to indefinitely protect valued cultural features at risk from coastal erosion or flooding and to favour realignment where it can reasonably be accommodated (National Trust, 2004). The Trust has already demolished or relocated buildings because of coastal erosion on the undefended coast at Birling Gap, Sussex and Studland Peninsula, Dorset (National Trust, 2005a). There are also examples of the intact relocation of historic buildings inland (managed relocation). In 1999 Belle Tout Lighthouse which had sat precariously on unstable chalk cliffs near Eastbourne was relocated inland at the owners' expense (McGlashan, 2003). However, managed relocation is unlikely to be financially or practically viable in the majority of cases except for where the building has a relatively small footprint and there is suitable terrain for relocation directly inland.

5.2.2 Phased relocation

Another alternative is for operating authorities to purchase land and properties at risk of being lost within a given timeframe as a result of managed realignment. The authorities could then rent the land or property back to the original owner until loss is imminent. This would only be feasible where there is a relatively long time lag between the decision to implement managed realignment and the land or property being inundated by the sea because the rental income the operating authority receives would need to offset the cost of purchasing the land or property in the first place. As with compensation, difficulties could arise in agreeing a sale price because the market value is likely to be much less than the owners originally paid.

5.3 Other Measures

5.3.1 Low interest loans

Under all the scenarios proposed above it is conceivable that the funds raised will be insufficient to adequately reimburse all those who have incurred losses as a result of managed realignment. In these circumstances, low interest loans could be provided to supplement funding from other measures. This is more equitable than giving no redress and would reduce the burden on tax-payers who might otherwise be expected to pay for such a fund.

5.3.2 The role of planning

The planning system has an important role in preventing new development in areas of coastal risk and in enabling and incentivising the relocation of communities away from coastal flooding and erosion risk. For this to happen SMPs need to inform regional and local planning strategies (Defra, 2006a). The draft Regional Spatial Strategy for the South West is one such good example of integration. The Strategy states that one of the region's priorities in relation to flood risk management is to "relocate existing development from areas of the coast at risk, which cannot realistically be defended; and identify areas of opportunity for managed realignment..." (South West Regional Assembly, 2006 p151).

Furthermore, from 2008, comprehensive coastal erosion risk maps for England and Wales should be available in the public domain like flood risk maps already are. With this information available, planning policy on development in areas at risk of coastal erosion should be updated to provide further safeguards against new development in such areas. Homebuyers can then make an informed choice about the wisdom in purchasing a property in an area known to be at significant risk of coastal flooding or erosion. The availability of this risk data ought to annul the argument from those buying a property at risk after 2008 that they were unaware of the risk and therefore should be entitled to compensation for loss.

5.3.3 Compulsory purchase

Currently where no agreement can be reached with the landowner regarding the acquisition of the land or payment made for its alternative use, it may be necessary for operating authorities to consider the use of a compulsory purchase order to acquire the land. Compensation is still payable and is based on the open market value expected if sold by a willing seller and not taking into account any change in value caused by the development which brought about the compulsory purchase order (ODPM, 2004). The difficulty is in determining what the open market value is because it is probably significantly derived from the existence of maintained defences.

Whilst compulsory purchase may be effective in recompensing individuals for loss (Evans *et al* 2004b), it is likely to impair relations with coastal communities and generate bad feeling towards the acquiring authority amongst the wider community. It is seen as confiscating a private asset and ignoring the non-monetary (and often intangible) value which an owner may place on their asset beyond the market-given level at which compensation is paid. Where agreement cannot be reached on the level of compensation payable, disputes are settled by the Lands Tribunal. Both parties may incur significant legal costs and it can be a drawn-out process. Defra wisely insist in their guidance on managed realignment (Defra, 2003) that compulsory purchase should only be considered as a last resort.

