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THE FUTURE OF WATER LEVEL & FLOOD RISK MANAGEMENT

PAPER FOR DISCUSSION WITH OLIVER LETWIN ON 30TH NOVEMBER

In collaboration with the Country Land & Business Association and National Farmers Union, the Association of Drainage Authorities advocates that over the next five years, Government policy needs to prioritise the UK's resilience to a changeable climate through six recommendations to better manage water levels:

1. **Water levels and flood risk should be managed on a whole life approach.**
2. **Investment for maintenance should be increased and determined on a multiyear basis.**
3. **The Government's six-year capital investment programme should remain in place and be balanced against increased maintenance spending.**
4. **Where Government withdraws from work because it is not cost effective under their funding formula, they should 'invest to save' so that local communities can take greater ownership of water level management assets and operations, through devolved accountability and decision making.**
5. **Encourage land managers to contribute toward, and play a part in, flood risk management delivery.**
6. **Support investment in water level and flood risk management innovation to enable new techniques to develop that allow us to adapt to our changing climate.**

The management of water levels and actions to reduce the risk of flooding and coastal erosion provide a major contribution to the prosperity and wellbeing of the United Kingdom. Annual flood and storm damage costs are approximately £1.1 billion according to the ABI[1] and those households at significant risk through a reduction in our capacity to manage water levels could increase from 330,000 today to 570,000 in 2035[2]. The consequences of drought will also have significant economic impact. For example, the drought and associated heatwave of 1995 resulted in £180 million losses for agriculture, £96 million for water supply and £380 million by the retail sector[3]. Similarly, the total economic cost of the 2003 drought to Europe was in excess of €11 billion[4].

[1] https://www.abi.org.uk/News/News-releases/2014/03/6-7-million-a-day-in-insurance-claims-from-customers-hit-by-the-recent-flooding

[2] HR Wallingford (2012b) for Department for Environment, Food and Rural Affairs. Climate Change Risk Assessment for the floods and coastal erosion sector http://www.theccc.org.uk/reports/adaptation/2012-progress-report/supporting-data-a-research

[3] Palutikof J P, Subak S and Agnew M D, 1997 *Economic Impacts of the Hot Summer and unusually Warm Year of 1995*. Report to Department of Environment. Norwich: University of East Anglia.

[4] Munich Re, 2004 NatCat Database of European Droughts, Heat Waves and Forest Fires (1976-2003). Munich: Munich Reassurance.

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The figures below illustrate the value of good water level management to our economy, further examples and figures can be found in ADA's Value of Water Level Management Series[5][6][7][8].

