

COOPERATION AND PARTNERSHIP IN FLOOD RISK MANAGEMENT: A CASE STUDY OF THE
INTERNAL DRAINAGE BOARDS IN THE EAST OF ENGLAND



by

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ABSTRACT

Internal Drainage Boards (IDBs) have existed in various forms in English history for many centuries. Unfortunately, not a lot is known about the progression of the organization, their roles and contributions to the sustainability of flood and coastal erosion risk management (FCERM) in England. Consequently, this research illuminates the roles of the IDBs by exploring the dynamics of their collaborative and partnership projects with other Flood Risk Management Authorities (FRMAs). Aided by the Institutional Analysis and Development (IAD) framework, the research engages with the theoretical themes of decentralization, scales of governance, power dynamics, accountability, and sustainability, questioning whether IDBs' operational and funding models can provide sustainable templates for addressing growing funding shortfalls due to reduced governance intervention in FCERM in England. Utilizing a qualitative methodology, the research focuses on a case study analysis of selected IDB groups in the East of England. The methods of data collection combined semi-structured face-to-face and telephone interviews of IDB groups and members, Environment Agency (EA), Lead Local Flood Authorities (LLFAs), Association of Drainage Authorities (ADA), National Farmers Union (NFU), environmental groups and independent consultants. The research also benefited from documentary analyses of relevant guidance documents produced by the Department for Environment, Food and Rural Affairs (Defra), Environment Agency and National Audit Office. The findings of the research expose some of the weaknesses in the current governance arrangement for the IDBs, particularly given the organization's growing aspiration for increased roles in flood risk management. It highlights the need for cultural and structural changes within the IDBs as fundamental requirements for increasing internal capacity and maintaining organizational resilience. Reassuringly, the research confirms that the IDBs' funding model maintains its credibility as a tested form of the Payment for Ecosystem

Services (PES) model, thus presenting a valid alternative for further critical assessment for local and international flood governance authorities. Finally, it validates the progress made by IDBs as evidenced by their increased collaborative partnerships with other organizations, as positive signals of their willingness to adapt in order to maintain their relevance in English FCERM. Overall, the findings of this research are of potential benefits to international flood and water governance institutions.

DEDICATION

This work is dedicated with love to

Chioma, Mesoma, Ebube, Ifeanyi, Kamso, Amarachi and Chisom

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LIST OF ABBREVIATIONS

ABI	Association of British Insurers
ADA	Association of Drainage Authorities
AWS	Anglian Water Services
BAP	Biodiversity Action Plan
CAP	Common Agricultural Policy
CBFM	Catchment Based Flood Management
CCRA	Climate Change Risk Assessment
CDM	Construction Design Management
CLG	Communities and Local Government
DCLG	Department for Communities and Local Government
Defra	Department for Environment Food and Rural Affairs
DETR	Department for Environment, Transport and Regions
EA	Environment Agency
EB	Ecosystem Buyer
ES	Ecosystem Supplier
EU	European Union
FCERM	Flood and Coastal Erosion Risk Management
FCERMS	Flood and Coastal Erosion Risk Management Strategy
FDGiA	Flood Defence Grant in Aid
FRMAs	Flood Risk Management Authorities
FRMPs	Flood Risk Management Partnerships
FWMA	Flood and Water Management Act
GiA	Grant in Aid
IAD	Institutional Analysis and Development
IDD	Internal Drainage District
IEC	Independent Environmental Consultant
LA	Local Authority
LDA	Land Drainage Act
LFAPs	Local Flood Action Plans
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LLFAs	Lead Local Flood Authorities
LFDC	Local Flood Defence Committees
LFRC	Local Flood Risk Management Committees
LSSG	Local Services Support Grant
MAFF	Ministry of Agriculture, Fisheries and Food
MHCLG	Ministry of Housing, Communities and Local Government
MTP	Medium Term Plan
NAO	National Audit Office
NE	Natural England
NFM	Natural Flood Management
NFU	National Farmers Union
NRA	National Rivers Authority
NGS	National Geographic Society

RBMPs	River Basin Management Plans
RFCC	Regional Flood and Coastal Committees
IDBs	Internal Drainage Boards
OMs	Outcome Measures
PAR	Project Appraisal Report
PC	Parish Council
PF	Partnership Funding
PO	Provisional Order
PSCA	Public Sector Cooperation Agreement
PES	Payment for Ecosystem Services
RCPs	Representative Concentration Pathways
SAC	Special Area of Conservation
SDGs	Sustainable Development Goals
SEPA	Scottish Environmental Protection Agency
SFA	Settlement Funding Assessment
SSPs	Shared Socio-economic Pathways
SSSI	Site of Special Scientific Interest
UK	United Kingdom
UKIA	United Kingdom Irrigation Association
UN	United Nations
WBs	Water Bodies
WFD	Water Framework Directive
WMOs	Water management organisations
WT	Wildlife Trust

CHAPTER 1

INTRODUCTION

1.1 Research rationales and wider contexts: Global and national drivers

Internal Drainage Boards (IDBs) are local public authorities that manages water level. They have been in existence in various forms in English history since the 12th Century. Their historical roles in shaping English landscapes through land drainage activities are well documented, however, the world now faces new and urgent challenges of dealing with the impacts of climate change, turbulent geopolitical issues resulting in increased migration of large populations from Asia and Africa into Europe and America, with resulting socio-cultural conflicts. Britain has now exited from the European Union (EU) through the political process referred to as Brexit, and in some ways, still nursing the impacts of the break-up, whilst developing new relationships with the rest of the world. Against the backdrop of these challenges, this research seeks to examine the operations of the IDBs, and other flood and water management authorities (FRMAs) in England to understand how IDBs have remained relevant in English water management history, and most importantly, how they can maintain their organisational sustainability into the future.

The impacts of climate change are manifestly seen in various forms throughout the world. Various research into the relative effects of climate change “(four Representative Concentration Pathways - RCPs), assumed future population (five Shared Socio-economic Pathways - SSPs), and pattern of climate change (19 CMIP5 climate models) on regional and global exposure to water resources stress and river flooding” show a considerable level of

uncertainty in projected future impacts (Arnell and Lloyd-Hughes, 2014, p. 1).¹ We are seeing growing evidence of changes in weather patterns with higher intensity floods, as witnessed in major European cities in the Autumn of 2021. These issues have significant implications for many EU nations as the continent and the world in general continues to reel from the effects of the global pandemic of Covid-19.

United Nations (UN) member states demonstrated the necessity for global partnerships in adopting the 2030 Agenda for Sustainable Development in 2015. The urgency of this necessity is driven by the understanding that climate change and environmental improvements are interlinked with challenges of sustainable development in sectors such as, agriculture, education and economy of developed and developing countries. Crucially, one of the 17 United Nations' Sustainable Development Goals (SDGs) focuses on the strengthening of multi-stakeholder cooperative arrangements and initiatives for better implementation of creative solutions to the challenges of climate change. To meet these goals, United Nations Member States are required to establish national policies and regulatory standards across all sectors to address these interlinked variables (UNDESA, 2015).

From a continental perspective, the impacts of Britain's exit from the EU are still unravelling. However, the British government led by Boris Johnson has argued through its House of Commons Environmental Audit Committee in 2016 that the UK's reputation for consistent adoption of a pragmatic approach to environmental law-making would serve as a driver for

¹ Arnell, N.W. and Lloyd-Hughes, B. (2014) 'The global-scale impacts of climate change on water resources and flooding under new climate and socio-economic scenarios', *Climatic Change*, 122, 127-140.
<https://doi.org/10.1007/s10584-013-0948-4>

the government to improve on environmental regulation following its exit from the EU. Due to the historic involvement of the UK in the creation of EU Environmental Regulations and Directives, and the requirement for EU Member States to establish national polices to support the implementation of EU Directives, the UK expects that new environmental regulations would broadly still comply with existing EU Directives post Brexit. In the UK, EU Directives are implemented by a combination of primary (Acts of Parliament) and secondary (Statutory Instruments) legislation, and these will remain binding post Brexit (Stansfield and Litchfield, 2019). Despite these assurances, various concerns remain within environmental organisations such as the IDBs, regarding the future of collaborative initiatives with the EU and the rules governing such collaborations. There are legitimate concerns regarding the sustainability of funding for innovative and collaborative environmental projects with the EU given that various aspects of the Brexit deal are still being negotiated. The overall assessment of the impacts of Brexit on the UK environmental sector requires a summation of constituent impacts at an organisational level, therefore, an examination of these concerns from the perspective of the IDBs would make a useful contribution.

The EU Water Framework Directive (WFD) 2000/60/EC, which requires member states to achieve Good Ecological Status in all waters by 2015, and if not possible, to set interim targets between 2015 and 2021 with full compliance by 2027, represents a collective opportunity to develop participatory approaches to water management (Veidemane, 2005)². Article 14 of the WFD requires Member States to encourage the active involvement of all interested

² Veidemane, K. (2005) 'Participatory approaches towards water management: Transboundary cooperation in the River Lielupe Latvia-Lithuania', *BEF Legal Bases Technical Assistance Project to the Baltic MoEs to support EU accession process*

parties in the implementation of this Directive, particularly in the production, review, and updating of the River Basin Management Plans (RBMPs). The IDBs in England are rightfully considered relevant Water Management Organisations (WMOs) in Europe. An organisation similar to the IDBs exists in the Netherlands as Water Boards (WBs) with broadly similar roles. The EU introduced a Directive on the Assessment and Management of Flood Risks 2007/60/EC (EU Floods Directive) in 2007 to mandate member states to develop new approaches for catchment-scale assessments and management of flood risks. The implementation of these legislative drivers is incumbent on member states and form part of their contribution to the UN sustainable development goals. The roles of organisations such as the IDBs and the WBs have been greatly influenced by the EU Floods Directive. Overall, this Directive has helped to protect English and EU communities from the risks and impacts of flooding through the requirement for greater involvement of local communities in flood risk planning and implementation. The mechanisms of this engagement constitute a key part of this research. The geographical locations of most IDBs and the rural spatial advantages they enjoy within local communities in England highlight the significance of any research examining their collaborative and partnership experiences with others.

Nationally, the UK's general response to the United Nations' demand for effective national policies in aid of sustainable development has been reflected in positive environmental policies aiding the coordination of organisations involved in water management, environmental improvements and sustainable development. In view of the above, one such national policy in the last decade is the Flood and Water Management Act (FWMA) 2010. This legislation identifies the IDBs as a relevant Flood Risk Management Authority (FRMA) in

England. Measured against the requirements of the Floods Directive and Gupta et al.'s (2007) criteria for evaluating national environmental policies, I view the FWMA 2010 as one of the most significant legislation addressing the United Nations' concerns with respect to the sustainable development goals. This is because it furthers and advances the necessity for partnerships and cooperation between Flood Risk Management Authorities (FRMAs), amongst other sustainable development aspirations. The relevance of the FWMA 2010 is highlighted by the fact that flooding constitutes a major destabilising constraint to sustainable development.

Gupta, et al. (2007) identify four criteria for evaluating the various national environmental instruments and policies. These include environmental and cross effectiveness, distributional effects and institutional feasibility. In terms of institutional feasibility, the FWMA 2010 identifies the role of Internal Drainage Boards (IDBs) as significant in deprived areas, outside the operation of central water governance authorities, such as the Environment Agency and Lead Local Flood Authorities (LLFAs). Furthermore, the paucity of academic research on the IDBs has contributed to the lack of visibility of the roles and operations of the organisation, undermining particularly, their contributions to the EU Directives and overall sustainable development goals. Therefore, the IDBs are deservedly, the focus of this research because their historic roles and operations are not only directly aligned to the delivery of the interlinked variables of sustainable development in the UK, they also currently play a key role in flood risk management in the UK, particularly in England. Furthermore, whilst their history with agricultural development is well established, not a lot is known about their role in flood risk management, particularly, their collaborative partnerships with other FRMAs.

IDBs in England have been historically linked with rural geography and catchments, which are often associated with agricultural economy and the farming sector. They were instrumental in sustaining the UK's food security ambitions at the end of WW II, following the necessity for food security and the prioritisation of the agricultural economy in England. At this time, the primary role of the IDBs was to undertake activities necessary to drain the frequently flooded farmlands for agricultural purposes, a task that perfectly aligned with their historical work in land drainage. The challenges of food security in the EU, among other factors, led to the development of the Common Agricultural Policy (CAP).

The EU CAP was introduced "to increase agricultural productivity, partly for food security reasons, but also to ensure that the EU had a viable agricultural sector and that consumers had a stable supply of affordable food" (Gay, et al., 2005, p. 4). Setting aside the criticisms on its implementation, reforms or effectiveness, the EU CAP could be viewed as a policy driven by collective need within Europe, especially given the devastation of WW II and resultant food insecurity. The success of the CAP in part, ensured the sustainability of food security in England, necessitating a shift in IDBs' focus of operation in scope and scale. Following this shift, along with parallel shifts in UK government's broad compliance to EU Directives, and the development of water management policies, IDBs' relevance seems to have been obscured by the central roles of FRMAs, such as the Environment Agency and its predecessor, National Rivers Authority (NRA). Hence, the rationale for this research is to illuminate the activities of the organisation, particularly, in response to emerging risks associated with water, environmental management and governance in rural England.

1.2 Scope for shared knowledge across international boundaries

I have acknowledged the strikingly similarities between the history and role of the IDBs in England and WBs in the Netherlands. The governance arrangements for IDBs, which ADA provides share certain similarities with the Union of Dutch Regional Water Authorities, which oversee the WBs in the Netherlands. This research provides an increased scope and content for intellectual discourses, examination of shared roles, policies, and approaches to providing solutions to global environmental challenges. Some of the approaches and methods may provide international environmental researchers opportunities for contextual understanding of water management approaches in England, enhancing the quality of potential comparative analyses between other countries, particularly those with similar structural organisational arrangements.

A country like Canada for instance shares water governance responsibilities across federal, provincial, and local government authorities. Shrubsole (2000) provides some background on some of the similarities between historical flood management efforts in Canada and that of the UK. He suggests that much like the IDBs in the land drainage era, the responsibility for land drainage and flood risk management fell to individual landowners and the local governments prior to the promulgation of the Water Conservation Assistance Act (WCAA) 1953. The financial involvement of the federal government in Canadian flood risk management under the WCAA 1953 meant that “senior levels of government could provide up to 75% grants for the capital cost of structural adjustments” (Shrubsole, 2000, p.3). My focus on this example is purely to illustrate the similarities in the use of grants as funding mechanisms for water management organisations. Understandably, the rules governing the

use of grants alluded to above by Shrubsole (ibid) would differ from those governing the Flood and Coastal Erosion Risk Management (FCERM) Grant in Aid (GiA) in England. These differences enrich the contextual debates in approaches to governments' intervention in flood and water management.

I have previously emphasised the requirement for international cooperation and partnership as a key UN sustainable development goal and driver for the research. However, this research would provide a lot more than an assessment of flood risk partnerships. Water management organisations, academics and flood risk management practitioners will benefit from the practical discussions and applications of the governance themes of centralisation and decentralisation, both of which relate to contrasting approaches employed by the IDBs in England in varying situations to ensure greater effectiveness, internal resilience and organisational sustainability. I will now briefly examine the main theoretical framework and other themes which forms the crux of the theoretical arguments in this research.

1.3 Introducing the research framework and theoretical themes

In this research, the concepts of cooperation, collaboration and partnerships in flood risk management are explained within two complementary analytical frameworks. The first framework is Ostrom's (1994) Institutional Analysis and Development (IAD) framework, consisting of the exogenous variables (defining the attributes and rules in use), the action

arena, (representing the conceptual unit), the action situation, and the participants or actors who are involved in the engagement as shown in Figure 1.1.

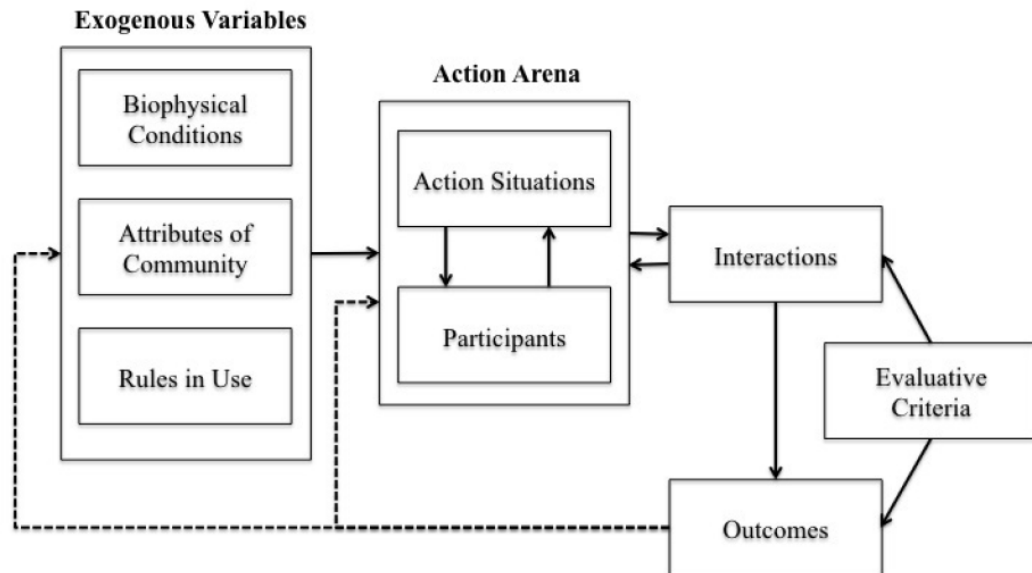


Figure 1.1 - Institutional Analysis Development (IAD) framework

Source: Adapted from Ostrom, Gardner and Walker (1994, p.37)

In the action situation, the participants positions are defined along with their various power dynamics. The power or influence of a participant derives from the knowledge they possess, the value attributed to them and the resources they bring with them. The second framework is also an analytic, contextual, but pragmatic framework adapted by Watson (2015), illustrating the mechanisms of catchment-based collaborative partnerships in flood and water management. This contextual framework reduces the abstractions of Ostrom's (1994) IAD framework, particularly the activities within a section of the action arena which I characterise in Figure 2.2 (Chapter 2), as the cycle of influence.

The research engages with three eras of flood and water governance: the land drainage era, the flood defence era and the flood risk management era (Johnson and Priest, 2005; Penning-Rowsell et al., 2006). The land drainage era depicts the period between 1930 to 1970, the flood defence era covers the period between 1970 to 1990, with the flood risk management era starting from 1990 to the present day (Penning-Rowsell, 2006). The distinctions between the various approaches to flood and water governance are viewed as fluid ideological changes from a simplistic to more integrated approaches requiring the involvement of more actors (Nye et al, 2011; Challies et al., 2016). I engage with Shearer et al.'s (2018) attributes of institutions, interests, ideas and network changes within the research as potential drivers of policy changes. Parallel to this, I acknowledge Thaler and Levi-Kietel's (2016) arguments of contributory impacts of new actors in the overall engagement process.

The research examines the benefits of Natural Flood Management (NFM) in collaborative catchment flood management, engaging with two key definitions of NFM. The first definition from Lane (2017) recognises the interactions of hydrological and morphological processes to manage sources and pathways of floodwater, while the second definition from Wingfield (2019) view NFM as a wholistic approach which includes the ability to slow the conveyance of water and utilise flood storage as a solution with multiple environmental and ecological benefits. In addition, I undertook a technical assessment of the NFM model to assist with a fuller understanding of the mechanisms of NFM, with an explanation of the value of scale in NFM models.

The themes of centralisation and decentralisation in governance, power dynamics and accountability, cooperation and collaboration, resilience and sustainability encapsulate the challenges within the role of the IDBs, hence run through the whole research. The constant tension between the diametrically-opposed principles of centralisation and decentralisation policies, and the impacts of the intervention of these policies in the governance of the IDBs are substantially explored within the research. Gearey and Jeffrey (2006) introduce the concept of legitimacy in adaptive water governance which the research utilises to question the validity of interactions within the engagement process. The research utilises Waley and Weatherhead's (2016) concept of power dynamics within the engagement process to question the transformative capacity of the engagement process. Furthermore, it examines some of the challenges of water governance, highlighting what Watson (2014) refers to as wicked problems (multi-faceted challenges) confronting water management organisations.

One of the major theoretical issues examined in this research is the question of scale in water governance. In the assessment of the role of governance, I engage with the views of various researchers (Dean, 2010; Lemke, 2001; Becks, 1992; Butler and Pidgeon, 2011; Miller and Rose, 2008). However, on the question of scale, the research examines the views of researchers such as, Brown and Purcell (2005) who admit that scale is worthy of closer examination, Marston (2005) and Marston et al. (2004) who admit that scale is open to various interpretations, Delaney and Leitner (1997) who as political economic geographers have been on the forefront of scalar debates, Butler and Pidgeon (2010), Jonas (2006), Norman and Baker (2009), Norton et al. (2014), who generally agree that scale has relevance in water governance debates. The research reflects on the findings of Norman and Baker's

(2009) application of geographical scales to water governance in Canada, particularly on the researchers' conclusion that rescaling, and decentralisation of powers do not always result in effective redistribution of powers. Understanding the limitations of decentralisation policies is particularly relevant for this research as most of the arguments for transformative powers derive from the UK government's Localism Agenda, which promised enormous gains in transformative powers. The arguments for decentralisation of powers in English flood and water governance is expanded as a fundamental basis for encouraging greater stakeholder engagements and partnerships between the IDBs and other FRMAs.

I undertook a review of historical flood insurance agreements in England, examining the circumstances under which the Gentleman's Agreement, which Huber (2004) describes as one of the invisible structures of flood management. The Gentleman's Agreement represents the agreement established between the late 1950s and early 1961 (Salthouse, 2002) in the UK between the government and private insurance sector aimed at ensuring the availability of flood insurance to residential properties in England. The lack of transparency of the costs of flood insurance was a major aspect of the criticisms of the Gentleman's Agreement (Handmer, 1990), with the government accused of supporting the entrenchment of the flood insurance package as part of a social policy. The criticisms were largely ignored until the impacts of the floods of 1998 and 2000 overwhelmed the insurance sector with unprecedented costs in repairs and damages. The Association of British Insurers (ABI) inevitably blamed the government for the predicament. Lamond and Penning-Rowsell (2014) who remain convinced of the attractiveness of the English flood insurance model argued for changes to the old system. Earlier, Priest (2005) had argued that the English flood insurance

system can be used as an effective adaptation model, nevertheless, some argue that the inevitable consequence will be an unfair burden of taxation on everyone to maintain this economic balance (O'Neill and O'Neill, 2012). Nevertheless, Climate Change Risk Assessments (CCRA) have recognised that the number of residential properties at significant risk of flooding will rise in 2050 from 560,000 to 1,035,000 (Penning-Rowsell and Priest, 2015; Defra, 2012; Ramsbottom et al., 2012). Given this realisation, the government worked cooperatively with the insurance sector to introduce enabling provisions through the Water Act 2014 for the introduction of a new insurance system known as Flood Reinsurance (Defra, 2014).