5.3.4 Insurance

With regard to natural hazards, such as flooding and coastal erosion, current Government policy seems to favour individual risk-bearing (through measures such as insurance) over Government-provided compensation for loss. Homeowners in England and Wales can receive flood risk insurance cover as part of a household insurance policy where their probability of flooding each year is 1.3 percent or less (Association of British Insurers, 2005). Where the probability of flooding is greater, there is no guarantee that insurance cover will be available. In contrast, insurance-providers have traditionally not been willing to cover homeowners from the risk of coastal erosion because loss is deemed inevitable at some point. Various

organisations are however undertaking work to assess whether some kind of insurance policy for property at risk of coastal erosion can be viably developed. In the USA and New Zealand, some homeowners receive cover for coastal erosion damages in specific circumstances through a generalised natural disaster insurance policy.

Insurance is an efficient measure of recompense but those most at risk are least likely to be eligible and uninsurance amongst the less well-off is a significant problem in England and Wales (Priest *et al*, 2005). Government could overcome the problem of underinsurance by subsidising premiums for the least well-off in high risk areas. A difficulty however is that where managed realignment involves the active removal or breaching of coastal defences, the risk to some properties may actually increase (although overall the risk is reduced) which is likely to further deter insurers from providing cover for these properties. Insurers have already threatened to withdraw their cover for properties in high risk areas because of £15 million cutbacks in the budget for the Environment Agency's maintenance of flood defences (Dey, 2006). If insurance cover is withdrawn then public expectation that Government should act as an insurer of last resort is likely to increase.

6. Public Awareness and Building Better Relationships

6.1 Raising Public Awareness

Operating authorities and community flood organisations have successfully developed a range of initiatives to raise awareness of flood risk including advertising campaigns, flood information networks and flood fairs. The provision of detailed and accessible flood risk maps on the Environment Agency website has been the foundation for such initiatives. Similar data for coastal erosion risk is urgently needed and the Environment Agency is committed to providing coastal erosion risk maps by the end of 2008 (Defra, 2005).

There now needs to be a focus on developing initiatives which raise awareness of the different options for managing coastal flood and erosion risk and encourage informed public debate. Few people in England and Wales are actually aware what managed realignment is and why it is carried out. Defra's review of managed realignment concluded that public awareness is crucial if managed realignment is going to become a politically acceptable coastal management policy (Defra, 2002). The public are unlikely to support a concept they don't understand, and there needs to be a degree of public support for managed realignment if it is to be implemented. This is because democratically-elected local authority councillors will not be willing to take unpopular decisions regarding coastal management, especially where the costs are incurred early on but the benefits are accrued over the longer term.

A research project in 2002 looked at public perceptions of managed realignment at three managed realignment sites on the east coast of England (Orplands, Freiston and Brancaster). To understand the attitudes and opinions of local people towards the managed realignment project and the Environment Agency (the operating authority), the researchers analysed local people's responses to a standardised questionnaire. At both Orplands and Freiston over half the respondents had been aware of the managed realignment scheme (Myatt *et al*, 2003a; 2003b) and at Brancaster 64 percent were aware (Myatt-Bell *et al*, 2002). It is interesting, however, that at Orplands over 40 percent of those questioned believed that the managed realignment scheme would not reduce flood risk or were uncertain (Myatt *et al*, 2003a). This is a reminder that awareness of managed realignment does not necessitate confidence that it works. The researchers deemed that public support for managed realignment was greater at Freiston because the land required for the

scheme had been acquired from the Prison Service rather than local landowners (Myatt *et al* 2003b) and therefore compensation for landowners was not an issue.

Awareness of the managed realignment scheme was moderate at all three sites and was chiefly gained through conventional forms of awareness-raising. At Brancaster 91 percent of respondents were over 45 years old (reflecting the area's demographics) and public meetings were the principal method by which the respondents had obtained information about the realignment scheme (Myatt-Bell *et al*, 2002). In contrast at the other sites this form of participation was hardly mentioned. The researchers proposed that the demographic make-up of communities, or the target audience within, should influence what methods are used (Myatt-Bell *et al*, 2002; Myatt *et al*, 2003a). Whilst public meetings may be suitable for the retired and those with more spare time, awareness raising methods that are non-time specific (e.g. websites and newsletters) may be more appropriate for reaching working professionals.