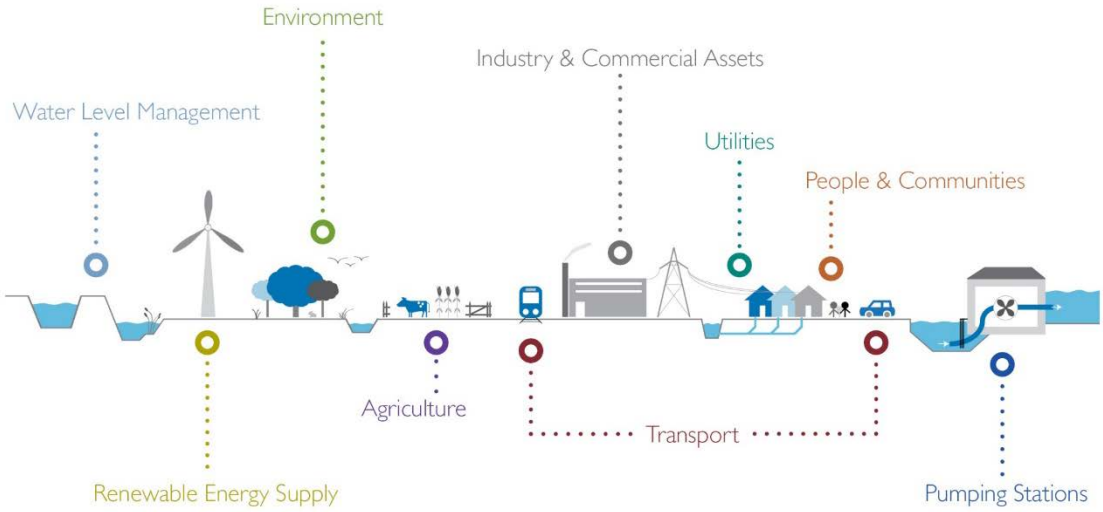

Figure 1 – The Value of Water Level Management (Source ADA, Introduction to IDBs)

Electricity *– 53% of the electricity generating capacity (potential maximum power output) of major power stations in England & Wales are located within Internal Drainage Districts.*
Trade *– 16% of UK freight imports and exports travel through the ports of Immingham, Grimsby, Hull and Medway all of which sit within Internal Drainage Districts.*
Oil Refining *– Two of the seven oil refineries in the UK are located within North East Lindsey IDB.*
Agriculture *– There are approximately 50,000 farms within Internal Drainage Districts. Over 64% of the country's best (Grade 1) land falls within an Internal Drainage District and more than 85% of Grade 1 land in East Anglia and the North East occurs within an Internal Drainage District. Such land is essential to UK food and drink manufacturing.*
Food processing *– 450 companies within the Cambridgeshire and Lincolnshire fens provide jobs to 12,000 and £500 million to the regional economy.*
Transport *– Whilst only 5% of railway lines and 6% of motorways (by length) fall within Internal Drainage Districts. The knock-on economic risks from flooding and bank collapses to lines in low-lying areas were illustrated by the 2013-14 floods.*

It is welcomed that Defra's announced spending cut of 15% is less than expected, that the £2.3bn of capital spending on flood risk and water level management projects announced at the start of this parliament has been maintained and that current levels of maintenance spending for flood risk and water level management will be maintained. Local Authorities, however, have more of a challenge ahead with the removal of the rate support grant and the need to rely wholly on business rates to continue to fund water level management in their areas. We have explored each of our 6 recommendations as follows.

[5] ADA The Value of Water Level Management: Electricity Supply
http://www.ada.org.uk/downloads/publications/Value_of_Water_Level_Management-Energy-web.pdf
[6] ADA The Value of Water Level Management: Transportation Network
http://www.ada.org.uk/downloads/publications/Value_of_Water_Level_Management_Transportation_web.pdf
[7] ADA The Value of Water Level Management: Economy
http://www.ada.org.uk/downloads/publications/Value_of_Water_Level_Management_Economy_web.pdf
[8] ADA The Value of Water Level Management: Environment http://www.ada.org.uk/downloads/publications/Value-of-Water-Level-Management-Environment-web.pdf

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1. Water levels and flood risk should be managed on a whole life approach

Five of the UK's wettest years on record have occurred since 2000[9]. Failure of assets and networks is more likely as extreme weather events become more frequent and unpredictable. We must change our approach to managing water level management assets and systems both inland and at our coast, adopting a more long-term approach based on capital expenditure, balanced and combined with whole-life maintenance costs.

It is vital that investment in capital and maintenance is joined-up as part of a long-term approach to improving local infrastructure to support growth. This will ensure that the most efficient use is made of public sector investment and the longevity of infrastructure assets. By exploring the merits of a 'Totex' (total expenditure) approach, (already used for investment by water companies), a level playing field can be provided for both capital and revenue investments. Evidence suggests that the current return on investment for flood risk revenue investment is higher than for capital[10], so some rebalancing of capital and maintenance priorities would improve the overall return on investment and minimise the whole-life cost of structures and systems. The National Audit Office found last year that as maintenance in some areas is further deprioritised, there is likely to be a significant effect in future years on the need for capital replacement and on flood risk[11].