This new system has taken forward the lessons learned from previous flood insurance models, however with continuing increases in flood risk due to climate change, some argue that the Payment for Ecosystem Services (PES) model, viewed by Sarvasova (2019) as a flexible mechanism for utilising payments for services to improve the environment, represents a more sustainable model for dealing with flood damages. This beneficiary-pays-model seeks to assess the value of broad ecosystem services including environmental services, such as the provision of flood defences, insurance and resilience measures in lieu of a cost which will be determined by a set of parameters and purchased from an Ecosystem Supplier (ES) by an Ecosystem Buyer (EB) within an appropriate environmental market.

1.4 Research aims and objectives

1.4.1 Research aims

The primary aim of the research was to examine the development of the Internal Drainage Boards (IDBs) as a flood risk management organisation and explore how the organisation has maintained its role and functional relevance over many centuries through changing legislation and policies. The research also aimed to understand the necessity and importance of cooperation and partnerships between the IDBs and other organisations with similar or inter-dependent roles; reflecting on how the power dynamics within these relationships and other emerging risks, shape the IDBs' present and future role in English flood risk management.

From a historical viewpoint, the IDBs have grown in relevance and significance given their increased involvement in flood risk governance in local catchments and districts. The organisation's historical role from land drainage to flood risk management, and water level management in recent times, have increased local and national focus on the IDBs. Hence, this research offers innovative and interesting insights into various aspects of IDBs' roles, providing a rich data source for researchers, flood risk management practitioners, Defra, independent consultants, as well as members of the public.

1.4.2 Research objectives

The research has five objectives:

Objective 1: Examine the historical development of the IDBs in terms of their transition from a land drainage to a flood risk management organisation, exploring their purpose, function and wider relationship with other stakeholders in flood governance.

Objective 2: Examine the need for cooperation, partnerships and accountability in the administration, operation and governance of the IDBs given due regard to relevant legislation and organisational policies.

Objective 3: Examine the links between the concepts of transformative power and the arguments for decentralisation of powers, and the relevance of these links to local flood risk governance by the IDBs.

Objective 4: Develop an understanding of the future role of the IDBs for flood governance in England from the combined perspectives of IDB members and other flood governance partners by assessing IDBs' organisational sustainability indices.

Objective 5: Undertake an analysis of the current FCERM funding models relative to IDBs' traditional funding model and examine the suitability of alternative funding models to mitigate the risk of flooding in England.

1.5 Research Methodology

The research methodology was a flexible qualitative methodology comprising an interpretivist epistemological orientation. A case study method was used for the data collection. The choice of a case study methodology was informed by the need for an in-depth study of selected IDBs to address the objectives of the research. Stake (2005) acknowledges that case studies provide a means of investigating complex social problems from a researcher's narrative accounts. Erickson (1986) further provides the justification for the use of case study methodology in this research with his assertion that the general is often located in the particular, suggesting that what is learned from a particular case can be transferred to similar cases. I recognise some of limitations of the case study methodology with regards to difficulties in replicability of results as suggested by Yin (2009) and Gorard (2013), and the potentials for researcher's bias as argued by Hamel (1993). However, I took care to ensure that my declared positionality as former staff of the Environment Agency and Cambridgeshire County Council did not affect my conduct or analyses of the data in this research.

The case study location is an area known as the Fens (a vast area of flat land with high density of IDBs) in the East of England. The general topography, combined with very high water table in the area increase the complexity of the challenges and solutions to catchment flood risk management in the area. The above reasons combined with my personal knowledge of the geography of the area resulted in my decision to use the Fens as a case study area. However, I also collected data from IDBs outside of the Fens area to support the analyses and validation of findings from the case study area. I will now briefly describe the key historical features of the Fens, which continue to be of significance to the role of the IDBs.

The Fens comprise an area of land on the East Coast, “extending southwards from the highlands in Lincolnshire, for a distance of about 60 miles and occupying portions of six counties” as shown in Figure 1.2 (Wheeler, 1897, p. 1) and Figure 1.3 (Armitchell, 2011).

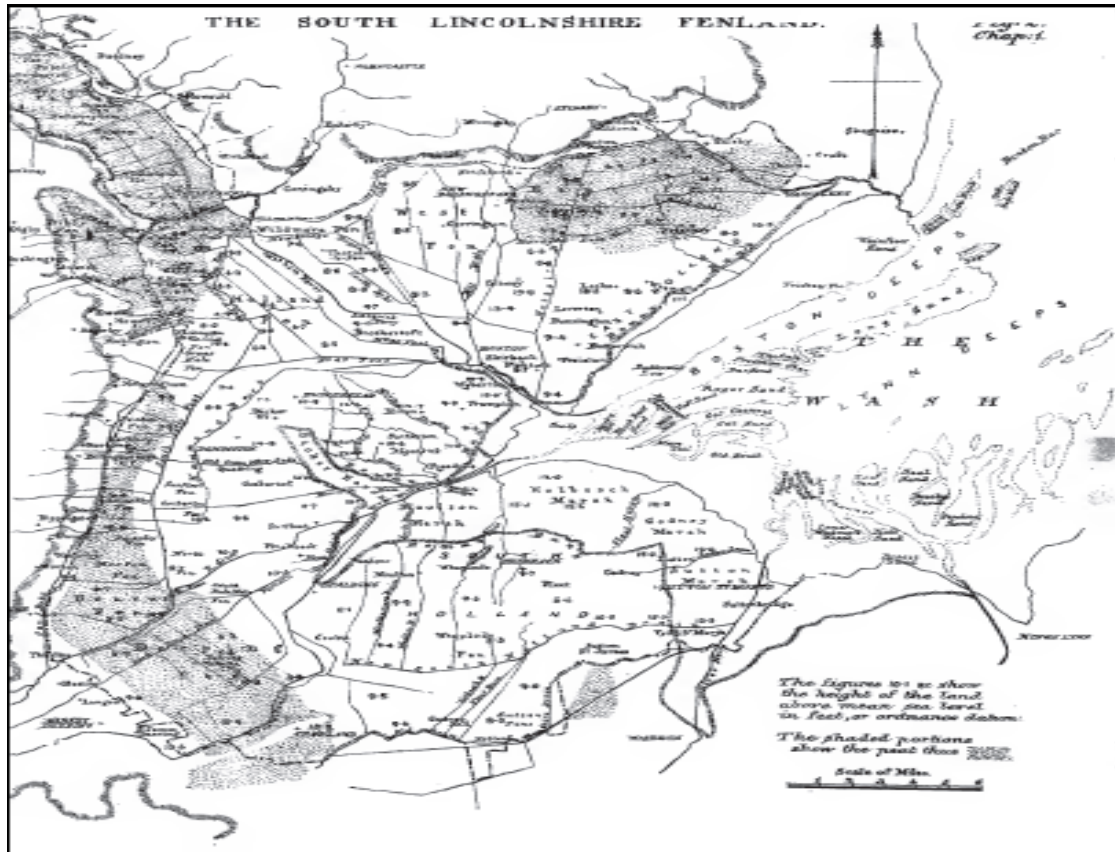


Figure 1.2 A sketch of the historical map of ancient Fenland, South Lincolnshire

Source: Wheeler, W.H. (1897) *History of the Fens of South Lincolnshire*, Boston: J.M. Newcombe, London: Simpkin and Marshall & Co.

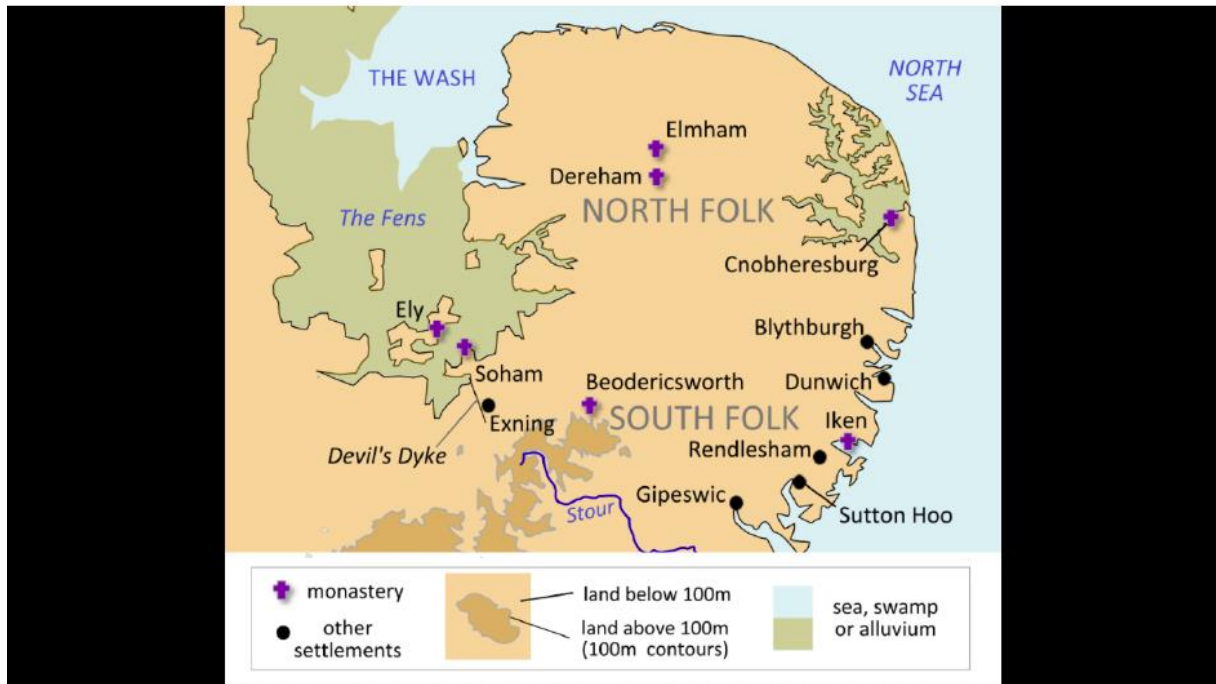


Figure 1.3 The kingdom of East Anglia during the early Anglo-Saxon period showing the approximate coastline and the Fens at the time.

Source: Armitchell125 (2011) The Kingdom of East Anglia showing the position of the Fens, English Wikipedia.

Wheeler (1897, p.2) captures the general historical features of the Fens, particularly the rich agricultural heritage which the IDBs' role sustain:

"The Fens have obtained a world-wide notoriety; and a general, though very erroneous, impression prevails among those who do not know the county, that this part of Lincolnshire is a dull and dreary land, to be avoided by all except those whom necessity or the calls of business compel to visit its unattractive scenery. But it will be found, on closer investigation, that the Fenland has many attractive features, while the rich grazing and corn lands stand unrivalled for their productiveness, and are cultivated by inhabitants, whose condition, general intelligence, physique and health will bear very favourable comparison with those of any other part of Great Britain" (Wheeler, 1897, p. 2).

I do not intend to embark on a historical narrative about the development of the Fens, however, it is important to recognise the unique process of land development through

accretion, as this process created the historical need for role of the IDBs. Wheeler (ibid)

describes this accretion process:

“Gradually the land rose by the deposition of alluvial matter and the constant growth of vegetation, leaving, however, large creeks, or arms of the sea, which afterwards became pools of stagnant water. On the accreted land, interspersed amongst the pools and meres, were spots of high ground, on which the few and scattered inhabitants lived, their only means of communication with the mainland, in winter, being by coracles, or wicker boats covered with skins” (Wheeler, 1897, p. 3).

The above narrative provides an insight into the land drainage challenges faced by the communities inhabiting the Fens at the time, and highlights the significance of land drainage works embarked upon by the predecessors of the current IDBs.

Returning the focus to the methodology, I conducted the analyses of this research with a combination of primary data (through interviews) and secondary data (through documentary analysis). Primary data for this research was collected from the Environment Agency, Lead Local Flood Authorities (LLFAs), Local Authorities, Parish Councils, Association of Drainage Authorities (ADA), IDB Clerks and Chief Executives, IDB engineers, IDB members, independent environmental consultants, conservation groups and members of the public. The secondary data include policy and guidance documents from Defra and the Environment Agency, National Audit Office (NAO), minutes of IDBs’ meetings, independent environmental consultants and the Cabinet Office. The challenges I encountered in the course of the research are covered in detail in Chapter 3, however it suffices to mention at this stage that the emergence of Covid-19 had constraining impacts on various aspects of the research.

1.6 Structure and outline of the thesis

The research is structured into 7 chapters. In this introductory chapter, I have explained the rationale for the research including wider drivers beyond UK institutional boundaries. I have presented the aims and objectives of the research along with 5 questions which I will attempt to answer in this research. I have also touched upon the key theoretical themes explored within the research and the methodology underpinning the research. In chapter 2, I examine in detail the conceptual frameworks, key literatures, and theoretical themes underpinning the research. In chapter 3, I discuss in detail my approaches to research design, philosophy, and methodology. Chapters 4, 5 and 6 deal with the empirical data from the research. In chapter 4, I examine the role of the IDBs, with brief historical account of some of the challenges face by the IDBs. I intersperse the historical accounts with an analysis of key issues supported by empirical data from the research. In addition, I examine IDBs' governance model and perspectives on the impacts of prescription in the governance guide with respect to board size. Finally, I examine the scope of IDBs beneficiaries and introduce the FCERM funding model. In chapter 5, I examine the balance between centralisation and decentralisation policies within IDBs' governance processes through the agency of collaborative engagements, particularly, the Flood Risk Management Partnerships (FRMPs).

In chapter 6, I examine some of the variables I have identified as IDBs' indices of sustainability. I start with the funding variable and re-introduce the FCERM GiA funding model with IDBs' and other FRMPs' perspectives on the limitations of the funding model. I then examine other indices of organisational sustainability such as effectiveness, efficiency, internal capacity, and resilience with an analysis of various perspectives from FRMPs. In

chapter 7, I synthesise all the findings from chapters 4, 5 and 6 and examine how they meet the research aims and objectives stated in Chapter 1 and make recommendations for further areas of research on the IDBs.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter is structured into 9 sections. In section 1, I introduce the analytical frameworks underpinning the research, with an examination of Ostrom's (1994) Institutional Analysis and Development (IAD) framework, and Watson's (2014) adapted framework for collaboration within catchments. I utilise the latter to provide a contextual analysis of collaboration within catchments in partnership as a simplified form of Ostrom's (1994) framework. In section 2, I discuss the approaches and phases of flood governance, examining the 3 key approaches: the land drainage, flood defence and flood risk management. I also highlight the relevance of the land drainage era to Britain's food security ambitions after WW II, and the contributions of the IDBs to the farming and agricultural sector. In section 3, I review the benefits and disbenefits of Natural Flood Management (NFM) and investigate the importance of collaboration and partnership in catchment-based flood management applications. I provide a technical analysis of the NFM process and examine the significance of scale in NFM models. In section 4, I investigate the emergence of FRMPs, engaging with theoretical themes questioning the validity of engagement processes through spatial proximity. I introduce and distinguish the themes of cooperation and collaboration within partnerships and examine the challenges of collaboration in FRMPs. In section 5, I examine the concepts of power, governmentality, and the relevance of scale in flood and water governance. I engage with various debates on the benefits and challenges of decentralisation as a means of achieving

transformative power. I reflect briefly on the warning that decentralisation doesn't always translate to empowerment of local actors. In section 6, I examine the links between IDB roles, IDBs' beneficiaries, and the funding sources available to IDBs. I emphasise the benefits of IDBs' beneficiary-pays traditional funding model and examine the limitations of FCERM Grant in Aid (GiA) funding model. In section 8, I undertake a historical review of flood insurance agreements in England, examining improvements in recent flood insurance partnership, the Flood Re. Finally in section 9, I examine the benefits of potential application of the Payment for Ecosystem Services (PES) funding model and argue for its consideration in environmental services, particularly flood risk management.

2.2 Conceptual Frameworks

In this section, I engage with two conceptual frameworks which underpin collaborative partnership engagements, and hence are very fundamental to this development of this research: a) Ostrom's (1994) IAD framework, and b) Watson's (2015) adapted contextual framework.

2.2.1 Applying the IAD framework to the research

The application of institutional analysis variables and use of frameworks constitute the 'most general form of theoretical analysis' (Ostrom, 2011, p. 8). It is unsurprising therefore, that the

analyses of modes of engagement and partnerships between the IDBs and their partners fit within this general form of theoretical analysis and application. Furthermore, given that frameworks, theories and models are viewed as nested concepts used to examine and interpret human behaviour on the one hand, and an understanding of the concept of engagement as a fundamental human activity on the other hand, it follows that a connection between the IAD framework and IDBs' theoretical modes of engagement is logical.

Consequently, I utilise the IAD framework to identify and develop associations between various theoretical variables, identify questions (McGinnis, 2000) and establish potential outcomes in this research. Let me start by examining the fundamental parts of the IAD framework and their relationship to the fundamental parts of IDBs' flood partnerships and other stakeholder engagements.

The IAD framework as reflected in Ostrom et al. (1994) has 5 fundamental variables, which can effectively be collapsed into 4 when the actors are merged with the action situation and partnerships in the action arena. The three other variables are the exogenous variables, evaluative criteria, and outcomes. A key part of the framework is the identification of an action situation and the resulting patterns of interactions and outcomes, and subsequently, evaluating these outcomes as identified in the four sections shown in Figure 2.1 (Ostrom 2005a).

The exogenous variable within the IAD frameworks which has the greatest relevance to its application in IDB partnerships is the rules in use, which can be broadened to include legislation and policies. Ostrom (2011, p.19) clarifies that "rules are shared understandings among those involved that refer to enforced prescriptions about what actions (or states of

the world) are required, prohibited, or permitted”. The action arena represents the medium of engagement, with evaluative criteria guiding the relevant rules of engagement. Outcomes are interpreted as emerging themes from the engagement activity. Figure 2.1 below depicts how the IAD Framework is applied to IDBs flood partnership engagements.



Figure 2.1 - Application of Ostrom et al. (1994) IAD Framework variables to FRMPs collaboration (IDB partnerships) typified by the research outcomes.

The IAD framework has gained wide application in many fields of study as an analytical tool for anticipating and solving problems requiring collective actions. Mosse (1997) utilised the IAD successfully in the analysis of modes of community resource management. Some current applications of the IAD framework include; a) recent use in modelling marketing theory by

Kilbourne et al. (2018) in a study of the relationship between institutions with deeply rooted structures and the society; b) its application as an appraisal tool, in a study of soil and water conservation activities, where participation is operationalised (Nigussie, et al., 2018); and c) for local management of common resources (Benson et al, 2013). Given some of these recent applications of the IAD, especially its successful application by Nigussie et al. (2018), I believe that the IAD framework can be applied to flood partnerships and similar stakeholder engagements, with an expectation of utilising the *active action* arena to reveal and resolve shared problems through interaction. Consequently, the IAD framework utilised in this way can influence the redistribution of transformative powers between participating members of a given partnership.

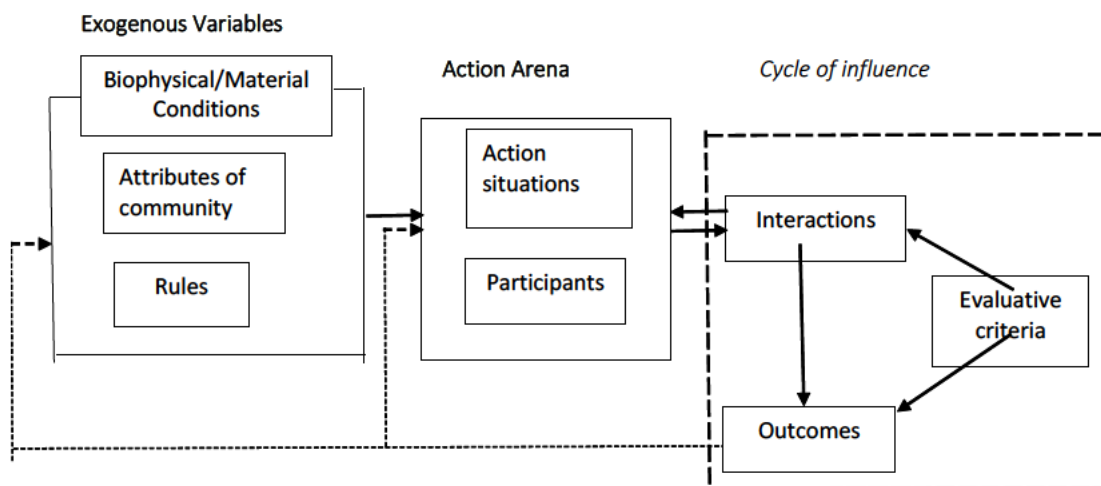


Figure 2.2 - Adapted Institutional Analysis Development Framework showing the cycle of influence
 Source: (Adapted from Ostrom et al., 1994, p.37)

In considering the impacts of the application of the transformative process to partnerships, Hastings (1999) urges potential partners to utilise an appropriate conceptual and

methodological framework to analyse and measure potential changes. In this regard, the application of the IAD framework to flood risk partnerships would be a suitable framework. In consonance with Ostrom's (1994) empirical analysis and utility of the IAD framework, the transformative process with its potential outcomes is revealed through the cycle of influence as shown in Figure 2.2.

In applying the IAD framework to flood partnerships and engagement process, the evaluative criteria provide a means of identifying acceptable parameters guaranteeing the validity of the engagement and interaction processes. The extents of, and outcome of the transformative process vary with the quality of interactions between members of the flood partnership. Arguably, the idea of fairness within procedural environmental justice is a key consideration within the evaluative criteria for flood risk partnerships. Admittedly, this is very difficult to achieve, as Santos et al. (2017, p.1) observed in their analysis of '*Structural power and evolution of collective fairness in social networks*', "... often individuals assemble in groups that must collectively reach decisions that favour each part unequally". On a broader critical analysis, the dynamics of the transformative process as described, fits within the IAD framework. Specifically, it resonates with the sort of interactions and outcomes expected within the 'action arena' as depicted in Figure 2.2. The action arena thus, represents the platform for crucial debates on issues of shared interest between the engaging partners.