6.2 Building Better Relationships With Coastal Communities⁵

Even coastal communities that understand managed realignment are unlikely to advocate that policy approach to managing their coastal risk if they distrust the operating authority which will implement such a policy. In response to the recent Defra consultation regarding the Environment Agency having a strategic overview in relation to sea flooding and coastal erosion risk management, the Head of Coastal Strategy at North Norfolk District Council was quoted as saying "the [Environment Agency] is seen by local communities as remote and unfeeling and inclined to take decisions on theoretical understanding without taking local knowledge into account" (North Norfolk District Council, 2006). Clearly current relationships are not conducive to coordinated working based on mutual respect, and there is much scope for better relations.

Better relationships need to be built with coastal communities and in particular with those whose lives and livelihoods are likely to be affected by managed realignment. If local people are not fully informed of the managed realignment proposals or if they feel that their opinions have not been listened to and acted upon, there is little chance that there will be local support for managed realignment. O'Riordan and Ward (1997) point out that one of the benefits of building up trust and developing cooperative relationships early on between the different authorities and stakeholders concerned with coastal management is that it should result in cost savings in the longer term because of the reduced risk of lengthy and politically contentious opposition. They warn however that local opinion is rarely coherent or consistent.

Research at the Orplands managed realignment site showed that community support for managed realignment increased with confidence in the Environment Agency – the operating authority undertaking managed realignment (Myatt *et al*, 2003a). Conventionally public participation in coastal management projects has been through public meetings, newsletters, consultations and more recently stakeholder forums. These forms of participation are all relatively formal activities and it may be difficult for the operating authority and the local community to develop constructive relationships. O'Riordan (2002) points out that participatory processes primarily attract those with vested interests and who are articulate in making their opinions heard. Particularly with something as controversial as managed realignment, there is a need to utilise a variety of participatory activities which can provide

⁵ Here the term 'coastal communities' is used to refer specifically to coastal communities at significant risk from coastal flooding or erosion.

opportunities for constructive relationships to be forged between authorities and stakeholders and allow the full breadth of stakeholders' opinions to be heard.

7. Ways Forward: Raising Public Awareness and Building Better Relationships

7.1 Raising Public Awareness

There are several good examples of initiatives that have helped stimulate public debate about how to *manage* coastal flood and erosion risk.

FloodRanger is a computer simulation game which highlights the complexity of managing estuarine flood risk. In the game, players must make decisions about how best to manage flood risk in particular socio-economic and climate change scenarios. Since no specialist knowledge of flood management is required to play the game, it can be used by students, community flood groups and others with an interest in understanding the trade-offs involved in managing flood risk. Already around 30 percent of sales have gone to educational establishments or interested members of the public (Morris, 2006). The FloodRanger game could be particularly useful for reaching people deterred by more traditional auditory learning styles. Gill *et al* (2001) suggest that such visualisation techniques can greatly increase stakeholders' feelings of ownership over the process of redesigning the coast. The drawback is that single-player simulation games don't provide the opportunity to debate issues with those holding opposing views. Instead of gaining a better insight, playing such games could result in participants developing more polarised views (Andersson, 2004). This could be countered by bringing together participants who have played the game to discuss how their different priorities affected their simulated outcomes, what they learned from the game and whether their attitudes had been changed or reinforced as result of the game.

Computer simulations have already been used to aid the consultation process in the Suffolk Estuaries Strategy. Two-dimensional computer models of the estuaries were produced and validated with real-life survey data from the estuaries (Clegg *et al*, 2005). Local Model Review Groups were established and comprised local estuary users nominated by the local consultation groups. The purpose of involving local people in model corroboration was to prevent local suspicion of external experts imposing *their* technical solutions for the future of the estuary and instead to develop local community 'buy-in' to the outputs (*ibid.*).