2. Investment for maintenance should be increased and determined on a multiyear basis

The maintenance regime for our watercourses and structures remains the primary concern to ADA, NFU, CLA and Local Authorities. Not including the one-off payments made during the 2013/14 winter storms, the Environment Agency's funding for maintaining flood assets had fallen by 14%, with conveyance works taking the bulk of the cuts having fallen from £44 million in 2010-11 to only £30 million in 2013-14[12]. Downward adjustments have also been made to intended revenue spending commitments made following the 2013/14 winter storms.

[9] http://www.metoffice.gov.uk/learning/learn-about-the-weather/weather-phenomena/case-studies/2012-a-wet-year
[10] Environment Agency report: Technical and legal background to our asset maintenance Version 1 February 2014
[11] National Audit Office Strategic Flood Management Report, https://www.nao.org.uk/report/strategic-flood-risk-management-2/
[12] National Audit Office Strategic Flood Management Report, http://www.nao.org.uk/wp-content/uploads/2014/11/Strategic-flood-risk-management.pdf

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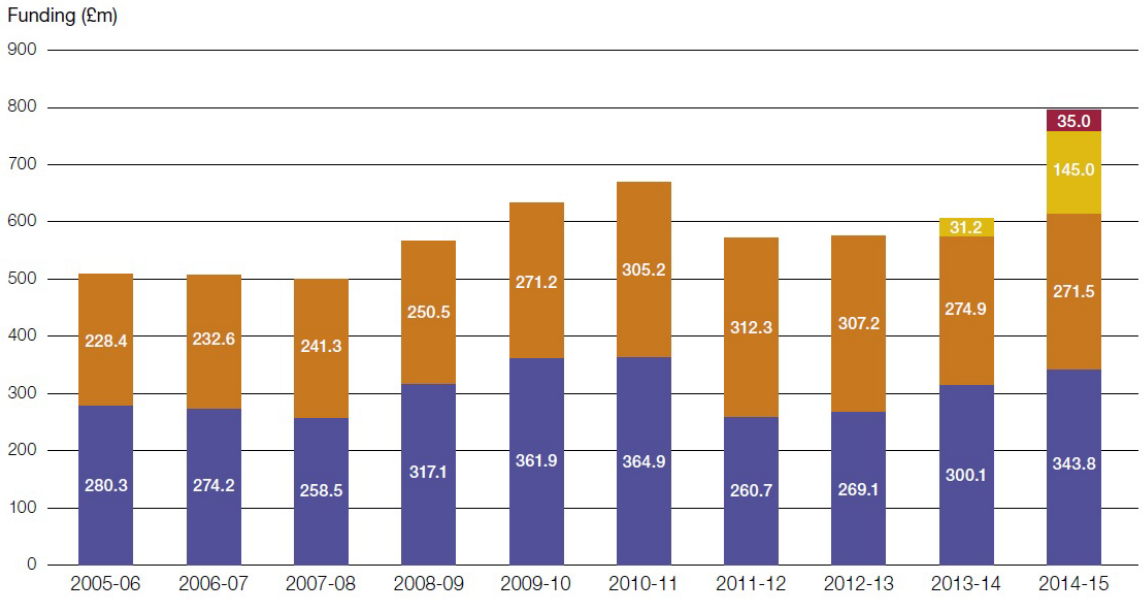

Figure 2: Breakdown of funding between capital (blue) and revenue (orange) of total government investment in FCERM in England. Additional funding following 2013-14 floods (yellow) and on asset repair/maintenance (red). Source National Audit Office (2014).

Such reductions in investment mean that some river, watercourse and sea defence systems and structures are being maintained only to a minimal level; consequently the useful lives of those assets will be reduced. Revenue budgets are only allocated on an annual basis, which makes long term planning and preventative interventions difficult.