Overall, the IAD framework depicts a highly strategic framework with a correspondingly high degree of abstraction in its processes. This abstractive quality encourages its broad

application in many sectors as I explained in the previous section. However, this same abstractive quality weakens the degree to which contextual issues which occur during collaborations can be effectively visualised. Fortunately, Watson's (2015) adapted analytical framework for collaboration has illuminated the conceptual activities which take place within the cycle of influence, as shown in the next section.

2.2.2 Mitigating the abstraction within the 'cycle of influence' with a collaborative framework

Watson (2015, p.363) identifies contextual conditions for collaboration between institutional actors as:

“...incentives and disincentives for collaboration created by prevailing legal, administrative and financial arrangements, perceptions of the condition of the catchment, and the nature of existing organisational relationships” (Watson, 2015, p.363).

The outcome of the collaborative efforts is in turn mediated by transitory conditions which affect the pace of resolutions and agreements. Watson (ibid) explains the stages within collaborations with the aid of the analytic framework in figure 2.3, involving four tasks in a cycle: problem setting, direction-setting, structuring, and finally outputs/outcomes.

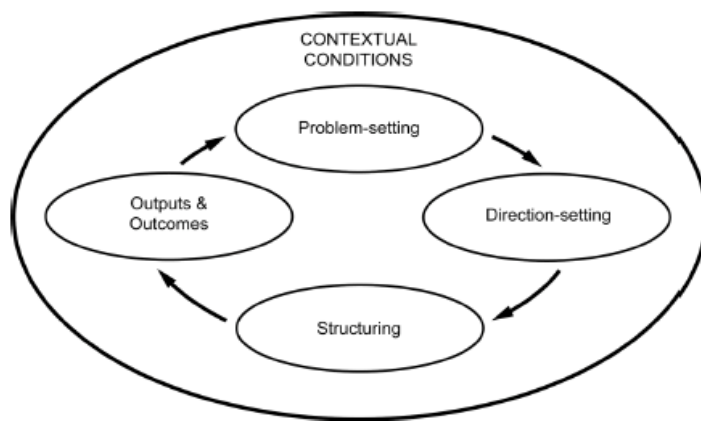


Figure 2.3 – Watson’s (2015) adapted analytic framework for collaborative catchment management

Source: Watson, N. (2015) Factors influencing the frames and approaches of host organisation for collaborative catchment management in England

Problem setting is focused on ensuring that participants develop a shared perspective of the problem. This is a very critical stage within the collaborative process because participants’ views, ideas, beliefs, and knowledge could result in different interpretations of the problem. Direction-setting focuses on getting participants to agree the goals of the partnership or collaborative unit, while structuring engages with the ability of participants to arrive at a common decision. Structuring is viewed as the main weakness of collaborations within this analytic framework. McCann (1983) suggests that the reason for this weakness is that elites within the partnership may tend to exercise superior judgement on technical issues to the detriment of social cohesion within the collaborative unit. Outputs refer to the “policies, plans, agreements, programs, and projects that are jointly created as a result of collaboration”, however, outcomes relate to the changes in “economic, social, environmental, or institutional conditions that emerge following implementation” (Watson, 2015, p.364). I

will now explore the influence of some of these priorities as drivers of policy change in flood and water governance.

2.3 Main eras in English flood and water governance

The role of the IDBs evolved with changes in the flood risk management eras. The changes in these eras were governed by emerging policies driven by factors of changes within and outside of the political, environmental and socio-cultural challenges in the UK. The evolution of the role of the IDBs through these eras or phases is the focus of this section.

2.3.1 Transient flood governance approaches and drivers of policy change

Debates relating to the transition of phases in English flood governance approaches, have focused on three distinct phases: land drainage, flood defence and flood risk management (Johnson and Priest, 2005; Penning-Rowsell et al., 2006). This observation is relevant to the past and present roles of the IDBs, the latter of which is specifically underpinned by water level management, and water governance in general. Many definitions abound for flood and water governance, however, a definition given by Lautze de Silva et al. (2011) encapsulates

the essence of water governance as ‘essentially the processes and institutions through which decisions are made related to water’ (Lautze et al., 2011, p. 4).

Against this background, flood management and governance for the IDBs throughout the land drainage era, 1940’s to 1970’s (Nye et al., 2011, p. 288) was shaped by a focus on the role of the central government in land drainage activities. Landowners and farmers were the primary beneficiaries of the flood governance approach (Johnson and Priest, 2008). In the decades following the WWII to the late 1970’s, the UK Government’s priority was securing the profitability of the agricultural sector by increasing productivity. The primary methodology for addressing flood risks was through ‘hard engineering solutions’ (ibid, p. 514), and governance was through the central government (Penning-Rowsell et al., 2006; Johnson and Priest, 2008). The fundamental sustaining attribute for flood governance policies at this time was driven by the contextual narrative around the need for sustainable food production through adequate land drainage, following the devastation of industries and social morale after the WW II. In practice, the only viable means of achieving this objective was “through the modification of land management practices, increasing land drainage and more reclamation of land from the waters” (Mehring et al., 2018, p. 110).

Consequently, flood defence and governance, 1980’s to mid-1990’s (Nye et al., 2011, p. 288) at this time, became predicated on the institutional construction of hard engineering solutions designed to defend towns and cities against the rising flood waters. This *defence* was framed in terms of sovereignty (Donaldson et al., 2013) where government determines

flood risk management policy and what constitutes public good in the face of flooding. Since then, the flood governance approach has shifted significantly from a technocratic approach to a democratic one, requiring cooperation, engagement and partnerships to succeed (Mehring et al., 2018). However, the authors equally recognise that engagement and partnership working are terms fraught with ambiguity and considerable differences in the way they are constructed by various stakeholders.

Turnstall et al. (2004, p.5) capture the primary ethos of the land drainage era thus:

“the land drainage orthodoxy of the time meant that the primary policy impact of the 1947 flood, the expediency of structural flood prevention measures, was primarily focused on the protection of agricultural land with urban defence accorded secondary priority” (Turnstall et al., 2004, p.5).

There was a gradual shift in UK government priorities from land drainage to protecting key urban centres from the 1980's to late 1990's. The EU CAP had resulted in food security and self-sufficiency in the UK at this time as depicted by the high percentage of indigenous type food recorded in the late 1980s and early 1990s as shown in Figure 2.4, justifying a shift in focus to planning for growth in the housing sector.

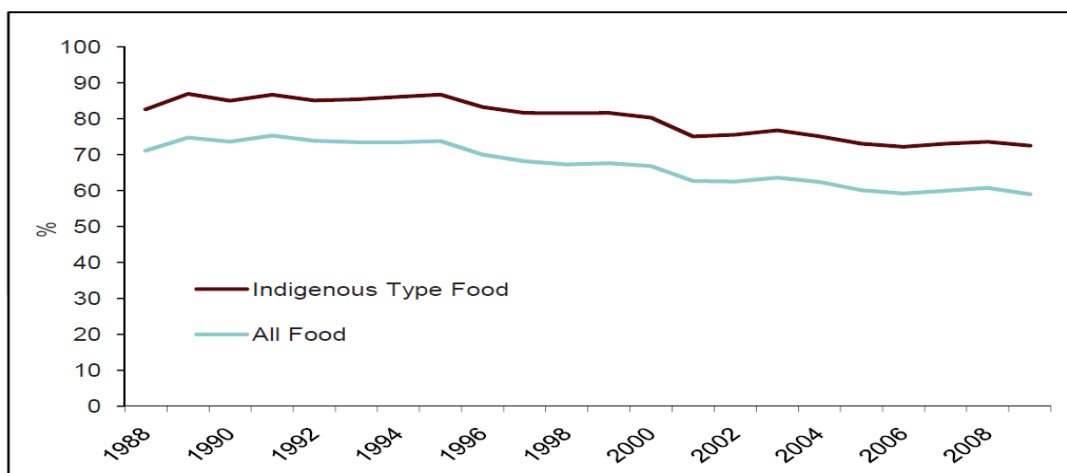


Figure 2.4 – Trends in UK food security and self-sufficiency, showing high percentages of indigenous type food in the later 1980s and early 1990s

[Source: Defra (2010) *Food statistics pocketbook*, TNA, p.33]

2.3.2 Flood governance and food security in the UK: A partnership of necessity

The linkage between farming and flood governance in England has an established historical origin and significance, personified by the role of the IDBs, who remain the primary land drainage authority in England. In rural England, flood governance policies, especially those relating to water abstraction and irrigation, have enhanced the productivity of agricultural activities, yielding a positive influence on the UK food security index. Following the parliamentary debates (HL Deb 21 March 1979), and subsequent publication of the Strutt (1980) report: *'Water for agriculture: future needs'*, the UK Irrigation Association (UKIA) was launched in 1980 to address the need for a better understanding of irrigation issues wrapped in the emerging water and environmental regulation during the 1980s (UK Irrigation Authority, 2018; Knox et al., 2012), amongst other things. Most natural and man-made water channels in the South and East of England are associated with irrigation for farming purposes. Accounting for about 70% of the farming activity in England (Whaley and Weatherhead, 2014), these areas rely on appropriate water management activities to sustain farming practices and the overall productivity of the agricultural industry (Knox et al., 2009). On closer scrutiny, the quality of the relationship between flood governance and agricultural productivity in England hinges on the dynamics of the partnerships between flood policy makers, farmers, environmental actors and the public, with the IDBs at its centre.

Defra (2006, p. ii) argues that the 'concept of food security for a developed economy like the UK is multi-faceted and complex in which different aspects are interlinked' (Kiwari and Maye, 2013; Tomlinson, 2013). In reference to Defra's (2006) argument above, the role of the EU CAP is well documented (Candel et al., 2014). In modern times, environmental governance has shifted from the top-down approach of the past to a more collaborative process, representative of the *flood risk management* approach (De Loe et al., 2015). This new process, driven by several factors, has seen 'state-controlled regulatory approaches yield grounds to more voluntary, market-driven, multi-actor collaborative processes (ibid, p.192). Consequently, the legitimacy of flood partnerships is not only tested and determined by the range, but also the quality of collaborations in terms of outcomes, between various stakeholders, particularly the IDBs.

The visible governance feature of the *flood defence* approach is a centralised governance structure, administered from the centre, using statutory instruments, such as the Land Drainage Act 1991. This centralised structure for policymaking in flood risk governance remained up to the 1990s. Penning-Rowsell et al. (2006, p. 325) have further split the period leading up to the 1990s into '*land drainage (1930-1970s)* and *flood defence coalition (1970s – 1990s)*'. There was a gradual shift away from agricultural land drainage to urban flood protection in the 1980s and 1990s. This era was characterised by hard engineering as well as structural measures for flood protection (Johnson and Priest, 2008). Turnstall et al. (2004, p.3) capture the overarching focus of the flood defence era, thus:

“... structural flood defences continued to be the main focus of activity and expenditure and little attention was paid to the development of flood warning systems and to land use planning and development control issues”

Despite the attempts to distinguish the eras, there is a general acknowledgement of overlaps between the *land drainage* and *flood defence* eras. The public had become quite frustrated with policies originating directly from the centre (Landstrom et al., 2020) with minimum positive impacts in the lives of local communities. From the mid-1990s onwards, there was a growing sense that the traditional structural approach to flood solutions was becoming inadequate (Butler and Pidgeon, 2011; Schanze, 2006). This era is notably regarded as the flood defence era (Johnson and Priest, 2005, 2008). Conversely, the *flood risk management era* belies a period where flood management approaches combine structural and non-structural approaches (Nye et al., 2011; Challies et al., 2016), with comprehensive focus on integrated assessment of flood reduction programmes (Schanze, 2006). The authors view the major distinction between *flood defence* and *flood risk management* as an ideological change from a simplistic to a more integrated approach involving various actors within the flood policy network (Butler and Pidgeon, 2011). For Defra (2004, 2005), the previous *flood defence* approach was concerned with keeping water out, conversely, the *flood risk management* approach which involves the broadening of stakeholders requires a different approach. This new approach includes the implementation of catchment-wide intervention, greater utilisation of reservoirs for flood storage and implementation of flood resilience measures (use of flood gates and property level protection). Turnstall et al. (2004, p.3) capture the essence of flood risk management as “the decision-making process which seeks to manage the reaction of the system to external perturbations, recognising in particular that not all

floods can be prevented". This perspective of flood risk management highlights the intrinsic resilient characteristic of the approach. Begg et al. (2015, p. 685) identify the distinction between the two approaches and hence, suggest that flood resilience is promoted by a move away from managing strategies, which tend to rely on large-scale *engineering* measures (Johnson and Priest, 2008); to an integrated, *multi-stakeholder* approach (Butler and Pidgeon, 2011; Watson et al., 2009). Many drivers have been suggested for the change of approach to *flood risk management*, some of which relate to the impacts of historic flood events (Penning-Rowsell et al., 2006), as well as the global call for more sustainable options for environmental management (Defra, 2004). However, it is hard to single out a decisive driver because the influence of independent drivers is difficult to assess. Nye et al. (2011, p. 288) summarised the phases and drivers of flood governance change, originally expounded by Turnstall et al. (2004) in Table 2.1.

Table 2.1 - Phases and drivers of change in UK flood risk management

Land drainage	<p style="text-align: center;"><i>1940s to 1970s – Land drainage:</i></p> <p>Main focus here is on rural land drainage and flood defence oriented towards protection of food crops.</p> <ul style="list-style-type: none"> • Flood projects involve structural engineering schemes with little or no consideration for social or environmental impacts.
Flood defence	<p style="text-align: center;"><i>1980s to mid-1990s – Flood defence:</i></p> <ul style="list-style-type: none"> • Shift away from rural protection to urban flood defence associated with increasing importance of manufacturing compared with agriculture. • Greater public attention to environmental and social issues on environmental impacts of flood defence activities.

Flood risk management	<p style="text-align: center;"><i>Mid-1990s onwards – Flood risk management:</i></p> <ul style="list-style-type: none"> • Transition towards a more strategic, integrated system of flood risk management inclusively accounts for environmental and social impacts of flood hazard management. • Increasing emphasis on promoting flood resistance, resilience and adaptation measures through a combination of structural and non-structural measures, such as, warning systems and development control. • Although serious flooding had occurred in the past, a series of extreme flood events in this period serve as high profile drivers for public and political support for change.
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[Source: Nye et al., 2011, p. 288].

2.4. NFM Measures: Benefits and disbenefits

The IDBs have recently become involved in the implementation of NFM measures through innovative collaborative partnerships with the Environment Agency and local farmers. Hence, an examination of mechanisms and approaches to the application of NFM measures are relevant in highlighting some of the potential challenges in NFM implementation. This section examines why this innovative collaborative partnership is crucial to IDBs' sustainable catchment flood management aspirations. IDBs' experiences of NFM implementation through collaborative partnerships are discussed in Chapter 5.

2.4.1 Definition of NFM and requirement for cooperation and partnerships

NFM approaches involve the application of techniques that “aim to work with natural hydrological and morphological processes, features and characteristics to manage the sources and pathways of flood waters” (Lane, 2017, p. 5), however, some researchers, focus their definition on the outcome of NFM processes. Wingfield et al. (2019, p. 743) considers NFM as

a

“progressive holistic flood management approach, using natural hydrological processes to slow and store water, delivering multiple benefits including water quality, biodiversity and amenity improvements” (Wingfield et al., 2019, p. 743).

The scope of NFM techniques includes the “restoration, enhancement and alteration of natural features and characteristics”, but excludes the “traditional flood defence engineering that works against or disrupts these natural processes” (SEPA, 2011, p.6). The distinction in the scope of activities involved in the NFM model characterises the differences between the flood defence approach and the flood risk management approach which I have explained in previous sections. The NFM is seen as a subset of the flood risk management approach with its sustainability attributes.

Lane (2017) argues that the application of the NFM approach is best suited in situations where it improves the effectiveness of traditional engineering approaches to risk reduction, and where wider benefits beyond flood reduction is sought after. He focuses his argument on pluvial-related flooding rather than fluvial, groundwater or coastal-related flooding. However, Wingfield et al. (2019) highlights the relevance of multi-stakeholder engagement and collaborative partnership and argues that partnerships enhance the complex dynamics of the

NFM models. They believe that partnerships create enabling opportunities for the realisation of the relative potentials in different sectors by focusing on mutual benefits. They propose that catchment-scale application of NFM improves the opportunities for the delivery of NFM as an integrated subset of flood risk management.

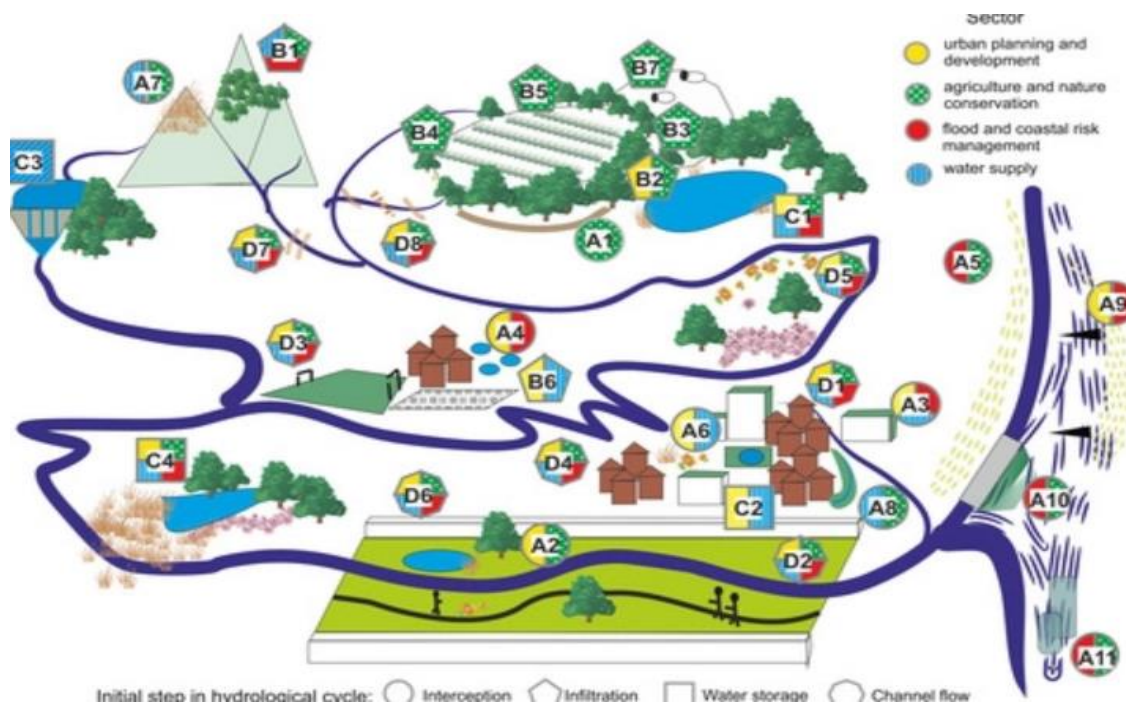


Figure 2.5 – An example of multi-sectoral application of the NFM model showing catchment-scale interactions between urban planning, agricultural, flood management and water supply

Source: (Wingfield et al., 2019, p.744)

The application of NFM on a catchment scale requires effective collaboration and partnership between the participating sectors and partners (Dadson et al., 2017; Ahiablame and Shakya, 2016). Sometimes, this objective is constrained by difficulties in reconciling conflicting legislative and policy-driven requirements of participating sectors and partners. Therefore, a

catchment-scale application of the NFM model requires a transparent set of goals and objectives, driven by collective governance arrangements to which participating sectors must commit. A schematic example taken from Wingfield et al. (2019) is presented in figure 2.5, representing a typical multi-sector application of the NFM model, comprising urban planning and development, agriculture and nature conservation, flood and coastal risk management and water supply. I will examine IDBs' participation in NFM facilitated through partnerships with farmers and other FRMAs.

2.4.2 Technical analysis of the NFM approach

Lane (2017) provides the technical fundamentals of the NFM model by explaining the general principles underlying catchment based flood management (CBFM) approaches. He posits that in any river basin, the variability through time is a product of two counteracting processes: a) attenuation of discharge which slows the conveyance, and b) tributary inputs which increases the conveyance. These processes are shown in Figure 2.6 (b). Some attenuation processes are often inherent in a CBFM approach, for instance, hillslopes serve as low pass filters which transform rainfall through the runoff area, over and through the hillslopes, into a discharge point further downstream of the drainage network (Nicholson et al., 2020; Wilkinson et al., 2019). The filter “transforms the high space and time variability in rainfall into a generally smoother waveform” thus delaying the discharge flowrate (Lane, 2017,, p.2). This filter mechanism serves as attenuation due to the reduction in flow velocity and the introduction of a diffusive component in the process.

To illustrate this mechanism of attenuation, a single pulse of rain which arrives on the surface of the tributary of a river will be diffused by the hydrological processes of the hillslope's filtering action before discharging into the drainage network. In the second phase of its transition in the drainage network, it encounters turbulence which further diffuses the pulse through differential flow velocities.