Raising public awareness of managed realignment *per se* should also be a priority. Whilst the benefits from coastal management options such as holding the line of defence are fairly observable, the public may less readily understand how for example the breaching of a seawall to create saltmarsh can be an effective form of management. Public awareness of managed realignment can be achieved through operating authorities gaining greater publicity for successful managed realignment schemes. The environmental, social and economic benefits achieved on the ground from undertaking managed realignment need to be publicly demonstrated. Some of the larger managed realignment projects have received publicity. The Abbots Hall realignment scheme on the Blackwater estuary won the RSPB/CIWEM Living Wetlands Award in 2005 and received regional and national media coverage⁶. Open-coast realignment schemes generally do not attract such positive publicity because the

⁶ E.g. *Coast* (2005) Programme 12: South East England - Wash to Dover. BBC2, 28 August; *Countryfile* (2005) BBC1, 23 January; BBC News (2005) Coastal wetland wins major award [online]. <http://news.bbc.co.uk/1/hi/england/essex/4224447.stm> Accessed 12/07/06

benefits of realignment are not so tangible for the visual media (for example, there are no wetland birds feeding on newly-formed saltmarsh to be photographed).

Scientists, the media and non-governmental organisations also have an important role in raising public awareness about managing coastal risk. Whilst the public are increasingly distrustful of Government information (Ipsos MORI, 2005), two thirds of adults generally trust scientists to tell the truth (Ipsos MORI, 2002). It is therefore important that scientific research is more widely disseminated to the public (in an appropriate format) so that the public can evaluate the evidence in forming their own opinions. An example is research conducted as part of the *Foresight Future Flooding* programme which evaluated catchment/coastal -scale responses to flood and erosion risk. The research showed that realigning coastal defences, a form of managed realignment, is one of the three most effective and sustainable responses to the risk⁷, scoring well in three out of four potential socio-economic scenarios (Evans *et al*, 2004b). Whilst the report produced by this eminent group of researchers is well known amongst flood and coastal erosion risk management professionals, it would be useful to disseminate its findings more widely to the public.

7.2 Building Better Relationships With Coastal Communities

How best to manage the risks from coastal flooding and erosion is a highly contentious issue especially where decisions are made to withdraw from maintaining an uneconomic defence or undertake managed realignment. Local pressure groups such as Birling Gap Cliff Protection Association, Fairlight Cove Preservation Trust, Suffolk Coast Against Retreat and Coastal Concern Action Group have campaigned for current defences to be maintained or compensation to be given to those who lose their assets as a result. The Norfolk-based Coastal Concern Action Group has actively lobbied Defra for greater funding and North Norfolk District Council for residents to be given relief on their council tax bills to account for the devaluation of their property (Coastal Concern Action Group, 2005). The draft SMP2 proposed a policy of no active intervention but it hasn't been adopted by the council because over 2,500 objections were received, equating to 99 percent of all responses (Downes, 2006b). The recent visit of the Environment Minister to the area was seen as a small break-through by locals who have felt abandoned by Government as the sea edges closer to their cliff-top properties. Although the Minister made no promises of compensation, the fact that he came to see the issue for himself and promised that government would enter into a dialogue with relevant parties was encouraging to local people (Downes, 2006c). Building relationships with communities affected by managed realignment will be just as challenging for operating authorities.

Initial approaches to forging valuable relationships with coastal communities could include participatory techniques such as open house events⁸ or roadshows which allow informal two-way information sharing between authorities and the community and allow the authorities to determine which aspects of a proposal most interest or concern local people. Longer-lasting relationships with coastal communities could also be built up through the assignment of liaison officers to communities likely to be affected by managed realignment. Liaison officers could build informal relationships with residents and engage with those whose opinions, aspirations and concerns are often not heard through formal participatory and engagement processes. Through door-to-door visits (and in larger communities through visits to community groups and schools), the liaison officers could discuss with residents how managed realignment

⁷ The other two measures are land-use planning and catchment-wide storage.