Whilst HM Treasury has worked with Defra to agree a long term financial settlement for the capital budget (over a 6 year period), which allows Defra and Flood Risk Management Authorities to plan effectively, the revenue budget which funds the asset maintenance programme for the Environment Agency is allocated annually, making it difficult to plan long term. We feel the Government needs to address this revenue / capital mismatch and unlock efficiency savings through long term certainty of funding at a local level. Money earmarked for the maintenance of fluvial and coastal structures and systems within revenue budgets should be increased and determined on a multiyear basis to provide a stable base for collaborative working, efficiency and cost sharing. It is accepted that to balance the costs, some reductions in capital spending may be necessary or accept that some of the more critical maintenance works are considered as capitalised works. To allow that to happen, we must all challenge red-tape obstacles and look at new ways of deciding upon and delivering results which are of wider value to local economies than currently considered.

By providing a long term revenue outlook at a local level would increase the opportunity for flexibility between delivery organisations to ensure effective arrangements for local maintenance are put in place by the Environment Agency, Internal Drainage Boards and Local Councils working together. By planning for the future, preventative maintenance regimes can optimise the use of assets and provide better value for money in capital investment.

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3. The Government's Six year capital investment programme should remain in place and be balanced against increased maintenance spending.

Flooding is the greatest threat to the operation of the UK's assets. Annual flood damage costs are approximately £1.1billion[13]. Natural hazards such as storms, flooding, heavy snow and droughts already account for between 10-35% of all delays or service interruptions to electricity, road and rail customers every year[14]. The Committee on Climate Change Adaptation Sub-Committee indicated that even if current spending levels were maintained, four times as many properties would be at risk of flooding in the next 20 years. Those at significant risk could increase from 330,000 today to 570,000 in 2035[15]. The Government's commitment to a six year £2.3billion capital investment programme for flood and coastal risk management should remain in place throughout the current Parliament to provide the building blocks for growth, productivity and employment opportunities. We consider that significant increases to the proportion of that spending to works on the ground can be achieved using different delivery mechanisms depending on the size and complexity of projects to be executed. Several examples of successful, cost effective, locally-driven delivery solutions are detailed in Annex 1.

4. Where Government withdraws from work because it is not cost effective under their funding formula, they should 'invest to save' so that local communities can take greater ownership, through devolved accountability and decision making

The rivers and coasts of some rural areas are at a major crossroads and their funding is purely based on the benefits of flood risk to people and property as calculated currently. The Environment Agency has, for a number of years reduced the extent of their watercourse channel maintenance and taken steps to stop operating a number of structures and systems across England. Examples include lowland catchments across Lancashire and Cumbria and a recent Environment Agency consultation regarding the Black Sluice catchment in Lincolnshire[16]. In many circumstances local communities, businesses and authorities may be willing to step in to maintain and manage them in partnership with government, as the local economic benefits are significant.

To continue the investment and prevent abandonment of assets, the right agreements need to be put in place to sustain essential work locally. This may include permanent solutions (such as asset transfer or watercourse de-maining) or could also include longer term arrangements through the use of Public Sector Co-operation Agreements (PSCA) (see examples in Annex 1[17]). PSCAs in place between the Environment Agency and IDBs are already demonstrating cost savings with IDBs undertaking works on main rivers across the country. However, the real savings come in subsequent years where we have found that regular maintenance substantially reduces the time taken to clear watercourses due to their improved condition. It is also crucial that the system of ring-fenced contributions through special levy to the management of our water levels is maintained, and recognises the necessary contribution from built-up areas in managing water levels, especially downstream of those areas.