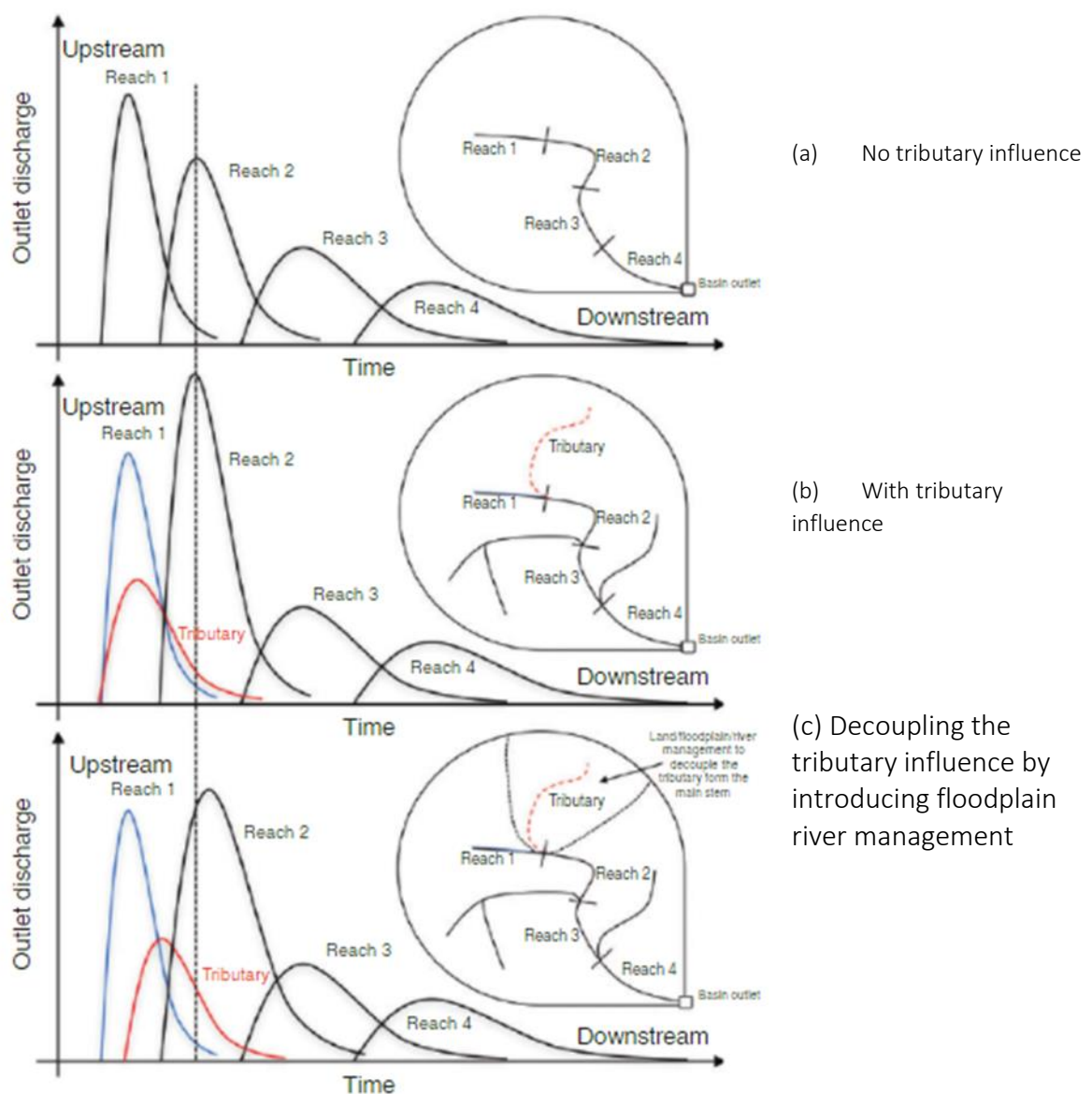


Figure 2.6 (a) to (c) - The relationships between attenuation with and without tributary influence, and floodplain river management shown in a discharge-time plot of a typical river basin

Source: (Lane, 2017, p.3).

The consequence of these hydrological actions is a progressive attenuation of the pulse as it travels through the drainage network resulting in reduced peak flows. However, the introduction of multiple tributaries with markedly different hydraulic and hydrological characteristics to the original river network may produce a different response.

Lane (2017, p.4) clarifies that the relative timing of discharge response between the tributaries will determine the peak discharge. In figure 2.6 (b), the tributary highlighted in red with a discharge peak which arrives concurrently with the main channel highlighted in blue results in a discharge increase shown in black. Consequently, I would agree with Lane (ibid) that the magnitude of the downstream discharge peak results from the summation of attenuation processes which slow the discharge, and the tributary inputs which increase the discharge.

From results of an experimental research on average flow resistance in a meandering open channel, Moharana et al. (2013, p. 85) conclude that the friction factor (f) varies with many other parameters, such as, “aspect ratio, sinuosity, longitudinal slope, Reynolds number, side slope and roughness ratio”. Furthermore, they assert that any “assumption of average value of flow resistance coefficient for all depths of flow and for channels of different hydraulic and geometric conditions results in significant errors in discharge estimation”. In other words, they recognise that the degree of flow resistance varies in accordance with the characteristics of the river network. Hence, Lane’s (2017) filtering and diffusion effect on a pulse of rain travelling down a drainage network is analogous to Moharana et al.’s (2013) flow resistance coefficient; however, more significantly, these terms describe the impacts of attenuation in

NFM models. The effect of multiple tributaries on a river network is schematically shown in figure 2.6 (b and c).

2.4.3 The significance of scale in the application of NFM models

FRMAs who are considering the application of NFM models recognise that any maintenance intervention on a river basin affects the attenuation properties. A typical maintenance intervention associated with the IDBs is the dredging of watercourses. Dredging of watercourses is often accompanied by catchment-scale impacts such as changes in flow response time downstream of a dredged river network (Lagasse, 1986; Manap and Voulvoulis, 2016). Consequently, an assessment of changes in tributary interactions within the catchment constitutes a fundamental pre-intervention task for the IDBs.

The IDBs routinely utilise flood storage reservoirs and balancing ponds as attenuation mechanisms within catchment-scale flood management approach. The NFM model can be used in catchment-scale flood management by utilising natural methods to manipulate the hydrological and hydraulic processes within the river basin (Dadson et al., 2017; Wingfield et al., 2019). A balanced application of NFM in this manner will help reduce peak flows downstream of the drainage networks (Lane and Milledge, 2013). The utilisation of attenuation processes in a tributary may reduce flood risk within the tributary, however the contributory influence of this reduction to other drainage networks within the catchment will

depend on changes in interaction between the tributary and other networks as shown in figure 2.6 (c).

Attenuation in NFM is better understood from a perspective of redressing the imbalance within a river basin, which has occurred over time due to changes in hydrological behaviour because of human activity or other natural processes due to climate change. This understanding establishes the rationality behind the utilisation of natural processes within river networks, such as woody debris or other non-native natural materials to the river network as an alternative to hard engineering solutions. This example once again highlights the distinction between the flood defence and flood risk management approaches. Lane et al. (2007) identify potential intervention options within a river basin: hillslopes manipulation for reduction in rapid runoff, increase in upstream flood storage particularly during extreme flow events, and seeking opportunities to increase attenuation of existing flows within the river network. These intervention options are based on the assumptions that large scale changes have occurred within the landscape, potentially resulting massive deforestation and increases in stock density, and secondly, certain land use practices would have increased rapid runoff over time hence, these should be reversed (Lane, 2017).

Bloschl et al. (2007) make a distinction in scales of impact between changes in hydrological response in a river basin resulting from human activities and natural processes, such as climate change. They argue that climate change impacts of hydrological disruptions within a river basin are still present even at huge scales, conversely, the impacts of human activities, such as land use tends to diminish with increasing scale. The scale of intervention becomes an

important variable in considering the efficacy of NFM models. Looking at figure 2.7 (c), it is reasonable to expect increase in attenuation with corresponding increase with the scale of intervention. However, at some point, diminishing returns will set in. The rate of attenuation starts to decrease with the distance downstream from the point of intervention. At this downstream position, the rate of attenuation becomes more sensitive to many attenuation processes. Overall, figure 2.7 (c) indicates that the rate of attenuation increases with closeness in proximity to points of intervention, but as the scale of intervention increases, the total amount of attenuation tends to decrease.

2.4.4 Negative impacts of attenuation informing the ‘making space for water’ policy

Following on from the preceding point, I observe that catchment scale flood risk management practices, such as dredging of rivers undertaken by the IDBs has highlighted the potential negative impacts of intervention at locations different from the points of intervention. Typically, reduction in flooding downstream of the catchment is achieved by increase in flood risk upstream. To maintain a balance, flood mitigation measures such as flood storage reservoirs and attenuation ponds are used to store water temporarily until volumes and velocity of water in the primary river network allows conveyance to local tributaries in a safe manner. Where it is not possible or feasible to install a flood storage reservoir or balance pond, flood governance authorities, particularly the IDBs, would require the cooperation of farmers and landowners whose land will sacrificially be flooded within the catchment. This is usually achieved by making suitable payment to farmers and landowners for loss of earnings,

but the process requires proactive cooperation and partnership between the affected landowners and the relevant FRMAs. In relation to NFM, it is fair to conclude that the impacts of intervention to local communities, particularly with a catchment-based flood management approach, would depend on location of the communities relative to the points of intervention. Inevitably, negative impacts of intervention felt beyond the points of intervention would continue to generate social and political debates on the rationalities behind sacrificially accepting to flood one location to protect another.

In terms of its visibility NFM measures are less visible than the traditional practice of using conventional flood defences. Some researchers have argued that this visibility may contribute to the weakness of the flood defence approach as they “convey a false sense of confidence” (Lane 2017, p.11). The human impacts of flooding are very pervasive and often permanent. Hence, FRMAs such as the Environment Agency, LLFAs and IDBs who have statutory responsibility for the investigation of flood incidents need to consider the social and emotional dimension of flood risk impacts during their engagements with victims of flooding.

2.4.5 Evaluation of NFM benefits and disbenefits within the wider context of environmental management

Conklin (2006) articulates the complexities of NFM as a wicked problem. He defines a wicked problem as one which is only understood with the emergence of a solution. The issues recognised within the problem are never fully resolved, but are only addressed to the extent

that available resources allow. As with NFM, wicked problems have no right and wrong solutions, because each solution has corresponding impacts which have to be carefully weighed before implementation (Head, 2008; Ritchey, 2013). With distinct unique identities, wicked problems have many potential solutions with varying degrees of clarity.

NFM measures are largely driven by the need to reduce flood risk in known cases. As is common with other flood risk management measures, NFM measures do not eliminate the incidence of flooding, they simply reduce the frequency and impacts of flooding. With intervention points located and attenuation effected, it is probable that NFM measures may reduce flood risk downstream whilst increasing flood risk upstream (Wingfield et al., 2019; Lane, 2017). Thus, an intervention measure can result in multiple impacts; nonetheless, Lane et al. (2008) assures that NFM measures benefit and sustain environmental restoration. They argue for instance, that where flooding was occurring due to in-channel sedimentation, targeted woodland planting could be used to reduce sediment delivery rates. This in turn guarantees that once the woodland was established, the rate of conveyance will significantly slow, helping to lower the risk of flooding. Ultimately, IDBs' implementation of NFM measures requires effective partnerships as I will demonstrate in Chapter 5. Presently, I will next examine the process and mechanisms of the FRMPs.

2.5.0 The emergence of FRMPs: Theoretical background, process and drivers of collaboration

The theoretical and legislative drivers critical to the emergence of the FRMPs are examined in this section to highlight the importance and necessity of collaboration and partnerships to IDBs' sustainable flood risk management.

2.5.1 The drivers of greater stakeholder engagement in flood governance

Defra reflected the change in UK government's strategy for flood and coastal risk management in a policy document known as *making space for water* (Defra 2005). In 2004, the UK government articulated a policy vision for flood and coastal erosion, '*Making space for water*', with accompanying delivery plans for pursuing more sustainable programmes in flood management, but, within a devolved governance structure (Johnson and Priest, 2008, p.514; Defra, 2004). The governance structure for these delivery plans is markedly different from that of the earlier approach, which had much less integration between actors within the network. The floods of 2007 in England caused a lot of devastation, the economic cost of which was estimated to be £4b, about 75% of which was covered by insurance (Chatterton et al., 2010). In Europe, the European Floods Directive 2007/60/EC, requiring public participation in the flood management cycle was set to come into effect, provoking debates within member states, particularly in the UK, on the relevance of public participation in flood governance (Newig et al., 2014; Charalambous et al., 2018).

Consequent upon the impacts of the 2007 floods, Sir Michael Pitt was appointed to undertake a comprehensive review of the underlying causes of the floods. One of the key recommendations of the final report was the need for local authorities to take a more leadership role in managing flood risk in their areas (Pitt, 2008). Thus, the emergence of flood risk partnerships was partly as a result of the recommendations of the Pitt Review (Defra, 2012c). Similarly, the recommendation for a central and more transparent role for local authorities in flood risk governance drew mutual inspiration from the government's localism-agenda policy of the time and led to a strategy for better engagement and collaboration within local communities. In addition, the case for greater clarity of roles for FRMAs was abundantly made by the Pitt Review (The Institute of Public Policy Research, 2010). The legislation, policies and processes that flowed from the Pitt Review led to the enactment of the FWMA 2010. The provisions made in the FWMA 2010 for greater cooperation and partnerships between FRMAs has, in my view, improved local governance of flood risk management in England.

Flood events in the UK have historically triggered reactions and responses from both private and public institutions, with demands for post event reviews and actions. Wadey et al. (2015) recount the impacts of the devastation caused by the floods of 1953 in the UK, in which 307 people lost their lives mainly from the east coasts of England. In their contribution to the debate on the timeline for a shift in strategic approach, Harman et al. (2002) whilst examining the Environment Agency's organisational response to the autumn floods of 2000, argue that

the consequence and frequency of high intensity floods demanded a strategic shift in response from flood defence to a more sustainable flood risk management approach.

Still on the question of flood governance shifts, Johnson and Priest (2008) suggest a correlation between the three layers of flood risk governance and division of roles between the state, public and private organisations and individuals. They further agree that some of the changes that led to the decentralisation of roles were through proactive deliberations, while others were 'reactions to key drivers of change' (Ibid, p. 517). One of the key drivers of change is the sustainability paradigm which promotes greater focus on softer measures alongside increasing participatory approaches to flood risk management. Along with this, I offer an alternative explanation, influenced by Shearer et al's. (2016) theory of policy change. This theory leaves open the possibility that the decision to decentralise roles was a consequence of the involvement of new actors into the sphere of the environmental debates which seemed to gain momentum in early 2000s in the UK.

Many argue that the more recent approach to flood governance, which is *flood risk management*, relies extensively on stakeholder engagement (Thaler and Levin-Kietel, 2016), reflecting the involvement of various actors. Again, this argument is loosely related to Shearer et al's. (2016) theoretical position, which broadly argue the necessity of certain attributes, namely: *institution, interest, ideas* and *network* to any process of policy change. In the preceding argument, Thaler and Levin-Kietel (2016) argue the relevance of *actors* in the engagement process, on the other hand, Shearer, et al. (2016) focus on the attribute of

interest. However, collectively, these authors highlight the critical importance of actors' interests as key drivers in the engagement and partnership process.

2.5.2 Introducing the theoretical concept of legitimacy in the engagement process

Gearey and Jeffery (2006) introduce the concept of legitimacy to adaptive water governance. This concept goes to the heart of the validity of the water governance engagement process. Other researchers have made valid contributions by establishing the theoretical frameworks for conceptualising adaptive approaches as a *natural resource management* (Holling, 1978; Gunderson and Holling, 2002). However, the concept of legitimacy questions the validity of processes and agents of those processes. The concept can be rightfully employed in questioning the nature of effective Flood Risk Management Partnerships (FRMPs), along with the motives and policies driving them.

Similar to Ostrom's (1994) variables of the IAD framework, the theoretical model for evaluating legitimacy distinguishes between 'input and output' legitimacy as processes for generating responses and the outcome of those responses, respectively. Within flood risk partnerships, the nature of stakeholders' relationships and the outcome of those relationships point to a socio-cultural context in the understanding of legitimacy

(Schimmelfennig, 1996). Consequently, legitimacy is located within network of relationships which are understood to be in constant flux. Arguably, by correlation, the governance processes which establish these networks of relationships must inherit the same flexibility and adaptability to be considered legitimate. In the analysis of flood risk stakeholders inter and intra relationships, legitimacy becomes a fragmented concept (Gearey and Jeffrey, 2006), which is better understood with the aid of Whaley and Weatherhead's (2014) power-analyses description of visible and invisible, power-with, and power-within relationships.

Power is felt from a spectral sphere of influence. The concept of proximity can be applied to rationalise the loss of power through weakness in spatial proximity, otherwise interpreted as distance from the centre of power. Hence, the greater the physical distance of separation between the central actors and peripheral actors, the weaker the latter's sphere of influence. The engagement process acts to reduce the influence of the factor of spatial proximity, facilitating the distribution of power between engaging partners. These theoretical concepts aid in the understanding of power diffusion and influence in social interactions during stakeholder engagements and will be very useful in analysing IDBs' experiences of engagement in Flood Risk Management Partnerships (FRMPs) and the analysis of transformative power.

2.5.3 Introducing the themes of cooperation and collaboration in water governance

The growing complexity and challenges of water governance have been highlighted by researchers like Whaley and Weatherhead (2016), Lachapelle et al. (2003) and Watson (2015) to name but a few. Watson (2014, p. 361) uses the term “wicked problem” (which I explained in the previous section) to characterise the multi-faceted political, economic, socio-cultural, and technical issues that confront water governance authorities. Lachapelle et al. (2003) acknowledge the difficulty in dealing with these complex problems. In advancing the discussions around these complexities, they suggest that some of the causative factors could be located in conflicts arising from competition in actors’ interests, inadequate grasp of the potential technical solutions, and inequalities within the power dynamics of the constituent collaborative units or partners. Watson (2015) focuses on three major factors: a) interrelationship among functions, highlighting Westra’s (1997) earlier observations of shortcomings in scientific and technical solutions, as the value given to other social considerations increase; b) suggestions of lack of spatial fit; and c) a recognition of fluid but dispersed power relationships between water management institutions.

It is necessary to highlight the distinction between cooperation and collaboration within partnerships. Kanev et al. (2008) explain cooperation as a group relationship where actors assist one another to achieve separate objectives, whilst coordinating when policies, plans or projects are aligned. However, Gray (1985) provides a definition of collaboration that recognises three elements: pooling of resources (tangible and appreciations), involvement of two or more stakeholders, and the existence of a problem that requires the presence of two

or more people to provide a solution. Hence, collaboration can be explained as the congregation of two or more groups of people, institutions, and organisations with the objective of providing shared solutions to a common problem. Kanev et al.'s (2008) understanding of the broad remit of cooperation appears to be in consonance with the statutory usage of cooperation with s.13 of the FWMA 2010, where FRMAs are required to cooperate with each other within their respective roles. Partnership is an effect or product of collaboration which requires "attention to values, beliefs, and priorities, in addition to sharing resources and knowledge" (Watson, 2015, p.363). Cognitive enhancement which encompasses "learning about personal values, beliefs and intentions and those of the other actors involved, in addition to acquiring technical knowledge" has been recognised as an outcome of collaboration, this includes moral development referring to the "ability to make wise ethical choices, showing respect toward others, creating a sense of group solidarity, integrating new cognitive knowledge, and learning how to interact" (Watson, 2015, p.363). Collaboration relies on effective participation of actors; however, Applegate (1998) recognises potential limitations of collaboration reflected by the presence of unequal power dynamics amongst participating actors. Addressing this challenge, Tsouvalis and Waterton (2012) recommends the establishment of a collective-heterogenous unit as a means of dealing with the fundamental limitations associated with collaboration. An example of such a collective-heterogenous unit is the FRMP platform.

2.5.4 The challenges of collaboration within FRMPs

FRMPs provide a platform for the exemplification of participatory governance in flood risk management. A representative FRMP consists of stakeholders such as, the Environment Agency, Highways Authority, Lead Local Flood Authorities (LLFAs), IDBs, Water Companies, and Local Authorities (LAs). As with most participatory processes, FRMPs strive for consensus between participants as a means of validating and legitimising decisions and outcomes (Innes and Booher, 2004). However, the drive for consensus can engender a ‘false sense of closure and an illusion of stability’ (Bloomfield et al., 2001, p. 503). Hence, participants striving for consensus and unanimity are advised to ensure that alternative points of view have been adequately considered, ensuring that the engagement process is enriched by the diversity of discourse (Mosse, 2001; Janis, 1972). An in-depth reflection on IDBs’ experiences of the FRMP engagement processes will be dealt with in Chapter 5.

Despite its many successes, the engagement and partnership process between FRMPs and other wider stakeholders is far from straightforward (Mehring et al., 2018); this is because the process of co-creating solutions depends on the capacity of the actors and groups involved to communicate and negotiate the process of decision making (Muro and Jeffrey, 2008). Some argue that it takes a shared understanding of the key causes of flood risk in a particular area to develop mutual and collective solutions (Frinjs et al., 2013). Therefore, the Environment Agency works with LLFAs to encourage the establishment of FRMPs based around the administrative boundaries of the LLFAs.

The above argument is in consonance with the Habermasian ideals of communicative rationality, where participation tends to exclude those who do not have the knowledge or the skills to engage. Under the veil of this argument, elitists and scientists with superior knowledge tend to dominate the engagement process, and in the process silence participants with weaker engagement capacities (Goodwin 1998, Pellizzoni 2001). On the opposite spectrum is a presumption that the participation process should treat members as homogenous units with common perspectives and interests, emphasising their common interests and overlooking the difficulties in defining individual character, interests and needs (Selfa and Endter-Wada, 2008). Consequently, diversity and differences are suppressed (Moham and Stokke, 2000). Participants with different conceptions of the problem are prone to pursuing different approaches to the solution. This predisposition often leads to the adoption of subjective positions from the onset of the engagement process (Henkel and Stirrat, 2001). I will examine the extent to which the IDBs' experiences of engagement in flood risk partnerships reflect some of the above challenges in chapter 5.

2.6 The concept of power, governmentality and scale in flood governance

The dynamics of the concepts of power, governmentality and scale are unequivocally evident in the conduct of collaborative partnerships involving the IDBs. The influence of power is

often felt through the processes of governance. However, the impacts of scale remain debatable in the examination of the diametrically opposed policies of centralisation and decentralisation in the governance of the IDBs. These concepts are examined substantially in this section.

2.6.1 The essence of governance in flood partnerships

The process of rendering things problematic constitute one of the essences of governance (Dean, 2010), and governance is at the heart of modern partnerships and cooperation. Significantly, some researchers view the very essence of governance as a form of representative democracy, which includes a range of actors within the political spaces identified by Beck (1992) as 'sub-politics' (Bridge and Perreault, 2009). This view provides the fundamental basis and platform for the exercise of transformative power to which I will return in the next section. Furtherance to the preceding views on governance, Lemke (2001) provides an insight into the history of governmentality in his critique of Foucault. He observed that the governmentality theory emerged out of an attempt by Foucault to link two separate works he had undertaken on 'the genealogy of the state' and the 'genealogy of the subject'. In Lemke's (2001) opinion, Foucault required the link to establish:

"connections between what he called technologies of the self and technologies of domination, the constitution of the subject and the formation of the state" (Lemke, 2001, p. 2).