⁸ A participatory method where the public can obtain information and ask questions about a proposal. The event is usually held in a community venue and the public is free to come and go as they please.

will affect them and what their rights and choices are. Where relocation of a number of properties is required, the liaison officer could assemble a roundtable for residents to exchange views and negotiate a preferred relocation plan. The liaison officers could act as a go-between, helping the operating authority to articulate the managed realignment plans in layman's terms to those who will be affected by it, and providing a way for local people to make their voices heard. Liaison officers' familiarity with the local community could also help inform conventional participatory processes. Their knowledge could be useful in deciding which types of participatory processes and information dissemination methods would be most appropriate.

Building effective relationships between operating authorities and the public is a time-consuming process because public confidence in operating authorities is only gained slowly – one negative event especially if media coverage is extensive can easily cause their trust in the authorities to diminish (Myatt *et al*, 2003a).

8. Conclusions

The value of assets at risk from coastal flooding and erosion is already high and is expected to rise in the future as a consequence of climate change. Managed realignment is an effective and sustainable form of coastal management and should play an important part in the portfolio of different responses employed in England and Wales to manage the risks to people and property from coastal flooding and erosion.

To take managed realignment forward operating authorities and the Government need to understand that managed realignment may radically affect people's livelihoods and consider equitable and appropriate ways of assisting those who are forced to relocate by the adoption of a managed realignment approach to managing coastal risk. If policy makers decide not to alter the compensation arrangements there is still a need to raise public awareness of why compensation is given in some situations and not others. The public don't necessarily understand the distinction made between the different situations in which realignment takes place. CIWEM argues that some form of financial or in-kind assistance should be provided for these vulnerable communities because the current situation is unjust and stalling the adoption of a sustainable approach to coastal management.

It is also vital for operating authorities to build better relationships with coastal communities and raise awareness of why managed realignment is necessary (and beneficial) along parts of our coastline. Coastal communities need to acquire a longer-term perspective and understand that managed realignment and thus relocation will be necessary along lowly (and maybe even moderately) populated parts of the coast. Unless managed realignment is seen as a credible and sustainable response to coastal flood and erosion risk, it will be hard for any democratically-elected authorities to take forward the implementation of managed realignment.

Planning for coastal change now and addressing the issues that have hindered progress in implementing managed realignment will mean that we are better prepared for living in a climatically-uncertain future and can enjoy the economic, environmental and social benefits that come from the truly sustainable management of our coastline.

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Glossary of terms

Compensation: Payments made to offset use, or damage or loss incurred as a result of an activity (e.g. managed realignment)

Coastal erosion: The loss of coastline as a result of the erosive action of waves, tides and currents.

Land banking: The process by which areas of land are purchased for the specific purpose of creating habitats to compensate for the impacts of future development (Defra, 2003).

Managed Realignment: The policy decision to allow natural processes to move the coastline backwards or forwards, but with management to control or limit that movement.

Natura 2000 site: An area which has the international designation 'Special Area of Conservation' or 'Special Protection Area' and is protected by under the 1992 EC Habitats Directive (which was transposed in the UK as the Conservation (Natural Habitats, &c.) Regulations 1994).

No Active Intervention: The policy decision not to invest in coastal defences or operations but rather allow natural processes to act.

Operating Authority: An organisation that has powers to undertake activities to manage flood or coastal erosion risk including the construction of defences. The Environment Agency is responsible for managing coastal flood risk whilst Maritime District Councils are responsible for managing coastal erosion risk.

Policy unit: A length of shoreline for which a separate shoreline management policy applies.

Relocation: The movement of communities and/or assets in areas of significant flood or coastal erosion risk to a new location outside of such an area.

Significant risk of flooding: where the chance of flooding in any year is greater than 1.3 percent (1 in 75)

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