[13] https://www.abi.org.uk/News/News-releases/2014/03/6-7-million-a-day-in-insurance-claims-from-customers-hit-by-the-recent-flooding
[14] https://www.theccc.org.uk/wp-content/uploads/2014/07/Final_ASC-2014_web-version-4.pdf
[15] https://www.theccc.org.uk/wp-content/uploads/2014/07/Final_ASC-2014_web-version-4.pdf
[16] Environment Agency Black Sluice Catchment Consultation https://www.gov.uk/government/consultations/manage-flood-risk-in-the-black-sluice-catchment
[17] ADA - New Public Sector Cooperation Agreement paves way for closer partnership working on maintenance http://www.ada.org.uk/news_detail.php?id=483

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Where structures and systems can be transferred, we need to ensure that they are handed over in a good condition that gives local operators the best chance to extend the lives of the structures and systems to achieve maximum value and cost efficiency. This may include changing an asset to one which will have lower maintenance costs and liabilities associated with it so that it becomes affordable to local operators, e.g. replacing a weir with riffles. Public Sector Cooperation Agreements can act as a helpful mechanism to restore those systems prior to transfer, enabling both parties involved to better understand the function and management of the system.

A key issue is the need to devolve much more decision making and accountability to local strategic partnerships in whatever form that might take. For instance the Partnership Framework currently used by Lincolnshire Flood risk management authorities has been recognised by Government as among those leading nationally in the development of strong local co-ordination to ensure that local communities and infrastructure are better protected from flood risk[18]. The Partnership has improved resilience towards flooding ensuring it is built into all aspects of planning and service provision in the future.

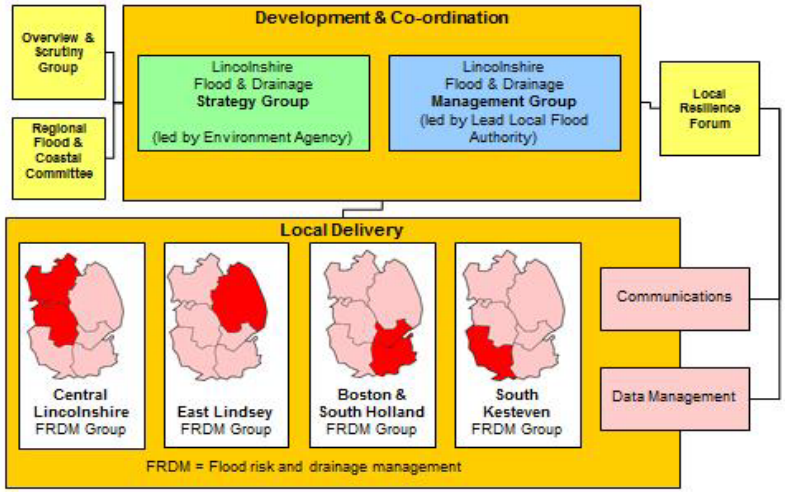

Figure 3: The Organisation and accountability arrangements of the Lincolnshire Flood Risk and Drainage Management Partnership Framework (Partnership includes: Lincolnshire County Council, all 14 Lincolnshire IDBs, Environment Agency, District Councils, Anglian Northern RFCC, 2 Water companies, Natural England and Lincolnshire Resilience Forum)

The proposals for a Somerset Rivers Authority (SRA) offers another model for providing additional funding towards flood risk and water level management with the potential for the SRA to have powers to raise additional income. The examples from Lincolnshire & Somerset have been developed to address particular local circumstances, but learning from these approaches could offer other areas in England a way of raising additional funding to their current levels and, if designed correctly, better local decision making too.

There also needs to be recognition that where local groups and organisations take a greater ownership of costs, there should be an equivalent reduction in contributions provided to the predecessor body. For instance, where IDBs take on more responsibility for watercourses currently maintained by the Environment Agency,

[18] Lincolnshire Flood Risk Management Partnership http://www.lincolnshire.gov.uk/residents/environment-and-planning/flood-risk-management/flood-risk-management-partnership/103046.article

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adjustments should either be made to the level of precept charged or redistributed to other work that provides benefits to the function of the system.

In some areas such as Lancashire[19], Norfolk, Yorkshire and Cumbria[20], new or expanded IDBs are being considered to ensure that the costs of managing water levels are spread proportionately between the agricultural community and other interests in the local area. To support the new burden of contributing to an IDB, consideration needs to be given about how local authorities can support the cost of the Special Levy which would become payable under the Land Drainage Act 1991. Land and property rating valuation, or lack of, is creating an additional hurdle to the legally correct creation of new IDBs. We advocate that a clearly focussed study involving all relevant partners could provide Government with a sound basis to take necessary action to resolve this issue.