The scope of the interpretation of government requires a co-existence of the individual and the state. Much of the progressive strides made in driving the concept of cooperation and partnerships between the government and the people is owed to Foucault's original body of work in governance (Butler and Pidgeon, 2011, Miller and Rose, 2008). The IDBs rely on cooperation and partnerships with various other stakeholders in the discharge of their water level management role. However, the success of stakeholder engagements requires the mediation of appropriately scaled governance structures. Given the rural nature of most IDBs' districts, the need for local governance of the engagement process becomes imperative to guarantee successful outputs. An expansion of the role of the IDBs may involve the introduction of new stakeholders and greater need for wider engagements on topical issues and debates around water governance, particularly on environmental sustainability.

2.6.2 Debating the question of scale in flood and water governance

The importance of scale as a legitimate object of inquiry in English governance is admittedly an under-theorised subject worthy of closer inspection (Brown and Purcell, 2005). However, considerable disagreements regarding meanings and methods of conceptualising scale remain (Marston, 2000; Marston et al., 2004). Geographers whose primary interests lie in the analysis of political economies have been on the forefront of the debates around the significance of scale (Delaney and Leitner, 1997; Jonas, 2006). Despite these disagreements, sufficient evidence has been produced to justify the relevance of scale in water governance

debates (Butler and Pidgeon, 2010; Norman and Bakker, 2009, Norton et al. 2014). Most researchers are 'concerned with multi-level governance systems', in which power struggles are reflected in various sectors and spheres of influence, where the operative questions are about 'who gets what and why?' (Reed and Bruyneel, 2010, p. 646). This is particularly relevant in the context of necessary partnerships upon which depend the success of IDBs' collaborative efforts in catchment flood risk management. If the governance weaknesses observed by Reed and Bruynell (ibid) persist, power and influence become the primary tools for the advancement of self-interest within partnerships to the detriment of effective collaboration.

Norton et al. (2014) recognise the relevance of scale in water governance, particularly in the exploration of opportunities for sustainable management of ecosystems. In promoting a landscape approach to ecosystem management, they acknowledge the difficulty in defining and allocating governance structures to landscapes. The difficulty with scale as observed by Hassan et al. (2005) is that little effort has gone into educating land managers, and institutions with responsibility for large ecosystems about "optimal landscape scale management for the delivery of ecosystem services" (Norton et al. 2014, p.74). The challenges of scale in water governance is mitigated by the catchment or watershed approach to water management (Hooper, 2005). Norton et al. (2014, p.74) undertook a case- study research on the small catchment of Loweswater in the northwest of England to understand the "social and environmental perspectives surrounding the provision of the ecosystem service of clean water in the lake at Loweswater" and develop a sustainable mechanism for

cooperation and partnership between the local community and water governance institutions capable of delivering long term socio-ecological benefits to the community. The fundamental structure of their research lies in its adoption of a bottom-up approach to water governance reflected in the size of the case study catchment. However, of significance to the relevance of scale is their research objective which aims to explore the feasibility of adopting an approach deriving from the outputs of social cooperation and ecological partnerships at local scales to greater spatial scales in the delivery of ecosystem services and water governance (ibid).

Without diminishing the success of the Loweswater case study research, it is worth noting that the spatial scalability of this approach will inherit the intrinsic weakness of most case study methodologies with regard to ensuring the generalisability of outcomes, often due to the introduction of other external constraints. In this regard, the authors acknowledge that the “extent to which Loweswater or any other catchment provides a practical scale for the management of ecosystem services depends upon those who have an influence on management” (ibid, p. 76). In other words, the application of appropriate scale to the management of ecosystem services relies on effective cohesion within governance institutions, hence, the need for continued debates on the merits of decentralisation of power and structures of ecosystem governance, particularly, in water governance. From a post project-review perspective, the Loweswater partnership project reflected the spirit of public participation in environmental governance capturing the essence of catchment-scaled cooperation and engagements within local communities, providing the necessary guarantee of cohesion within governance, upon which the methodological success and eventual spatial transferability depends.

Norman and Bakker (2009) researched the application of geographical scales of water governance in Canada. They started off with an assumption that decentralisation of power from the centre would result in effective redistribution of power to the local strata of government. Their findings led them to conclude that an assumption that a rescaling of water governance powers (from national to sub-national levels) translated into greater empowerment of the sub-national or local groups, was not substantiated, despite an increase in the volume of water governance activities. These findings, reviewed within the context of the English water governance structures and decentralisation of roles, highlight the need to review the operations of the rescaled structures of governance to examine whether similar outcomes are possible. Their view is shared by Perreault (2005) and Cohen and Davidson (2011) who argue that rescaling does not necessarily empower local actors but provides the structural framework for justifying and sustaining existing power structures (Bolin et al., 2008, Begg et al., 2015).

Norman et al. (2012) in acknowledging the relevance of power and social networks in the scalar debate provided some reassurance to the protagonists of the concept of decentralisation of roles, for in their view, the dynamics of scale are influenced by 'economic forces, ideological shifts and sanctioned discourses' (Penning-Roswell and Johnson, 2015, p.133). On the specific question of water management, the valid question of appropriate scale for effective water management remains unresolved, prompting further concerns relating to institutional norms, social networks and political allegiances (Perreault, 2005); with implications of multiple scales for a decentralised governance structure (Feitelson and

Fischhendler, 2009). On the same question of scale, some are content with simply acknowledging its necessity in water governance (Harris and Alatout, 2010), others view rescaling as a consequence of neoliberal ideologies resulting in grassroot struggles with cooperation and participation at its foundations (Brown and Purcell, 2005).

The explanation offered by Brown and Purcell (ibid) resonates strongly with IDBs experiences of local flood partnership engagements. Understandably, the goal of the decentralisation efforts remains the redistribution of governance powers from state to local structures. However, for this goal to be attained, it is proper to examine the nature and mechanism of the transferred powers, as well as the disposition of the local structures inheriting these powers. From a socio-cultural context, the valid or legitimate mechanism for the exercise of decentralised powers is through local engagement and partnerships (Schimmelfennig, 1996).

2.6.3 Arguments for decentralisation of powers

The political sphere in the UK since the early 2000's has been a battle ground for different forms of ideas about decentralisation of powers and the merits of closer civic responsibility, participation and engagement, all of which have significant impacts on organisations, such as, the IDBs. The previous labour government (1997-2000) implemented a 'Third Way' (Taylor, 2009) ideological policy of power decentralisation from the central to local governments

utilising a 'framework of national minimum standards' for policy prioritisation and implementation (Stocker, 2004, p. 117). One outcome of this policy was the establishment of local partnerships in 2000 aimed at strengthening the coordination of organisations at local level for effective partnership with institutions involved in public service delivery (Buser, 2013; DETR, 2001). A significant aspect of the New Labour's local partnership agenda was a 'focus on neighbourhoods' as a fulcrum for collaborative policy delivery (Durose and Lowndes, 2010).

The effectiveness of New Labour's initial decentralisation policies has been a source of much debate, with Conservatives claiming the initiative; prompting Wallace's (2010) observation of a change of approach and an introduction of an innovative model of local government leadership by the then Labour Government. The criticisms of New Labour's policies and veiled accusations of continued centralisation of power and ineffectual decentralisation policies by the opposition provided an appropriate baseline from which to assess similar policies of the Coalition government which succeeded it (Powell, 1999; Coates et al., 2000; Wells, 2007). When it comes to the verdict on New Labour's performance on decentralisation, the jury is far from unanimous. While Atkinson (2010, p. 436) believes that progress seemed to have been made when compared to the 'dark days of Thatcherism', Barnett (2011, p. 280) acknowledges the resultant broadening of the discourse on decentralisation and local empowerment but bemoans the lack of 'full political commitment'; and 'resources to realise systemic change' (Buser, 2013, p. 6).

When it arrived in 2010, the UK coalition government's decentralisation agenda was heralded as the 'Big Society', the idea of which was credited to both Philip Bond and Jesse Norman, the authors of the Red Tory: how left and right have broken Britain and how we can fix it, and the Big Society, respectively. Blond (2010, p. 22) argues that in the Big Society, we 'have the worst of left and right' and views the concept and ideological framework of the Big Society as a tool for challenging 'state centralism' and 'extreme individualism of neo liberalism' (Buser, 2013, p. 6). Going further, Blond (2010) combines his criticism of the welfare state with calls for the creation of what Buser interprets as 'politics of virtue and moral economy' (2013, p.6), and 'realised through intermediate cooperative structures and institutions' which would 'localise responsibility, capture agency and promote ethos' (Blond, 2010, p. 242). Norman (2010) equally critical of centralised state powers and neoliberalism for creating individual economic agents, adopts a neutral position between the opposing principles of libertarianism (free market policies) and paternalism (community-based relations), arguing that it is the 'horizontal intermediate institutions of connected society that create and strengthen social bonds' (Buser, 2013, p. 7). It remains debatable how the ideas of these two great thinkers affected the interpretation of the Big Society framework and hence, the implementation of policies deriving therefrom. However, when the then Prime Minister, David Cameron introduced the Big Society agenda, he promoted the transfer of power, responsibility and decision making from central government to 'individuals, neighbourhoods and lowest tiers of government' (Cameron, 2009).

These claims were swiftly matched by action, as the Coalition government began a series of bureaucratic reforms aimed at easing the stranglehold on power at the centre, whilst empowering communities (CLG, 2010). As part of these reforms, there was a re-organisation of all government and quasi-government organisations found to be ineffective and unaccountable, including the IDBs (Evans, 2011). New legislative instruments and policies were brought in to advance the course of civic accountability and responsibility, such as, new powers on spending and taxation (Pickles, 2011) and abolishment of the English standards for Model Code of Conduct (CLG, 2011).

Unfortunately, decentralisation doesn't always deliver the expected results either in empowerment of local actors or the delivery of local objectives. An example of this situation can be found further afield in Mexico, where the government sought to decentralise the water governance of Atoyac-Zahuapan River Basin Commission in a bid to solve its water pollution problems, through the involvement of local partnership within the river basin council strategy and social participation (Flores et al., 2016). The inability of the Commission to initiate collective action was blamed for the failure of the initiative, because governmental actors "commonly perceive that stakeholders' participation increases complexity without positive results" (Flores et al. 2016, p.2). Due to this failure, the authors came to the conclusion that "the worldwide trend towards decentralisation in water management could not produce the expected results in a centralised policy making context" (ibid).

2.6.4 Impacts of decentralisation of powers on local partnerships in England

For some critics, the government's approach to localism and engagement is 'overly prescriptive' (Buser, 2013, p. 8). This observation is significant as the Secretary of State and ministers renewed their determination to exercise considerable control over the local authorities (LGA, 2011). In further criticism of government's decentralisation efforts, Jones, and Stewart (2011) have weighed in with an observation of the paradox inherent in the central legislation for decentralisation, as some of the terms within the legislation limited local governments' powers instead of enhancing them.

Nevertheless, these efforts to decentralise state powers significantly improved the concept of local partnerships, one of which is the flood risk partnerships. The examination of the operational objectives, methods, and structures of collaborative units, such as the flood partnerships provided a window from which the influence of local powers and accountability could be measured. I will examine some of the impacts of decentralisation of powers as it relates to IDBs' governance and accountability in Chapter 5, drawing from a qualitative analyses of primary and secondary data identified in Chapter 3.

IDBs today exist and operate in a more democratic system, benefiting from the inculcation of the principles of the 'partnership project' and localism agenda which derive chiefly from the Conservative governments of both Margret Thatcher (Deakin and Edwards, 1993; Hastings, 1996) and David Cameron. The interpreted objective of this early partnership initiative was to "reshape state institutions and to erode the conventional distinctions between public and private sector" (Hastings, 1999, p. 92). However, the partnership agenda has a lot more to do

with “transforming attitudes and practices” than organisational restructuring (ibid). The vision of a less bureaucratic local government system is one in which the idea of transformation is appropriately viewed as a multi-directional process. Hastings (1996) very strongly argues, in tacit agreement with my earlier assertion, that, transformation should not be conceived as a ‘one-way exercise of power by the private sector over the public sector’, but should rather be seen as a partnership tool, the objective of which is to enable partners exercise transformative pressures over one another (1999, p. 92).

The effects of transformative pressure can be realised in one of two ways: a) the first is a uni-directional transformative process in which one partner causes the modification of another partner’s behaviour through a set of deliberate actions; b) the second is a ‘contrasting process of mutual transformation’ which is exemplified by a less coercive, antagonistic or competitive, set of interactions or relationships in which each partner might be willing to accept the need to change themselves and aspire to change others (Hastings, 1996, p.263). In acknowledging the foregoing submission, I believe that Hastings’ (1999) contributions to epistemological debates on partnerships all converge around explanations about the dynamics of the transformative process. It is therefore fitting to examine to what extent the discourse on transformative processes fits with established models of analytical frameworks described earlier in this Chapter.

2.6.5 Power relations, transformative processes and the concept of fairness in partnerships

Some organisational justice researchers view the concepts of justice and fairness as interchangeable terms (Cuguero-Escofet and Rosanas 2013; Fortin and Fellenz, 2008), however, many draw a distinction between justice and fairness (Goldman and Cropanzano (2015); Lehmann et al. 2005; Samara and Paul, 2019; Letseka, 2014; Chapman, 1963; Colquitt and Rodwell, 2013). I have no intention of pursuing an exhaustive analysis of the relationship between justice and fairness in this research, however, I only seek to establish, through selected literatures, the inevitability of the question of equality and fairness in any joint human endeavour, such as, engagements and partnerships in flood risk management. Some view the concept of justice as 'adherence to rules of conduct', and in turn, define fairness as 'individual's moral evaluations of this conduct' (Goldman and Cropanzano, 2015, p. 313). Cooke (2014) wades in with a distinction between fairness and justice. He acknowledges that the common factor in determining fairness is the notion of control. For in his view, "fairness is about a citizen's position being determined by factors within her control, as opposed to influenced by luck" (Ibid, p.2). I share his view that fairness has to do with the principles of equality. However, the notion of equality itself is less straightforward as Cohen (2009) demonstrates. He proffers three types of equality. Firstly, the liberal notion of equality where differences of outcome are unaffected by factors, such as, race, sexuality, faith, belief, gender, etc. The second type of equality strips the liberal notion of all socially constructed status, preventing any judgement or assessment based on social status, because no one is in control of whether they are born rich or poor. This is clearly an aspirational type of equality, given the practical realities of life. The third is a socialist type of equality, which only permits distinction by taste or choice; not allowing any inequality deriving from effort, because one's

ability to work hard is outside of one's control. Cohen's (2009) liberal notion of equality fits in with Cooke's (2014) concept of fairness to which I subscribe.

The observations of Santos et al. (2017) reinforce the critical importance of the evaluative criteria in the analysis of partnerships through the IAD framework. Appropriate evaluative variables can help ensure that outcomes are as fair as realistically possible, because residual problems would always exist. Butler and Pidgeon (2011) admit that problems are constructed through the process of interactions, but it requires the same process to resolve problems. The relevance of this argument to the flood governance process, reflected through local engagement and partnerships is a requirement for persistence in the face of challenges. The essence of the cycle of influence within the IAD framework underpins the necessity for engaging partners to develop trust and confidence in the engagement process and persist through phases of conflict. For the IDBs, this level of trust derives from confidence in local governance structures, developed through clarity of processes of guidance and accountability from all engaging partners.

2.7 A historical review of flood insurance agreements in England

The introduction of flood insurance legislation in England is a significant milestone in the development of strategic and sustainable flood risk management approaches, hence its

relevance to this research. Furthermore, the historical processes which led to the initial collaborative efforts between the government and the insurance industry are legitimate issues of investigation in this research. I will begin by examining the outcome of “a response to a request made by the State during the course of an investigation into the feasibility of establishing a National Disaster Fund” in the early 1960s in England, which culminated in the development of what is now known as the Gentleman’s Agreement (Bek, et al. 2013). Subsequently, I will examine the drivers necessitating the review of the Gentleman’s Agreement and the lessons deriving from the catastrophic events leading up to the review. Finally, I will examine new collaborative initiatives between the government and the insurance industry, known as Flood Reinsurance (Flood Re) aimed at ensuring the availability, affordability and sustainability of flood insurance in England.

2.7.1 The Gentleman’s Agreement

Private flood insurance was developed in England over half a century ago as part of a reaction to historical flood challenges at the time. The arrangement which was described as a Gentleman’s Agreement between the insurance industry and the government was a partnership effort to address the impacts of flood risks. The strategic distribution of roles within the partnership was such that the government accepted responsibility for providing and improving flood defences, while the insurance company provided cover for damages after flood events. It is uncertain when the Gentleman’s Agreement was negotiated, however,

scholars suggest it could be between the late 1950s and 1961 (Salthouse, 2002), however, Bek et al. (2013, p. 9) claim the agreement was established on “1 August 1961”. Huber (2004, p.4) suggests that the Gentleman’s Agreement constituted the “insubstantial core of flood management”. It is unclear what he means by this, but a key characteristic of the partnership agreement was the lack of formal regulation of agreed principles. Nonetheless, I agree with Huber (ibid) that such a crucial agreement with regulatory gaps deserves to be qualified as ‘insubstantial’. At its heart, the agreement contained two key principles; the first relates to the Insurance industry’s guarantee to government to provide flood insurance for all residential properties at risk. The guarantee from government to residential properties stipulates that “it would not refuse to offer insurance for residential properties” (Crichton, 2002, p. 127). An added stipulation is that any additional premium as a result of increased risk would not exceed 0.5% of the sum insured (Crichton, ibid); however, only in exceptional circumstances, where flooding was repetitive and continuous, would insurers consider withholding cover, or applying higher weightings to premium calculations. This stipulation of conditions upon which insurance can be declined, provided insurers an escape window opening a certain degree of freedom within the Gentleman’s Agreement, for “appraisal of insurability” (Huber, 2004, p. 5). The second principle relates to the central government’s guarantee to provide sufficient flood protection. The scope of the guarantee and extent of financial contribution was not qualified in any way.

Crucially, homeowners had no role to play in the agreement. Huber (2004) suggests two reasons for non-inclusion of the role of homeowners in the Gentleman’s Agreement: a) the

main reason is an assumption that if the agreement worked as well as intended, then there would be no need for the introduction of additional actors; b) on the other hand, it was suggested that the non-inclusion of homeowners was a deliberate attempt to avoid the problem of “adverse selection”, which had the potential to introduce risk disproportionately (Huber, 2004, p.5).

Huber (2004, p.7) argues that the vagueness and subjectivity inherent in the interpretation guidelines within the Gentleman’s Agreement creates a situation that potentially institutionalises laxity and irresponsibility, symptomatic of “systemic moral hazard”. In this potential scenario, the government withdraws from all responsibility and accountability following a flood, leaving the insurance industry to assume financial responsibility for virtually all the risks. Huber (ibid) criticises the UK government heavily for “offloading responsibility for flood damage to the insurance industry”. Similarly, the government also received criticisms for underfunding flood and coastal risk management projects (NAO, 2001); and providing minimal assistance to flood victims in under-insured areas (Handmer, 1990).

The social interpretation of the systemic moral hazard was a positive spin of the government’s unfair advantage in the Gentleman’s Agreement, as flood insurance was transformed into a social policy. Handmer (1990, p.21) observed that the cost of flood insurance was opaque to the government, insurance industry and the public, as flood insurance is said to be included in every home insurance package. This lack of transparency was partly responsible for entrenching the erroneous impression that flood protection is “free of cost”. It is also argued

that the lack of visibility of the cost of insurance blurred signals of systemic weakness and fracture within the Gentleman's Agreement (Huber, 2004).

The UK flood insurance market penetration was reported to be between 75-95%, with an exposure rate of only 10%. Given the width of risk spreading, it becomes apparent that the cost of flood insurance is heavily subsidised by the many, who are not at risk, for the few, who are at risk. The consequence is an appearance of a positive social system of support which distorts the actual cost of flood insurance. It seems a fair argument to suggest, as Huber (ibid) does, that the lack of visibility of true flood insurance cost, and the social system of payment, encourages lax behaviour from homeowners, as their damage is paid, regardless of exposure; and from the insurance companies, who would have less incentive to detect and monitor exposure to flood risk. This point underscores the relevance of the benefit-for-service funding model reflected by IDBs' traditional funding model.

2.7.2 Reforming the Gentleman's Agreement

Every system in turmoil undergoes internal conflict before it ruptures. With the Gentleman's Agreement, the systemic warning signals of conflict were absorbed by the huge margins of risk spread within the premiums. However, the floods of 1998 and 2000 completely ruptured the system with huge financial exposures to the insurance industry. Consequently, the

Gentleman's Agreement was put up for review following the sharp increase in insured losses of about £500m in 1998 to about £1b in 2000 (Huber, 2004). The Association of British Insurers (ABI) felt that the government was partly to blame for insufficient funding of critical flood projects. Spurred on by momentum gained from public opinion at the time, the ABI threatened they would limit flood insurance cover in high flood zone areas if the government does not provide adequate flood defences within two years. The National Audit Office (2001) produced a report which was very critical of the government, emphasising insufficient protection of new developments in flood plains.

It seems appropriate that the starting point for reform was a review of the details of the Gentleman's Agreement, particularly, some of the escape clauses, one of which is: "in exceptional situations", defined by Salthouse (2002, p.71) as "unavoidable regular flooding". Given a clearer understanding of the facts of climate change and its impact on weather systems, it became clear to both the insurance industry and the government that emerging risks would have to be dealt with in an integrated manner. In other words, more actors need to be involved in addressing flood risks. The government decided to manage the situation with greater regulatory controls on developers and homeowners, with emphasis on a flood tax, charged to developers and increased environmental considerations for managing flood risk from new developments. The regulatory package proposed by the government hardly changed the key terms of the Gentleman's Agreement, and hence was considered insufficient by the insurance industry, who argued that whilst there appears to be a provision for protecting new development, there was nothing in the package to address flood risk from

older properties (Huber, 2004). The government argued that the annual flood defence budget has grown from about £221.4m between 1990/91 to about £339.8m in the 2000/01 budget and promised to increase funding for flood defence to over £400m in 2003/04 (Defra, 2002, p.10). In the end, the Gentleman's Agreement survived the crises of reforms; however, the reforms led to greater political and public awareness of flood damages as well as clearer roles and responsibilities for both old and new actors: the government and the insurance industry; environmental groups, developers, homeowners and riparian owners and maintainers of flood assets in England.