The reduction of the perceived financial hurdle for local authorities of part-funding an IDB will enable greater local ownership and facilitate new or additional contributions from a wider range of beneficiaries. An "invest to save" policy could provide substantial water level management dividend in the long run.

Importantly the proposed new IDBs are already revenue positive in that the farmers and landowners have already agreed to pay their contributions, amounting to a varying majority of the running costs so if government initially supported the relevant local authorities with a grant that enables them to keep the increase in the council tax rate to below the 2%, the taxpayer is already better off overall.

5. Encourage land managers to contribute to and play a part in flood risk management delivery

Given the changes in maintenance of assets and systems discussed in part 4 it is clear that local land managers will continue to have a strong role to play in the future management of water levels and flood risk in England. We will need a regulatory system that supports and facilitates land managers taking a more active role as riparian owners or as partners in formal flood risk management schemes. The River Maintenance Pilots carried out in nine catchments across England showed that a light touch approach and community engagement can work well and led to 11km of desilting being undertaken by local land managers and IDBs on Main River, with a further 35km planned for this year.

The move from Flood Defence Consenting into the Environmental Permitting Framework needs to better translate these lessons from the Pilots into river maintenance regulation that incentivises regular basic channel maintenance. However, we are concerned that current proposals with the new EPR framework currently do not adopt the lessons learned from the River Maintenance Pilots.

Under the proposed new Environmental Permitting Regulations for main rivers the maximum length any land manager may desilt before requiring a permit will be a mere 100 metres for a manmade channels and 20 metres for any other Main River. Many farmers will own hundreds of meters of Main River and to clear one short section is unlikely to be economic or efficient and will not change the risk of flooding from poorly maintained channels. Furthermore, it could therefore require multiple annual interventions, rather than an approach that

[19] Alt Crossens Partnership found the best technical solution would be for the creation of a new IDB for this extensive lowland area with 11 secondary pumping stations - http://www.altcrossens.org/

[20] Proposed Lyth & Witherslack Water Level Management Board - https://lythvalleywlmg.files.wordpress.com/2015/02/figure-d2-lyth-and-witherslack-proposed-wlmb.pdf

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allows works to be undertaken to a watercourse reach every 5 or 6 years and then allowed to regenerate naturally. We believe that there is a need to better define works such as bank repair or de-silting in order to facilitate works over significantly greater lengths of Main River. Naturally where works or modifications would have an immediate demonstrable impact on flood risk, such as in the creation of obstructions or restrictions, these do need to be effectively regulated.

The Pilots demonstrated the value of early engagement, talking to land managers at toolbox talks and field training days about what they wanted to achieve. It showed them how best to achieve this, whilst protecting the environment. To this end, pre-application discussions within Environmental Permitting Regulations Framework will be critical to ensuring the applicant applies for the right permit and undertakes the works effectively. We would suggest that each permit should include a high level of pre-application discussion and include a site visit to enhance discussions when necessary, if the work could be altered and done without a permit this is made clear to the applicant. In addition a fixed hourly fee for further advice should be made available where an applicant would welcome further advice. An exemption to the permit fee should also be possible where any works will provide flood risk benefits to the wider community.

Furthermore, we would welcome the development of multiyear, multi-farm catchment licences that would enable land managers to work in conjunction with their neighbours, local communities and partners to ensure maintenance is undertaken in a coordinated fashion. In Scotland SEPA have pursued this approach to achieve better channel maintenance that provides benefits to land managers, the local environment and communities. There are concerns that the lack of limits on penalties within EPR could mean a land manager facing an unlimited fine and up to two years in prison for breaching the regulations. Without a reasonable enforcement limit and effective guidance on what penalties will be expected for different levels of breach, a farmer who desilts 101 metres may face the same penalty as a more persistent offender.