2.7.3 Lessons from the English flood insurance model

Undoubtedly, many countries are looking towards flood insurance as a means of managing increased flood risk, hence, Lamond and Penning-Rowsell (2014) are convinced that the English flood insurance model has an appeal for general application. With predicted rises in flood risk, adaptation measures have become the focus of renewed attention in flood risk management. The English flood insurance model can be used as an effective adaptation measure, but some fear the distributional consequences of unfair burden, as taxation is the means of maintaining a balance of economic sustainability (Priest, 2005; O'Neill and O'Neill, 2012). Flood risks are not constrained to the physical environment. Penning-Rowsell and Priest (2015) argue that the burden of risk can be redistributed by flood risk management decisions. For instance, in The Netherlands, a standard of 1:10,000 years protection applies to

areas with the dike rings with a defence approach to management, but, further away, the risk is managed through resilient measures.

The Adaptation Sub-Committee of the Climate Change Committee established under the Climate Change Act 2008, has assessed that about 3.6million properties are at some risk of flooding in the UK (Defra, 2012). Additionally, an estimated 300,000 properties are located where the probability of flooding in any one year is greater than 1.3%. Despite these assessments, Penning-Rowse and Priest (2015) acknowledge that methodologies for quantifying future flood risks are complicated. From the assessments undertaken by the Climate Change Risk Assessment (CCRA) department, “the number of residential properties at significant likelihood of flooding would rise by the 2050s from 560,000 to ca. 1,035,000, and to ca. 1.24million by the 2080s” (Penning-Rowse and Priest, 2015, p.998; Defra, 2012; Ramsbottom, et al., 2012).

The cost of flood risks can be funded through a spectrum of options. On the one end of the spectrum is a funding model based around the philosophy of solidarity. This concept requires the burden of flood risk to be shared evenly, irrespective of the risk of exposure. On the other end, is a model which supports payment for protection by those benefiting. These arguments, though driven by the principles of fairness and equity, invariably run into difficulties during implementation as practical considerations would suggest that given finite resources, some individuals or communities will benefit, while others will not (Wallingford, 2008; Johnson, et al., 2007). The social model built around the philosophy of solidarity was reviewed following

the challenges of affordability of the flood insurance system in the UK. Consequently, the government introduced enabling provisions through the Water Act 2014 for the implementation of a new flood insurance system commonly referred to as Flood Reinsurance (Flood Re) (Defra, 2014).

The Flood Reinsurance (scheme funding, administration and amendment) Regulation 2015 provided the legal framework for the operation of the scheme. Fundamentally, the scheme which is designed to be owned and managed by the insurance industry as set up in the Memorandum of Understanding (MOU) between the government and insurance industry, is designed to have operational independence from government. The insurance company provided the set-up costs of over £20m; furthermore, the cost of claims is designed to be funded through a combined pool of money made up of the Flood Re-component part of the insurance premium and an annual levy of £180m on UK insurers. (ABI, 2015). In terms of scope, Flood Re is designed to provide covers only for domestic rather than the commercial sector (Defra, 2014). Although no cap is currently set, it is estimated that the scheme will provide cover for about 350,000 properties. Most properties in high flood zones will be covered except for properties build after 1st January 2009 to ensure that developers do not take undue advantage of the scheme. The financial liability to insurers under the Flood Re scheme is limited to a 1 in 200 loss scenario. Defra (2014, p. 22) assesses that “this is comparable to six times worse than the 2007 floods”. Under the terms of the MOU between the UK government and the insurance industry, it was agreed that for liabilities exceeding the 1 in 200 loss-scenario, the government of the day would step in to provide supplementary

assistance. The scope of flood risk covered under the Flood Re scheme extends beyond the definition given by the FWMA 2010, to include flooding from sewerage systems and burst water mains; however, internal flooding is excluded.

The Flood Re scheme is arguably the one of the most dynamic re-insurance systems operated by the private sector with in-built governance resilience to intervene in extreme flood events. Nevertheless, there are considerable limitations with the current scope of the Flood Re scheme, which re-establishes the need for alternative funding solutions for properties, businesses and services which remain outside the scope of the scheme. In this regard, I would next examine the Payment for Ecosystem Services (PES) model as a credible alternative. It is important to note that the IDBs' drainage funding model is arguably considered to fall within the scope of a PES model, therefore, the precedence for arguing the sustainability of the PES model has already been established by the IDBs through centuries of operation in England.

2.8 Consideration for alternative funding models for FCERM: Payment for Ecosystem Services (PES)

This section considers the appropriateness of the payment for benefits funding model known as PES in flood risk management, and explores its similarities with the current IDBs' drainage

rates and special levy system, where farmers and landowners pay for flood protection for their lands.

The use of ecosystem services has gained wide acceptance amongst environmental policymakers (Redford and Adams, 2009; Salzman et al., 2018). The term refers to services derivable from the natural environment to society, such as, regulating climate change, clean water, food, recreation, cultural and spiritual benefits (MEA, 2005). The economic value derivable from ecosystem services has increased interest in developing policies to maximise its use (To et al., 2012; Bhatta et al., 2014). Cole et al. (2012) observe that an increase in the use of such markets results in improved cost-efficiency for environmental protection. PES are viewed by Sarvasova et al. (2019, p. 156) as “flexible, financial mechanisms for utilisation of available finances for environmental improvement”. The objectives of the PES model are supported by ‘equivalent’ principles of an exchange economy as argued by Ostrom (2011) who posits that within the outcome variable of the Institutional Analysis and Development Framework, the “concept of equity that underlies an exchange economy holds that those who benefit from a service should bear the burden of financing that service” (ibid, p. 16).

The design of a PES is typically such that beneficiaries of ecosystem services are called ecosystem services buyers, while those who have an influence over the ecosystem services, are called sellers (Banerjee et al., 2013; Adhikari, 2013). Cole et al. (2014) identify three key phases for the developing of a PES: Firstly, a scoping study to determine PES feasibility is undertaken. This considers the cultural, political and institutional aspects of the local environment within which the PES is proposed as shown in Table 2.2. Secondly, the proposed PES scheme is defined. The definition of a PES requires a pre-identification of key ecosystem

services in the geographical area, as well as, potential buyers and sellers. Finally, a set of criteria is developed to assess and apply the PES. Confidence in environmental decision-making has soared following recent studies of utilising the ecosystem services approach in Scandinavia (NGS, 2013). The motives for ES transactions can vary from ethical considerations to corporate responsibilities.

The PES principles underpin the IDBs' drainage rate and special levy payment system which I refer to as the IDBs' traditional funding model. The processes establishing the IDBs' funding model are broadly similar to the three phases of the development of the PES identified by Cole et al. (2014), where IDBs have to, a) undertake an initial assessment of the feasibility of application of the drainage rate or special levy payment system for the service; b) clearly identify the need for the service they offer and the benefits they provide; c) determine appropriate payment for the service through a series of collaborative engagements and negotiations, by establishing comparative criteria for assessment of similar benefits.

The degree of traction gained by the 'beneficiary pays model' for flood risk funding in recent years has re-ignited the debate for the inclusion of flood protection within PES (Butt, 2014; Couto, 2018). Wunder, et al. (2012) suggest that PES is a voluntary service where a well-defined ecosystem service is purchased by an ES buyer from an ES provider given certain agreed conditions. Observers have suggested that PES maybe more suited to some services than others (Cole et al., 2012), however, the breadth of PES options increases the applicability of PES in the environmental sector.

On the applicability of PES, Midgley et al. (2012, p.1) submit that “PES is a contract between buyer(s) and user(s), with the ‘commodity’ being one or more defined benefits derived from an ecosystem”. For instance, PES is used for direct payments in conservation; in this scenario, “actors in developed countries provide payments to subsistence resource users in developing countries for carbon sequestration or rainforest management” (Cole et al., 2014, p.18; Milne and Niesten, 2009). PES can also be used very effectively in developed countries. Many would argue that the risks of flooding can be purchased as an ecosystem service commodity in the future (Chan and Lau, 2000; Milder et al., 2010). Cole et al. (2014) identify a number of options for using PES, some of which can be combined: a) Alternative 1: *“Aqua and Agriculture”*: Households as ecosystem services buyers pay national park as ecosystem services, for the restoration of mangrove ecosystem; however, the scope of utilisation of the PES for mangrove restoration is not universally applicable; b) Alternative 2: *Shoreline stabilisation*: The state or environmental organisation acts as an ecosystem services buyer, on behalf of the public, and pays for shoreline protection stabilisation services from willing homeowners who act as ecosystem services sellers; c) Alternative 3: *Carbon Markets*: Businesses as ecosystem services buyers and sellers, compensate for carbon emission through the purchase and sale of carbon footprints, through international trading schemes; Alternative 4: *Eco-labelling*: Homeowners as ecosystem services sellers, receive a premium from domestic and international sea food consumers, who act as ecosystem services buyers, “for engaging in more sustainable aquaculture practices” (Ibid, p.30).

The suitability of a PES alternative is determined by undertaking a feasibility study by applying some important criteria: measurability, availability of buyers and sellers, assessment, defined

property rights, voluntary participation, direct payment to providers, additionality, and conditionality (Cole, et al., 2014). The design of an optimal PES may depend on the location. From a planning point of view, ecosystem services leakages and trade-offs may be necessary to protect locally valued ecosystem services (Veldman et al., 2015; Le Velly et al., 2017). An ecosystem service for storm surge protection from flooding would require a detailed assessment of risks associated with the location. Measurability is very important criteria because both buyers and sellers will need to be confident that there is a transparent mechanism for measuring change in ecosystem service associated with the intervention proposed by the seller. Similarly, clarifying property rights is essential as temporary or uncertain property rights reduces the incentive for long-term investment.

IDBs have established that the PES funding model is sustainable through their organisational experience of utilising the drainage rate and special levy funding model for many centuries. Inadvertently, through the operation of their traditional funding model, IDBs have demonstrated great proficiency in the use of the fundamental criteria identified by Cole et al. (2014) in ensuring the feasibility, measurability, and assessment of PES services. Bek et al. (2013, p. 9) argue that the challenge of developing credible data for flood insurance premiums, delayed the introduction of flood insurance during the IDBs' historical development, whilst accepting that the "regulation of flood protection in the UK is a historical phenomenon that can be traced back to 1531 when Henry VIII introduced the Statute of Sewers governing land drainage". The reverse of this argument highlights IDBs' historical ability to develop the processes needed for the establishment of their historic funding model, some of which are relevant to the broader development of the PES model as argued by Cole

et al. (2014) which I have referred to previously. Undoubtedly, IDBs would have learnt a lot from the historical adoption of the PES funding model through the drainage rate and special levy system. Consequently, this historical funding model and lessons learnt by the IDBs are worthy of further examination as part of ongoing discussions, and aspirations for greater application of the PES model in England.

Table 2.2 - Preliminary scoping criteria for PES feasibility including the cultural, political, and institutional contexts

Scoping criteria	Key issues to consider
Political considerations	<ul style="list-style-type: none"> Is there government support for the PES program? Are governance structures trusted and reliable?
Ecosystem Services (ES)	<ul style="list-style-type: none"> What types of valuable ecosystem services are suitable? What is their importance on different regional scales? Are there potential buyers and sellers? Are there defined criteria for interventions?
Community and cultural considerations	<ul style="list-style-type: none"> Does the community have the organisational capacity to participate in a PES scheme? Can the community overcome challenges (e.g., seller holdouts, aggregated payments, transaction costs, etc.)? Are there knowledge providers or intermediaries that can support the community?
Legal context	<ul style="list-style-type: none"> Are reasonable legal structures in place to support PES? Are there agreements or protection for property rights?

[Source: Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, Ch. & White C. (2013) *Payments for ecosystem services: a best practice guide*. London: Defra]

2.9 Chapter Summary

In this chapter, I have examined the conceptual frameworks underpinning collaborative engagements, particularly the FRMPs involving the IDBs in this research. I examined the applicability of Ostrom's (1994) IAD framework to collaborative flood risk management engagements and argued that the IAD framework is inherently flexible in structure and can be utilized for FRMPs. I introduced Waston's (2015) adapted analytic framework as a complementary conceptual framework, better suited with contextual conditions obtainable in collaborative engagements.

I investigated the three eras of flood and water governance: land drainage, flood defence and flood risk management as observed by Johnson and Priest (2005), and Penning-Rowsell et al. (2006), and identified the role of the IDBs within the three eras of flood and water governance. I explained the role of the IDBs in agricultural development and food security in the England after WWII, recognizing the opportunities for further research on the role of the IDBs during this crucial time in English history. I then examined the concept of NFM observing the potential for holistic flood management utilizing natural processes for water storage with multi-sectoral benefits (Wingfield, 2019).

I investigate the development of FRMPs and establish the need statutory drivers for cooperation and partnerships in FCERM. I used the theoretical concept of legitimacy to examine the potentials and mechanisms of transformative power in collaborative engagement, particularly under the platform of the FRMPs. As part of the analysis of transformative power, I examined power dynamics in flood and water governance within collaborative partnerships with the views of researchers like Waley and Weatherhead (2016), Watson (2014, 2015).

I examined the concept of scale and arguments surrounding scale in water governance (Delaney and Norman and Baker, 2009; Perreault, 2005; Cohen and Davidson, 2011; Leitner, 1997; Jonas, 2006; Norton et al. 2014; Norman et al. 2012), focusing on two diametrically opposed policies of centralization and decentralization. I agreed with Schimmelfennig (1996) that the objective of decentralization policies is the redistribution of governance powers from higher to lower tiers of governance and examined past UK government's decentralization policies.

I undertook a historical analysis of UK flood insurance history, starting with the Gentleman's Agreement (Salthouse, 2002), I examined the consequences of the breakdown of the Gentleman's Agreement and the introduction of the Flood Re under government regulations. Finally, I examined the PES as a potential alternative funding model for FCERM and presenting the IDB traditional funding model as a tested representative type of the PES.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

In this chapter, I start by examining the philosophical and theoretical perspectives underpinning the research. Following this, I reflected on my own positionality and reflexivity as potential pathways and justification for this research on the IDBs. The data collection process was significantly hampered by Covid-19. Therefore, it was important to briefly reflect on the constraints of Covid-19 on the research methodology, particularly on the changes I had to make to adapt to these challenges.

I then discuss the case study methodology and provide justifications for my choice of the East of England as the case study location for the research by drawing on relevant attributes of my positionality and reflexivity as earlier stated. In the following section, I examine the data collection methods which comprise documentary analysis and face-to-face interviews. I then discuss my sampling strategy for all respondents by providing a table of data source for all respondents, sampling strategy and the relevance or contribution of each data sources to the research. Finally, I discuss the steps involved in the analysis of the research, starting with the coding process in which both the primary and secondary data are reviewed and sorted by identifying common threads known as codes and themes within categories as part of the analyses.

3.2 Research philosophy and theoretical perspectives

This research was conducted using a flexible qualitative design. In contrast to a fixed design which 'calls for a tight pre-specification' of a set of actions prior to data collection, the flexible design 'evolves during data collection' (Robson, 2011, p.74). The choice of a flexible design reflected the requirements necessary to meet the objectives of the research. The methodology was predominantly qualitative, comprising an inductive approach to theory generation (Thomas, 2006) and a relativist ontology informed by constructivism (Guba, 1990; Denzin and Lincoln, 2005). Case study methodology was used to address the research objectives, whereas the method of analysis was influenced by the principles of grounded theory highly valued by Chamaz (2006). In combining the use of case study and grounded theory, I am persuaded by Fernandez et al. (2002) that both methodologies are compatible and can be used to great effect in qualitative research. The methods of data collection combined documentary analysis, qualitative secondary analysis and semi-structured interviews and participatory research. The format of the interviews was a combination of face to face and telephone interviews.

I adopted an interpretivist philosophical approach in undertaking this research. This stance was borne out of a deep sense of value attached to knowledge originating from historically situated interpretations of the socio-cultural realities in the world (Crotty, 1998). Researchers who adopt this theoretical position view the world as interpreted through the 'schemas of the mind' (Williams and May, 1996). The driving ontological persuasion underpinning the research was a relativist one. This was associated with, and often, characterised by transactional or

subjective epistemology. As I indicated in the introduction, the overall epistemological orientation of the research was a relativist ontology informed by constructivism, supporting the central argument that knowledge, truth and meaning is created by the subject's interactions with the world. This view is supported by Gray (2013) in his conviction that valid co-existence of parallel and contradictory accounts of the world view can be tolerated.

There was a need to recognise a combination of approaches, which are compatible in application and support the central philosophical orientation. However, I would argue against the benefits of an unrestrained design. With regards to my approach to this research, the visible manifestations of the over-arching theoretical orientation reflected the phenomenological and hermeneutical paradigms, which often enjoy mutual association. The phenomenological paradigm was grounded in the basic belief that the world is socially constructed and subjective (Gergen, 1985; Schwandt, 1998). The researcher in this mode of epistemological enquiry, constructs meanings, theories and models from data, which are best collected using a method that allows for an in-depth and context-driven narrative. The hermeneutics paradigm equally shares the Gray's (2013) view of a socially constructed reality and argues that knowledge from interpretation deserves more credence than descriptions and explanations.

The analysis of power relations between the IDBs and other flood risk partners which I make with the aid of Ostrom's (1994) IAD framework and Watson's (2005) collaborative contextual framework is grounded on the constructivist grounded theory, which Charmaz (2017, p. 6)

claims “is aimed toward abstract understanding rather than explanation and prediction”.

Going further, Charmaz (ibid) argues that constructivist grounded theory provides a pathway to critical qualitative inquiry assisting both the researcher and the participants in revealing what is taken for granted. This perspective questions current values and assumptions in its challenge of conventional social structures. It operates under the assumption that ideas are mediated by power relations in the society; and therefore, in a Marxist sense, not only seeks to interpret the social world, but also to change it. There is also an assumption of a disproportional investment and exertion of power amongst organisations or institutions, which needs to be challenged within a critical enquiry, to the benefit of the weaker members of a partnership, and society in general.

As I conclude my reflections on the research philosophy, I remember Charmaz’ (ibid) acknowledgement that the “qualitative inquiry is imbued with Anglo-North American ideas and approaches” which create obstacles that impede the development of critical inquiry. On these obstacles, Charmaz (ibid) explains:

“Among them are taken-for-granted territorial stakes—for ourselves, our disciplines and professions, our theoretical and methodological approaches—and the careerism and competition embedded in these stakes” (Charmaz, 2017, p.6).

Therefore, it is necessary for me to examine the importance of the concepts of reflexivity and positionality in research, particularly my own reflexivity and positionality in the conduct of this research.

3.3 Overall research approach and justification: Reflexivity and positionality

I found the processes involved in the conduct of this research very exciting and challenging in equal measure. The excitement derived from my personal interest in the operations and governance of the IDBs, having been exposed to the organisation through my previous professional careers with FRMAs. On the other hand, the major challenges resulted from my attempts to manage personal health challenges alongside the disruption of planned methodological approaches by the challenges Covid-19 pandemic.

In examining my own reflexivity, I embarked on this research having previously worked for two FRMAs, namely Environment Agency and Cambridgeshire County Council. In these organizations, my roles interfaced some of the IDBs, providing me a general background of the statutory roles of the IDBs. Given this background, I was vulnerable to the potential bias of prejudging respondents' views during the data collection process. However, I did my best to avoid this pitfall in the analysis of primary data, by allowing the data to lead the analyses. Returning the focus to methodological approaches, I accept that the adoption of a constructionist grounded theory fits in properly with the methodological process of data collection through interviews.

My approach to the interview process was guided by Strauss and Corbin's (1998) admonition for researchers to recognize the potentials for bias in order to maintain their objectivity in the overall research process. Nonetheless, it is crucial that the interview process, though social in construction, is seen as a valid epistemological method of enquiry, capable of maintaining the

neutrality of both the flow and source of knowledge. By adopting this approach, the authors demonstrate an uncharacteristic flexibility, which MacDonald and Schreiber (2001) believe can accommodate various ontological positions. Despite this magnanimity, the evolved position of the constructivist thread of grounded theory remains unaffected by the concessions made by Strauss and Corbin (1998).

Jafar (2018) argues that the price of the failure to contextualize the research and the research environment is to risk the loss of meaning of research outputs. Consequently, it is worth examining my experience of data collection, particularly, the interview process as a means of explaining and contextualising my positionality. The face to face interviews were conducted at the offices of the respective IDBs. It is significant to observe that all the IDB Clerks who were previously known to me within the case study area agreed to my request for face to face interviews. I wasn't always successful in diverting attention away from myself, but overall, I would argue that my history with the IDB Clerks facilitated the crucial element of trust which is of vital importance in frank exchange of information within the conduct of qualitative research. Consequently, the research data is enriched with diverse, detailed and honest views on key issues of interest for the IDBs.

In the consideration of methodological forms of data collection, I agree with Briggs' (1986) suggestion that 90% of all social science investigations involve the use of interviews. However, I also recognise that the use of interviews requires planning to ensure research objectives are met. As part of my preparation, for data collection, I prepared a semi-structured questions

based around various themes of interest to the research aims and objectives for all potential respondents. The bank of research questions are contained in Appendix A. My approach to the use of interviews in the research was mainly a researcher-led approach. This approach ensured that the responses from participants were relevant to the focus of the questions and contributed to the objectives of the research. Consequently, my experience of both the face-to-face and telephone interviews support Gubrium and Holstein's (2012) argument that empirical data generated from the conversational nature of the interviewing process requires the active participation of the researcher, whose task it is to predetermine the degree of structure or standardisation the interview process requires. Whilst most survey-orientated guides to interviews stress the importance of flow of valid information, it was important for me to adhere to Gorden's (1987) caution on the necessity of avoiding the distortion of the respondents' views. This need for caution arises due to the potential for bias, misunderstanding or misrepresentation during the interactive process of interviews (Holstein and Gubrium, 2004), as I had previously observed.

I found the process of secondary data collection very challenging. I had previously requested for archived historical data on the IDBs through the general research information circulated to IDBs members. Unfortunately, most of the relevant documents were not digitised, consequently, it was difficult to access the materials. Consequently, I mostly had to rely on independent consultants and materials readily available on the internet. Thus, finding relevant information on the IDBs was very difficult. Following the data collection, I approached the research analysis with an open mind, willing to be guided by the evidence

that would emerge from the various sources of data utilised in my analysis as summarised in Table 3.1.

As I briefly touched upon earlier, a lot of restrictions were put in place both nationally and internationally due to Covid-19 pandemic. These restrictions had significant impacts on several aspects of the research, therefore, I will examine these impacts in the next section.

3.4 The impacts of Covid-19 on research design and methodology and mitigations

Lincoln (1985) argues that research designs are dynamic and fluid, and cannot be pre-specified; but, are developed as the research progresses. This was borne out during my research, as I was compelled by the constraints imposed by Covid-19 restrictions in the UK to adapt my research methodology in response to various government legislation aimed at reducing the spread of Covid-19 in the UK and around the world. The impacts of Covid-19 restrictions affected the data collection strategy for the research, preventing participatory research as previously intended. The data collection process was also impeded by the constraints of Covid-19 restrictions, impacting already agreed interview schedules with various respondents. Nevertheless, in utilising a dynamic research design, I was able to mitigate these impacts to some extent by reviewing the sampling strategy and introducing telephone interviews. Furthermore, I was unable to implement participatory research methodology by attending the meetings of the drainage board, as previously intended.

Consequently, I expanded the use of secondary data through documentary analysis to mitigate the shortfalls in primary data collection. A summary of secondary data sources is shown in Table 3.1.

3.5 Case study methodology

The choice of the case study method for this research was driven by the need for an in-depth study of the selected IDBs. Case studies provide a means of investigating complex social problems and often result in a rich and holistic account of the phenomena under study. Thus, much can be learned from a researcher's narrative accounts of case studies (Stake, 2005). The usefulness of the case study method in this research lies in the argument advanced by Erickson (1986) in which he suggests that the general is often located in the particular; therefore, what is learned from a particular case can be transferred to other similar cases. Consequently, my choice of a case study methodology is based on Stake's (2005) conviction and expectation that lessons learned from the IDB case study areas can be applied to IDBs elsewhere in the UK.

However, the case study methodology has its weaknesses. Yin (2009) and Gorard (2013) observe that the key weakness of the case study methodology lies in its inability to replicate

results, whilst Hamel (1993) traces the lack of rigour and representativeness of case studies to researchers' bias and subjectivity. The test for validity in case study research is equally problematic. Riege (2003) bemoans the lack of a single, coherent set of validity test for qualitative data in case study research, such that she turns to the use of scientific techniques in the search for validity in case study research. One of the concerns of most positivist researchers with the validity of any qualitative research is the absence of a structured control system. However, I do not believe that validity of the case study research requires the possession of a rigid control structure. The flexibility inherent in the case study method enables it to steer and guide the research to new knowledge. Consequently, there is no doubt that knowledge gathered from a single case can be replicated to other cases with similar characteristics. Flyvbjerg (2006) advises that it is a misunderstanding of the qualitative process to assert that one cannot generalise from a single case. To mitigate the limitations of generalisation and representation, adequate attention should be paid to strategy for case selection, consequently, I had to give due regard to the selection of the case study location.

3.6 Justification for the East of England as the case study location

The East of England has a very high density of IDBs. The general topography of the area is flat, particularly around the Fens. As I described in Chapter 1, nature of the topography of the Fens, establishes the role of the IDBs in the Fens as I argued in Chapter 1. The general ground profile, together with the high water table in the Fens combine to increase the complexity of

challenges and consequently approaches to flood risk management in catchments within Fenland. As a result, most of the IDBs located in the East of England face a lot of challenges, which require the intervention of partnership approaches to overcome. The above reasons coupled with my disclosed reflexivity and positionality helped my decision on the Fens as the case study area.

Furthermore, I understand that the rationale for selection of cases is of crucial importance in advancing the argument for generalisation of findings, therefore, I included some IDBs outside of the Fens area to get a comparative understanding of IDBs' perspectives outside of the Fens. Therefore, I would say that the decision to select similar or dissimilar cases for a comparative study should be guided by the aims and objectives. Consequently, in this research, due to the need to gain greater insight into the operations of the IDBs, cases were selected to reflect the diverse administrative and board structures as well as operational delivery mechanisms within the IDBs. The methods of data collection and analyses relieved the burden of the weakness of generalisation-of-findings. In general, case studies benefit immensely from dynamic data collection methods, such as interviews, such that, Robson and McCartan (2016) view the case study method as a dynamic process which truly 'emerges' during data collection. I was able to validate this view through my experiences in data collection in the conduct of the research.

3.7 Data collection

3.7.1 Data collection through documentary analysis of secondary data

As I previously established in the section on the research approach, I found the process of secondary data collection very challenging. Due to the paucity of research on the IDBs, it was difficult to find sufficient relevant documents to address the objectives of the research.

However, I was able to elicit the support of independent consultants who had previously undertaken research on the IDBs on Defra's behalf to steer me in the right direction.

Consequently, my approach to secondary data collection was very purposeful, and guided by the targeted online searches from appropriate government and independent consultants' websites as shown in Table 3.1.

Table 3.1 Scope of document analysis in the research

Document name	Source of data collection	Document type	Data analysed	Approach to selection
2017 National Audit Office Report on the IDBs	The National Archives	Report	IDBs accountability and governance	Purposeful
Environment Agency and Defra reports	Defra website The National Archive	Reports	Roles of FRMAs in Flood and water governance	Purposeful
RPA et al. 2013 report on the role of the IDBs	RPA et al., 2013	Report	Structure, role and function of the IDBs	Purposeful

Minutes of IDBs meetings	IDBs' websites	Meeting minutes	IDBs' intra relationship with members	Minutes randomly selected from IDBs' websites
ADA's Good governance guide for the IDBs	ADA's website	Document	Structure, type and scope of IDB governance	Purposeful
The history of the IDBs	Wheeler (1897)	Book	Historical background of the IDBs	Purposeful
Environment Agency and Defra's guidance documents on FCERM GiA and PF	The National Archives Defra website	Documents	Partnership funding mechanism and the FCERM GiA rules in play	Purposeful
JBA report of 2006 on the IDBs	JBA	Report	Structure and governance issues within the IDBs	Purposeful
Entec 2010 report on IDBs administration	Entec 2010, The National Archives	Report	Structure, administration, representation of IDB members	Purposeful
Defra IDBs' beneficiaries and performance indicator report	The National Archives	Report FD 2659	Scope of IDBs beneficiaries	Purposeful
Defra 2019 central government funding	Defra website	Document	FCERM GiA mechanisms and outcomes	Purposeful
Defra flood and coastal resilience partnership funding – introductory guide 2011	Defra website	Document	Partnership funding rules of and benefits	Purposeful
Land Drainage Act (1930, 75, 1991)	www.legislation.gov.uk	Online document	Constitution and roles of the IDBs	
Flood and Water Management Act 2010	www.legislation.gov.uk	Online document	Drivers for IDBs' partnerships	Purposeful
Draining of the Fens	South Holland IDB archives	Document	History of the IDBs	Purposeful
2018-2019 Flood and Coastal Erosion Annual Report	Defra publication	Report	Funding for FCERM	Purposeful

Newspaper Article on 2012 floods	BMG publication	Article	Funding for FCERM	Purposeful
Chris Smith article in the Guardian online newspaper 9/2/14	www.theguardian.com	Article	Funding for FCERM	Purposeful
IDBs' collaborative Implementation of the NFM	www.gov.uk/organisations/environment-agency	Online article on the EA's website	Implementation of the NFM approaches	Purposeful

As shown in Table 3.1, the scope of documents included in the analysis consists of archived government data, independent consultants' reports, books, minutes of IDBs' board meetings, online sources of government legislation, various reports originating from Defra and the Environment Agency hosted on Defra's website, the National Archives, ADA's governance guide produced for IDB members, and data from various IDBs' websites. The inclusion of archived IDBs' minutes in the documentary analysis was necessary to study the participation and interaction between IDB members. From a methodological point of view, it helped to mitigate the impacts of my inability to physically observe this aspect of IDBs' interactions and engagements.

In effect, the purpose of utilising documentary analysis in this research was to support and where necessary corroborate data from other sources. Denzin (1970) views the purpose of documentary analysis as means of triangulation, defined as "the combination of methodologies in the study of the same phenomenon" (ibid, p. 291). Bowen (2009) argues in support of documentary analysis that documents can often provide data within the context in which the participants operate, serve as a source of historical data and complement data

collected through other sources within the research methodology. Atkinson and Coffey (2004) advice researchers to consider whether documentary sources are adequate for their research:

“We should not use documentary sources as surrogates for other kinds of data. We cannot, for instance, learn through records alone how an organization actually operates day-by-day. Equally, we cannot treat records—however ‘official’—as firm evidence of what they report (Atkinson and Coffey, 1997, p. 47).

The use of documents analysis in this research was a means to complement my data collection procedure, with the aim of improving the quality of analysis through triangulation in aid of theory building. My persistent search for relevant documents over many years resulted in the rich variety of data sources shown in Table 3.1. Archival research included both electronic and hard copies of relevant documents from the National Archives and IDBs’ offices. At the start of the research, I had communicated to all the IDBs in England, through their Chief of Executives, and explained the purpose of the research. I sought for volunteers and requested for relevant documents on the history of the IDBs. Though I initiated got very limited response, I persevered and in the end was able get some vital historic documents on the history of the IDBs, particularly in the Fens. The analysis of these documents provided complementary data which were very instrumental in addressing some of the research objectives and follow-on questions. To summarise my reflection on documentary analysis, Bowen (2009, p. 38) recommends documentary analysis, where appropriate for the research, as a low cost method of obtaining empirical data in an “unobstructive and non-reactive” manner. On balance, documentary analysis was very instrumental to addressing some of the objectives of the research.

3.7.2 Data collection from interviews

The principal method of primary data collection in this research is by face-to-face and telephone interviews. I had to consider many challenges involved with data collection through the interview method, some of which were identified by Harvey (2011), for instance, how to position oneself during interviews, using open and closed-ended questions, appropriate length of interviews, and how to keep the respondents engaged throughout the process. Adequate consideration to these issues helped me improve the structure and process of primary data collection. I also owe some of the success I had with primary data collection to the advice of researchers, such as Aberbach and Rockman (2002), who suggest that elites and other highly educated people dislike the restriction of closed-ended questions during interviews, hence, my decision to use semi-structured questions.

Forced by the constraints of Covid-19 to adapt my method of primary data collection from face-to-face to telephone interviews, I would admit that the change did not affect the quality of primary data collection in any way, for I found both methods very complimentary. Smith (2006) agrees that the complimentary use of face to face and telephone interviews improves the quality of data collection because they provide respondents with flexibility in answering questions. Nevertheless, the use of telephone interviews had the advantage of narrowing the power-gap between the researcher and respondents and hence, worked in my favour following the adaptation of methodology. However, I agree with Hold (2010) that telephone interviews is weakened by the researcher's inability to utilise body language, facial

expressions and gesticulations, as is possible during the face-to-face interviews. Nonetheless, this weakness did not significantly affect the quality of data collection during the research. I have explored in detail the theoretical merits and weaknesses of the interview process in the earlier section on the overall research approach. So, I will not repeat these theoretical engagements here.

The main methods of secondary data collection was through documentary analysis as already established in the section on documentary analysis and shown in Table 3.1. The utilisation of documentary analysis was very significant in the delivery of the some of the research objectives as also shown in Table 3.1.

3.8 Sampling strategy

The sampling strategy for the research is a non-probability, purposive method of selection based on personal judgement of their contributions to the research. Table 3.2 shows a summary of respondents, sampling strategy and purpose. There is no distinction between the strategy used for the IDBs within the case study methodology and other participants. The rationale for a purposive non-probability strategy was to ensure that dissimilar cases were selected to facilitate comparative analyses. There are lots of generalizable features within the

IDBs when the focus turns exclusively to their organisational structure. This is understandable given the fact that IDBs are accountable to government, as organisations established by law to provide land drainage services in their districts. Therefore, the law by necessity provides the framework and associated sets of rules for governing the structure, administration and operation of the IDBs. The governance of social conduct and behaviour of independent public institutions, such as the IDBs, especially in the delivery of independently tasked goals and outcomes, remain open to the intervention of the principles of cooperation and partnership.

IDBs are frequently distinguished by several features, namely: district or catchment size, board structure and composition, membership size, underlying topography dictating the mechanism of delivery of flood management projects within the catchments. My goal was to utilise a sampling strategy that reflected the fore-stated distinguishing features in facilitating the delivery of the objectives of the research. As a summary, there were five fundamental imperatives contained in the objectives: 1) understanding the historical development of the organisation; 2) understanding the imperatives of cooperation and partnerships in local flood governance; 3) understanding the nature and dynamics of transformational power diffusion through the process of decentralisation; 4) exploring perspectives on the future role of the IDBs for flood governance; and 5) examining IDBs' present and future funding models. These imperatives required a sampling strategy that was geared towards enhancing the generalizability of conclusions, and a methodology that provided for depth of understanding of the contexts around the narratives.

The need for restructuring the administration and management of IDBs, identified initially in an independent report commissioned by Defra and produced by JBA (2006) was partly driven by the fact that some IDBs were seen to be either too small or too large to function efficiently and accountably. The subsequent recommendation for amalgamation, approved by Defra, led to the emergence of new groups and consortia of IDBs. There is an expectation that the experience and capability required for efficient governance of the boards can be found at this level. Hence, the research undoubtedly benefitted from sampling at the consortium level, in addition to data collection from individual IDBs, as the whole is always greater than the sum of its parts.

Based on the foregoing argument, data was collected from the organisations contained in Table 3.2.

- a. IDB consortia and groups varying in catchment size within the case study area were interviewed, using a non-probability, purposive sampling technique. In each of the groups, the clerk and engineer of the boards were interviewed.
- b. IDB groups outside the case study area were also interviewed as a means of validating data collected from the case study area. These IDBs responded to my initial email communication to all IDBs in England, explaining the purpose of the research. In line with a purposive sampling strategy, I selected one IDB in the North of England and one IDB from the South of England.
- c. 10 IDB members were also interviewed. These were selected from the case study areas. The approach to selection was consistent with a purposive sampling strategy.

- d. Lead Local Flood Authorities
- e. Local Authorities
- f. Association of Drainage Authorities (ADA)
- g. Parish Councils
- h. National Farmers Union (NFU)
- i. Environment Agency (EA)
- j. Natural England (NE)
- k. Wildlife Trust (WT)
- l. Independent environmental consultants (IEC)

I would further like to classify the respondents into two groups: primary and secondary respondents. The primary respondents are those respondents essential for addressing the objectives of the research, while secondary respondents are required to achieve greater depth in the analyses of the essential themes of the research. In line with the above classification, respondents from the following organisations were identified and treated as primary respondents: IDBs, ADA, EA, LLFAs, NFU, LA, and PC; while the following respondents were considered as secondary respondents: AW, NE, WT and IEC.

Table 3.2 – Summary of case study area respondents, sampling strategy and purpose

Name of respondent	Number (totals)	Sampling strategy/Method	Class of respondent	Reason for inclusion
IDB Groups (Clerks, Engineers)	10	Non-probability/ Purposive	Primary	Core research data on all research areas
IDB members	10	Non-probability/ Purposive	Primary	Core research data on all research areas
LLFAs (Manager/Officers)	2	Non-probability/ Purposive	Primary	Core research data on governance, funding and partnerships
Local Authorities (Officers)	2	Non-probability/ Purposive	Primary	Core research data on partnerships
Parish Councils	3	Non-probability/ Purposive	Primary	Core research data on partnerships
National Farmers Union	1	Non-probability/ Purposive	Secondary	Contextual research data on partnerships
Environment Agency (Officers)	3	Non-probability/ Purposive	Primary	Core research data on funding, governance, and partnerships
Independent environmental organisations working with the IDBs	1	Non-probability/ Purposive	Secondary	Contextual research data on flood and water governance, FCERM applications, partnerships
Wildlife Trust	1	Non-probability/ Purposive	Secondary	Contextual research data on partnerships
Anglian Water Services Ltd	1	Non-probability/ Purposive	Secondary	Contextual research data on partnerships and
IDB outside the case study area	2	Non-probability/ Purposive	Primary	Core research data on all research areas
Association of Drainage Authorities	2	Non-probability/ Purposive	Primary	Core research data on governance and partnerships
Natural England	1	Non-probability/ Purposeful	Secondary	Contextual data on partnerships

The sampling strategy for selecting respondents from FRMAs, including LLFAs, EA, and AW, was a purposive, non-probability strategy as these organisations were selected in advance of the study. Furthermore, the public and private organisations represented above would usually dedicate formal representatives for interviews to ensure that views expressed reflect the corporate position of the organisation.

The sampling strategy for documentary analysis of archived minutes of IDBs meetings was a systematic random strategy in which I examined the minutes of IDB meetings in January and February of 2021. The selection of the IDBs for documentary analysis was done on the basis of the IDBs' initial involvement in the research. The rationality behind this strategy was to improve and complement the data already collected from those groups of IDBs.

3.9 Ethical considerations within the research

I was guided by the Code of Practice for the Safety of Social Researchers on all aspects of the research, especially with respect to clarification of responsibilities, planning for safety in research, preparing and setting up fieldwork, precautions in the conduct of interviews, handling risky situations and most importantly, managing my own safety during the conduct of the interviews. Bryman (2012) highlighted some of the ethical issues, which have plagued social science research for decades, in his *Social Research Methods*. The proliferation of theories and schools of thought on ethical issues in research, betrays the lack of consensus on the subject. However, ethics remain central to current debates in modern social research.

In this research, I considered four issues, which Diener and Crandall (1978) agree are fundamental in research, (a) safety of the respondents; (b) clarity on the purpose of the research, and ensuring data isn't obtained by deceit; (c) ensuring formal and informed consents were obtained from respondents, and (d) respecting the anonymity of respondents.

I prepared different sets of questions for various groups of primary respondents as shown in Appendix A.

From an ethical point of view, it is very important for social researchers to ensure that they abide by the guidelines provided in the Social Research Association (2003). Furthermore, the University of Birmingham has a very robust code of practice governing research ethics. In this research, I went through an ethical review process to ensure that I conducted the research within the guidelines set out in the University Code of Practice for Research (2020).

Consequently, due diligence was taken in ensuring that the process of data collection conforms to the above standard. Furtherance to the above point, I ensured that the Research Information Document (RID) and Consent Forms (CFs) were provided to, and signed by all respondents respectively, prior to the interviews. Copies of these two documents are included as Appendix B and C respectively.

One of the major ethical challenges I encountered in this research is maintaining the anonymity of respondents. I found this very challenging because the descriptive nature of some of the issues addressed during the interviews made it difficult to completely maintain the anonymity of researchers. For instance, the identities of various IDB clerks and engineers within the Fens geographical area are easily obtainable through the websites of the IDBs. Fortunately, the IDB clerks and officers involved in the research were not concerned about their anonymity. On the contrary, some of the clerks didn't mind if their names were mentioned in the research. However, I decided to anonymise all respondents by using their

organisation and positions rather than using their actual names in the research. Additionally, I have tried to redact any references that could make respondents identifiable within the excerpts of transcripts used in the analysis parts of the research.

3.10 Coding and analysis

I approached the crucial task of analysis very methodically, starting with the organisation and coding of the collected data. The process of data organisation involves interrogating the transcripts carefully and organising them into short phrases or 'codes' which can be used to index and group data together (Chapman et al. 2015). I started by reviewing the transcripts, developing codes and themes from the various sections which I established as categories within the transcripts. The coding process facilitated the development of similar codes and themes which made it easier to cross reference data during the analysis. By so doing, the coding process enabled me to progress the analysis of all the transcripts, hence, was considered very crucial to the process of the research. By combining and contrasting various categories, I was able to test the theoretical associations developed from the themes emerging from the codes. I utilised thematic analysis (TA) in the in the analysis of secondary data collected from the various sources which I already identified in Table 3.2. Kiger and

Varpio (2020) describe TA as a method of describing data, involving interpretation in the construction and selection of codes. When I completed the coding process, I commenced the examination of potential themes which emerged from the codes by 'analysing, combining, comparing, and graphically mapping how codes relate to one another' (ibid, p. 5).

The analysis of archived documents through documentary analysis was very helpful to the research because it helped to uncover historical practices and relationships between various policies identified within the codes. In terms of its process, my analysis of the secondary data required similar process of data organisation and coding as the primary data. Following data organisation through categorisation and coding, I identified emerging themes as already stated, and analysed them for theoretical connections as recommended by Guest et al. (2012) who suggested that a structured approach to analysis enhances the beneficial application of TA in grounded theory.

3.11 Chapter Summary

This chapter has identified the research design and methodology as a flexible qualitative design, underpinned by an interpretivist philosophical approach deriving from the value attached to socio-cultural interpretations of the world (Crotty, 1998). This philosophical approach is consistent with a relativist ontology informed by constructivism (Gray, 2013). The

primary research method was a case study methodology, driven by the need for an in-depth study of the selected cases. The methods of data collection included face-to-face and telephone interviews and documentary analysis.

I examined my reflexivity and positionality as a means of justifying the case study location for the research. The case study location is the Fenland area in the East of England. In my reflexivity, I acknowledged my professional background and previous careers with the Environment Agency and Cambridgeshire County Council, both within the Fenland area.

In the examination of methods of data collection, I provided a summary in Table 3.1 covering the scope of documents analyzed within the guidance given by Bowen (2009), including the data source, document type, data analyzed and approach to selection. I confirmed that the sampling strategy was a non-probability purposive strategy chosen based on personal judgement of contributions to the research. A summary of case study respondents was provided as Table 3.2 with an indication of the number of respondents and the reason for inclusion.

I confirmed that the conduct of the research was guided by the University of Birmingham's Code of Practice for the Safety of Social Researchers. The scope of this guidance extended from the planning process, through to data collection and analysis of this research. As part of the ethical considerations, I considered Diener and Crandall's (1978) key ethical challenges

during the conduct of the research. Finally, I confirmed that the coding and analysis process was governed by the guidance on methods of analysis through codes by Chapman et al. (2015).

CHAPTER 4

AN EXAMINATION OF THE HISTORICAL DEVELOPMENT OF THE IDBs: THE TEST OF ACCOUNTABILITY IN A PRESCRIPTIVE GOVERNANCE MODEL AND LIMITATIONS OF THE FCERM FUNDING MODEL

4. 1.1 Introduction

The purpose of this chapter is to provide an understanding of some of the key issues within IDBs' historical development and operation, utilising a combination of primary data and documentary analyses. I have organised the chapter in three parts. In the first part, I examine the historical origins of the IDBs in 'the Fens' in Eastern England. The historical narrative is supported by critical analysis of significant issues relevant to the development of the IDBs. I use the sections of analyses to enrich the discussions on IDBs' historical roles, whilst making comparative references to current issues such as enforcement of land drainage legislation and funding of FCERM projects. This section satisfies objective 1 of this research, and in so doing, addresses research question 1.