On a broader point, tax allowances are currently available to businesses who contribute funds towards FDGIA funded, EA-led flood relief schemes, including contributions in kind. If the partnership funding approach is to attract more private investment into the funding pot than it currently is, then the scope of the tax relief should be this broadened to cover all capital and maintenance flood defence works that have been consented.

Finally, “Slow the Flow” and “Natural Flood Management” measures can offer an opportunity to engage with a wider range of local land managers to reduce flood risk, whilst enhancing the environment through measures such as wetland creation, run-off management and attenuation. It is essential to look at the management of water in an integrated way. Farmers may be more willing to participate in these kind of projects when they have confidence the viability of their businesses will not be impacted. Catchment Sensitive Farming has shown the appetite of land managers to participate in structured schemes which work with their businesses. Unfortunately, Countryside Stewardship rules limit the locations this funding can be utilised. It is important that such schemes offer suitable flexibility to offer incentives where they have the best chance of effectively reducing flood risk rather than tied solely to other landscape characteristics.

6. Support investment in water level and flood risk management innovation to enable new techniques to develop that allow us to adapt to our changing climate

This will not happen automatically: the business case approach according to Treasury spending rules is very good at incentivising innovation where it fine-tunes and optimises existing good practice, because it rewards short- and medium-term optimisation. However, it does not drive the paradigm shift in innovation that the UK

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is going to be needed in the face of climate change. This requires an acceptance by Government that in order to find innovation that does work for the broader benefit to society, we must accept that some ideas may fail. The UK government supports this kind of approach for its chosen 'Eight Great Technologies' which include satellites, regenerative medicine and robotics and autonomous systems [21] but not for climate change adaptation. Water level management telemetry, for example, is part of the autonomous systems theme and yet we are seeing year-on-year reductions in this technology rather than the major investments needed in this area to generate long-term cost savings. A significant capital investment in telemetry systems for managing our water levels (for both flood risk and irrigation/water supply) in each river basin catchment area could result in major operational savings in the long term.

In the meantime, the UK would benefit from looking to others, for example, The Netherlands, who have chosen Water Management as one of their Top Sectors (the equivalent of the Eight Great Technologies) and are using this to test some of the paradigm shifting innovations that the UK is going to need into the future[22]. Examples include enhanced use of soft coastal management (such as the Zandmotor[23], currently being introduced into the UK as Sandscaping[24], and the strategic use of washlands with adequately flood-resilient communities and agriculture (such as within the Rijkswaterstaat Room for the River programme[25]).

Summary of actions recommended;

1. **Empower local decision makers to decide on their investment priorities for both capital schemes and operational maintenance for water level management, and ensure all partners have a say.**
2. **Streamline regulation and reduce the burden on land owners who want to undertake maintenance work on main rivers and ordinary watercourses. Further incentivisation will also unlock natural flood risk management schemes.**
3. **Consider broader use of Public Sector Cooperation Agreements as an interim or permanent solution for local delivery of projects and maintenance, and make and make any necessary legislative changes to allow the creation of new or extended IDBs.**
4. **Consider short-term increased investment to allow 'good condition' transfer of assets from Environment Agency to other delivery partners.**
5. **Carry out a focussed study to establish possible options for updating land valuations and ratings across the country.**
6. **Consider a programme of investment in telemetry to manage water levels on a catchment basis.**

[21] Department for Business, Innovation and Skills - Eight great technologies: infographics https://www.gov.uk/government/publications/eight-great-technologies-infographics

[22] Netherlands Top Sectors http://topsectoren.nl/english

[23] Province of South Holland, De Zandmotor http://www.dezandmotor.nl/en/

[24] Crown Estate, Sandscaping http://www.thecrownestate.co.uk/energy-and-infrastructure/aggregates/working-with-us/sandscaping/

[25] Rijkswaterstaat, Room for the River Programme - https://www.ruimtevoorderivier.nl/english/