In the second part, I provide an insight into the organisational structure of the IDBs, reflecting on changes in their roles by examining the challenges presented by the various tiers of water governance. I observe that the governance of IDBs has undergone a remarkable transition from centuries of rigid and absolute powers of the monarchs to democratic and collaborative system, in which power is no longer centralised in the hands of the few. This is what I characterise as transformative power. I suggest that this transformative power is evidenced in

IDBs' FRMPs through various collaborative projects. Governance and power require accountability, consequently, I assess IDBs' accountability as an organisation, examining the adequacy of existing governance arrangements for the IDBs, with a combination of primary and secondary research data. This section satisfies objectives 2 and 3 of this research.

In the third part, I examine the beneficiaries of IDBs' operations as a prelude to introducing the critical issue of funding. I identify links between IDBs' beneficiaries and potential funding sources. Crucially, I provide the background to the FCERM GiA funding model explaining the methodology for the Partnership Funding (PF) process and the qualifying conditions for receiving FCERM GiA funding. The analysis of IDBs' perspectives on the FCERM GiA funding model is presented in Chapter 6, along with an examination of other sustainability indices. This section satisfies objective 5 of the research and addresses some of the issues raised in research question 5.

4.1.2 Selective historical accounts of IDBs predecessors with analysis

As I briefly explained in Chapter 1, IDBs are independent bodies created under land drainage statutes, which can trace their ancestry in some cases back to the 13th century. They are concentrated in the lowland areas of East Anglia, Somerset, Yorkshire and Lincolnshire and are responsible for managing water levels in these areas. The work that IDBs do contribute to

flood risk management and advance the “protection and enhancement of biodiversity in urban and rural areas” (NAO, 2017, p. 8; ADA, 2006). IDBs help reduce flood risk to about 900,000 homes, industries of national importance and major UK’s critical infrastructure, including refineries, power stations and railway networks. There used to be around 200 such boards in England, but, due to amalgamation, there are now about “112 IDBs in England, covering 1.2 million hectares (9.7% of the total land area of the country). They operate and maintain more than 500 pumping stations, and contribute to the maintenance of 22,000 kilometres of watercourses” (NAO, 2017, p. 8).

The predecessors of the present IDBs were referred to as Commissioners. The earliest Commissioners were established by King Henry III, in 1252 for Romney Marsh in Kent, and in 1253 for the drains in Lincolnshire. The Court of Sewers evolved from these ancient Royal Commissioners. The Courts were invested with extensive powers to require necessary works to be undertaken by landowners and in some cases, whole communities, in furtherance of land drainage. For instance, in 1295, a Court of Sewers sitting at Gosberton found that Holland Causeway was defective and ordered the village of Donington to effect repairs (Davis, 1994). The deterrent of enforcement through the agency of the Commissions was very helpful, but on its own, it was historically insufficient to manage the problem. The remedies achieved were typically short-lived, as subsequent incidents of flooding and inundation were frequently recorded; the causes of which were mostly beyond human control. Consequently, the Court’s orders were frequently ignored, and in 1307, a Commission found “practically everybody evading their repairing obligation” resulting in various sewers falling into “decay through default of the tenants of the Abbot of Angiers...” (Davis, 1994, p.14).

It is very significant that King Henry III was credited with attempts to remedy the condition of the Fens in 1254 (Wheeler, 1897). However, critics would argue that his intervention was not born out of a purely altruistic motive, as it so happened that he as well as other landowners had suffered considerable damage from flooding in the area. Consequently, on his orders, the local court officer, historically known as the Shire Reeve, distrained the goods of the landowners who had failed in their duty to repair the banks. Owing to persistent complaints to the Crown on account of various losses arising from constant flooding, numerous Commissions were issued, and renewed by successive parliaments, with powers to order 'such works to be done as they considered necessary for the security of Fenland, and to direct by whom the works were to be carried out, and to assess the mode of payment' (Wheeler, 1897, p. 29). However, during the 6th year of King Henry VIII, "they were declared to endure forever, and the Chancellor was granted with perpetual authority to grant such Commissions whenever need should require" (Ibid, p. 44).

I observe from the above account that the deterrent of enforcement as an aid to flood management has been historically inadequate. The difficulties stem from the weakness of the legislative instruments combined with an absence of moral authority due to inconsistencies in the application of existing laws. The perspective of the IDBs is that not a lot has changed in recent times. One of the IDB Clerks aptly captures the difficulty IDBs have with current flood risk enforcement legislation:

"Most of the landowners know to apply for consents if they are doing works on watercourse, you know... we've had developers undertake works without coming to us first. The local authority should be directing them to us during the application. Some do, some don't. But, we've had people come to us late when the deed has been done. But we try and work it out. You can't drag everybody to court can you? Even so, you waste a lot of time and money and in the end you are none-the-wiser" (IDB Clerk 4).

The IDB Clerk makes reference to landowners seeking flood risk permits (land drainage consents) retrospectively. Retrospective applications are applications made after work has commenced, however, flood risk legislation does not permit retrospective applications for land drainage consents or permits, unlike planning applications. This creates enormous challenges for the IDBs who are then faced with two extreme options: a) allow any structures already constructed to remain without approval, or b) request that the landowner demolishes any structures already constructed and then apply for appropriate permit. However, the Clerk accepts that the second option is disruptive, and damages the reputation of the IDBs as an organisation which has the interest of the community at heart. Unfortunately, it sets a negative precedence which ends up damaging the ability of the IDBs to enforce land drainage laws.

A general drainage Act was passed by Parliament in 1600 for the recovery of wet ground throughout England. In 1603, attempts to fund the reclamation work through local taxation were unsuccessful. This provided a business opportunity for entrepreneurs of the time known as, adventurers, to come forward with proposals. One of the first adventurers was Thomas Lovell. He was granted sole commission to drain Deeping Fen in South Holland district of Lincolnshire on the condition that the works should be completed within 5 years, and most importantly, at his expense. Lovell spent about £12,000 on the scheme (equivalent to about £4M in 2020) and on completion, received over 15,000 acres of land on the orders of the Court of Sewers (Davis, 1994). The locals did not anticipate that their sources of sustenance, such as traditional fishing and wildfowling rights would be severely compromised by this vast

drainage work. Upon realising this, they undermined the works by “effective opposition”, casting down the banks (Ibid, p. 24). In 1629, undeterred by the failure of previous adventurers, Cornelius Vermuyden presented a proposal for the drainage of parts of the Fens to the Court of Sewers in Kings Lynn. Unfortunately, his proposal was rejected. Following the repeal of Thomas Lovell’s original grant, in 1664, the Earl of Manchester, the Earl of Devonshire, Lord Barkley and others were declared Undertakers and Trustees, with responsibility to re-drain the Fens and establish the Washes.

It is clear that there is a long history of conflict with local communities over the funding of land drainage works. Furthermore, there has been great improvement in assessing the impacts of flood intervention measures since the time of Thomas Lovell. However, flood risk projects are rarely completed without some form of conflict arising from potential environmental, socio-political, and economic challenges of the options being considered. There is a potential link between the historic practice of rewarding adventurers who funded land drainage projects with the beneficiary-pays-model of flood risk management. In both cases, the funds provider has a value attached to the investment, and thus could be argued to be benefiting from his services. This beneficiary-pays-model has now been refined over the centuries and now constitutes the fundamental funding model for IDB services.

The earliest Commissioners were established by King Henry III, in 1252 for Romney Marsh in Kent, and in 1253 for the drains in Lincolnshire, to name but a few. The Court of Sewers evolved from these ancient Royal Commissioners. The Courts were invested with extensive

powers to require necessary works to be done in furtherance of flood risk management. For instance, in 1295, a Court of Sewers sitting at Gosberton found that Holland Causeway was defective and ordered Donington to effect repairs (Davis, 1994). The deterrent of enforcement through the agency of the Commissions was very helpful, but on its own, was historically insufficient to manage the problem. Remedies achieved were short-lived, as subsequent incidents of flooding and inundation were frequently recorded; the causes of which were mostly beyond human control. Consequently, the Court's orders were frequently ignored, and in 1307, a Commission found "practically everybody evading their repairing obligation" resulting in various sewers falling into "decay through default of the tenants of the Abbot of Angiers..." (Davis, 1994, p.14).

Several other Acts of Parliament were enacted to supplement the powers of the Court of Sewers to enable drainage improvements by gravity in the Fens, such as the Enclosure Acts of 1788, 1794, 1801 and the amended Act of 1812. However, in June 1832, Royal Assent was received for "proprietors of the land to erect or build one or more mill or engine for discharging" flood water. In providing this Royal Assent, the Act acknowledged that gravity discharge as a mechanism of land drainage on its own, is insufficient for adequate land drainage without the aid of pumps, particularly, in the lands within the parish of Spalding. Another Act of Parliament was obtained in 1837 conferring on the Commissioners, powers to tax commodities up and down the navigable River Welland.

This legislation made it possible for cooperation between drainage and navigation to be explored within the Fens. Prior to the introduction of the Great Northern Railways, the "only

communication the interior of the Fens had with other parts of the country previous to railways was by means of boats navigating the arterial drains and the great Fen rivers” (Davis, 1994, p. 62). By the 20th Century, most areas of the Fens were primarily drained by a combination of electric and diesel pumps. The first electrically powered pump was installed in 1939. Today, pumping stations have become an intrinsic part of land drainage in the Fens, primarily because of the flat topography negating the use of gravity discharge.

Currently, although the IDBs in the Fens have significantly improved all aspects of their operation due to advancement in technology (better mechanical and electrical equipment and software infrastructure), the new demands of environmental sustainability combined with increase in flood risks due to climate change have created new challenges to which the organisations must adapt if they are to remain relevant as a key FRMA in England, and relevant stakeholder in achieving the UN sustainable development goals.

The IDBs have evolved through a historical process, birthed through the powers of the Crown, representing a concept of unchecked and absolute power. King Henry III started the process by establishing various Commissions for drainage works. Succeeding sovereigns sustained the Commissions as a means of administering historic land drainage works until an Act was passed during the reign of King Henry VIII, investing on the Chancellor, powers to grant Commissions whenever required. The establishment of these commissions required an exercise of absolute power, given the form and nature of government at the time in England. Parallel to the customary powers conferred on landowners for bank repairs, there was a

gradual devolution of specific powers relating to drainage works through the various Acts of Parliament to the commissioners and the adventurers. The transfer of drainage powers through the Acts of Parliament was very significant, because it marked the earliest beginnings of the application of transformative powers in land drainage works (Wheeler, 1897). These crude powers would remain largely fettered by intrinsic resistance to change, until the end of the 20th Century. Critics such as Ash (2017) have persisted in the argument that, viewed from the concept of power and state formation, the Fens drainage effort was an example of deliberate and concerted efforts at centralising power rather than sharing power through a diffused process in the formation of a state. The transition of IDBs operations from historic absolutism to the cooperative processes of transformative power through flood risk partnerships is one of the central themes of this research, and will be explored further in Chapter 5.

4.2 Examining the roles, structure and governance of the IDBs

4.2.1 Introducing the present-day Internal Drainage Boards

Complementary to the introduction to IDBs provided at the beginning of this chapter, Defra defines Internal Drainage Boards as “local public bodies responsible for land drainage in areas of special drainage need. Their focus historically was the drainage of agricultural land, but they now play a much wider role in protecting farmlands, homes, businesses and critical infrastructure from flooding, whilst protecting and enhancing biodiversity” (Defra, 2015, p. iii). IDBs manage water levels by maintaining watercourses, reservoirs, pumping stations and flow control structures such as sluices and locks. One of the techniques used by IDBs to maintain a balance in water level management with multiple benefits is ‘maintaining lower water levels during periods of heavier rainfall and higher levels during drier periods to help with irrigation and for environmental benefit’ (RPA et al., 2013, p.6).

As shown in the historical account in section 1, IDBs’ ancestry can be traced in some cases back to the 13th century. They are concentrated in the lowland areas of East Anglia, Somerset, Yorkshire, and Lincolnshire, and are responsible for managing water levels in these areas. Though IDBs were historically responsible for land drainage mainly for agricultural purposes, their contributions to the UK’s food security ambitions post World War (WW) II has largely remained unexplored. Nonetheless, the primary role of agricultural land drainage remained the key identifying function of the organisation until the introduction of their flood defence role between the 1970s and 1990s (Johnson and Priest, 2008).

The role of the IDBs has subsequently evolved to water level management (ADA, 2018; NAO, 2018). To highlight the scope and significance of IDBs’ role, it is noteworthy that about 10%

of England has managed water levels, facilitating sustainable use of land (Environment Agency, 2009). Given the mutually beneficial relationship between water level and environmental management, the work of the IDBs contribute to flood risk management and advance the “protection and enhancement of biodiversity in urban and rural areas” (NAO, 2017, p. 8; ADA, 2006). IDBs’ range of water level management projects help reduce flood risk to 900,000 homes, industries of national importance and major UK’s critical infrastructure, including refineries, power stations and railway networks. There used to be around 200 such boards in England, but due to amalgamation, there are now about “112 IDBs in England, covering 1.2 million hectares (9.7% of the total land area of the country). They operate and maintain more than 500 pumping stations and contribute to the maintenance of 22,000 kilometres of watercourses” (NAO, 2017, p. 8). A map of the IDBs in the UK shown in Figure 4.1 provides an indication of the geographical scale of the IDBs in the UK.

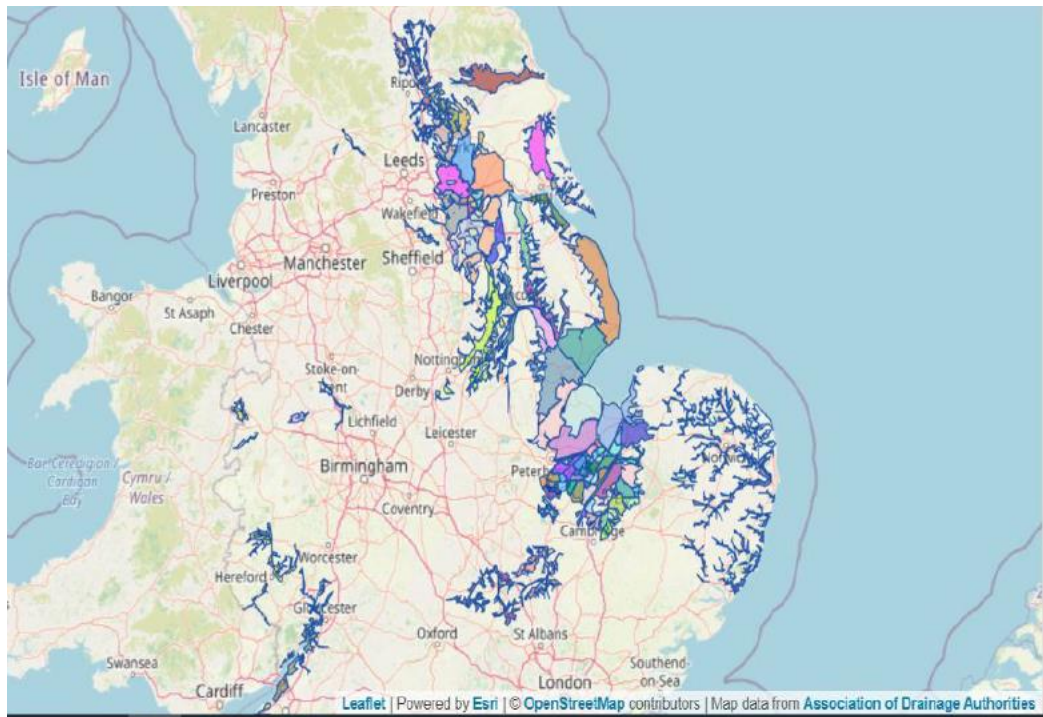


Figure 4.1 – Map showing the geographical locations of IDBs in the UK

Source: Association of Drainage Authorities website (www.ada.org.uk)

4.2.2 Key legislation affecting the role of the IDBs

There are several kinds of IDBs, constituted from a variety of sources: a) the first group are boards that were derived from bodies that existed before 1930 as either Commissioners of Sewers constituted by the Commission issued under statute of Henry VIII, or the Land Drainage Act (LDA) 1861, b) the second group are boards constituted by Provisional Order (PO) under the LDA 1861, and c) the third group are boards constituted by order of the Environment Agency or its predecessors (ADA, 2018; RPA et al., 2013). The Order which constitutes the IDB sets out the number of elected members. However, Council(s) paying Special Levies are entitled to appoint members onto the boards in proportion to the contribution they make with respect to Special Levies and Drainage Rates income (ADA, 2018).

The process for the establishment and funding of the IDBs are governed by sections 1, 2 and 3 of the LDA 1991. The LDA 1991 consolidated all previous enactments relating to land drainage for all IDBs and local authorities. The LDA 1991 and amendments of 1994 (with respect to the environment and recreation) set out IDBs' duties (JBA, 2006). The LDA 1991 under which the IDBs are legally constituted requires IDBs to manage water levels within their districts, and to

fulfil the duties set out as follows: a) providing general supervision over all aspects of land drainage within the district; b) adhering to duties with respect to the environment and recreation; c) adhering to duties with respect to the natural and built environment, as well as public access. Under the LDA 1991, IDBs can set additional legislation known as Byelaws to govern their operations. The role of the IDBs now include environmental obligations such as habitat creation and maintenance of biodiversity in compliance to EU Habitats Directive 92/43/EEC established in May 1992, constituting the framework for the Birds Directive and Natura 2000 (www.ec.europa.eu/environment/nature/habitatsdirective).

In the last decade, the role of the IDBs has been influenced significantly by the FWMA 2010. In my view, the FWMA 2010 has arguably had the most significant impact in IDBs' cooperation and partnerships with other FRMAs resulting in collaborative projects credited with improving the sustainability of the environment and the organisation. As I acknowledged above, the role of the IDBs as identified by various legislation requires effective partnerships with other FRMAs, and wider engagement beyond the farming and water management sector.

An examination of the role of the IDBs would be incomplete without a discussion of the structure of a typical IDB as presented in Figure 4.2. IDBs are recommended to have a Chair, who runs its business and leads the board. The Clerk is the formal point of contact for an IDB. For some boards, the Clerk also doubles as the engineer, responsible for technical operations. Every IDB should also have a Responsible Financial Officer (RFO) to manage its financial affairs.

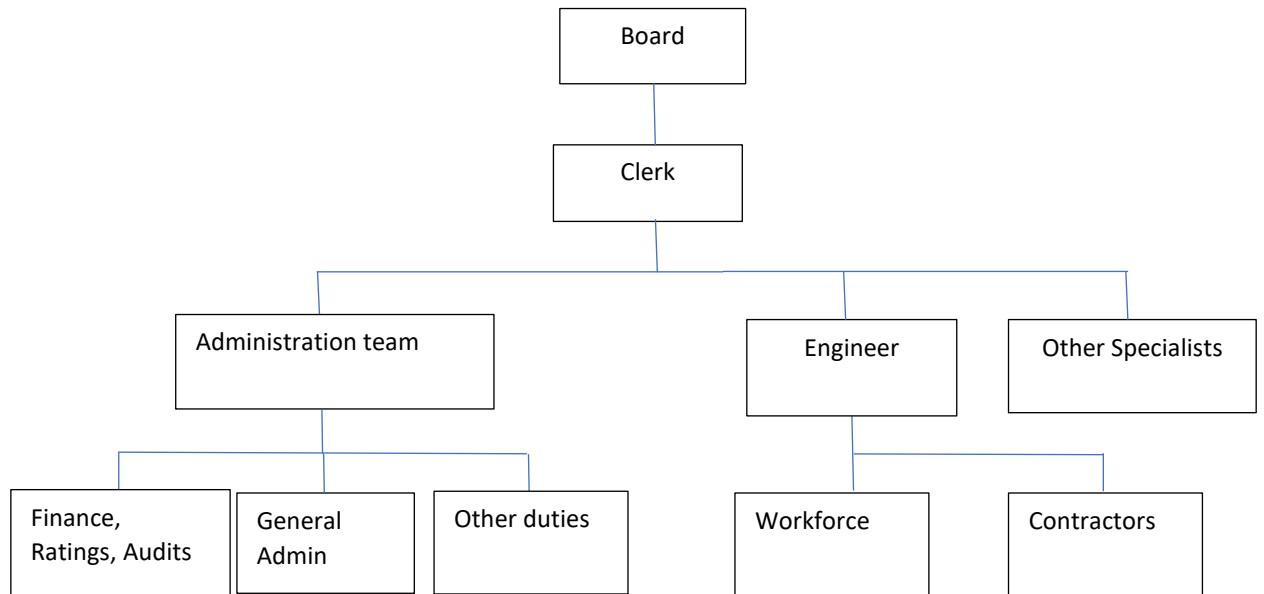


Figure 4.2 – A typical management structure of an IDB

(Reproduced from ADA (2018, p.16) *Good governance for Internal Drainage Board members*)

4.2.3 Governance of the IDBs

The governance of the IDBs has been a subject of much conjecture among flood risk management organisations, because the IDBs are partly self-funded through their members and government funded through receipt of the FCERM GiA grants. The processes through which this dual governance is implemented for the benefit of the IDBs form the focus of this section.

4.2.3.1 Tiers of flood and water governance in England

The governance of IDBs has changed significantly since the establishment of the Commissioner of Sewers in 1427 to “oversee drainage arrangements” (ADA, 2018, p.1). Then, the sole purpose of the IDBs was to perform a land drainage function. In the discharge of this role, IDBs operated through self-governance with customary law-based mechanisms for accountability to members. Given the powers of the monarchs in English history, it is reasonable to expect that governance provided by the Commissioners of Sewers would have been influenced by monarchs to whom the Commissioners were accountable throughout the duration of the commissions. The introduction of legislation through the Acts of Parliament began what I would like to describe as ‘democratic governance’. Through this process, the governance of the IDBs transited from a monarchical rule to democratic governance, reflecting the process of transformative power as described in Chapter 2. The democratic governance is characterised by public representation with various tiers or layers for accountability and effective representation.

There is currently a three-tier governance structure for flood risk management in England: national, regional, and local. Defra is the government department vested with the overall governance of flood risk management in England represents the first tier. The Environment Agency, which is a non-governmental public body sponsored by Defra and established by the Environment Act 1995 often liaises with Defra as a first tier water governance authority in England. Under this legislation, powers previously held by the National Rivers Authority (NRA) were transferred to the Environment Agency. The FWMA 2010 further clarified some of the responsibilities of the Environment Agency, particularly on the requirement of a national

Flood and Coastal Erosion Risk Management Strategy (FCERMS) among others. Consequently, the Environment Agency has strategic overview on all flood risk issues, but has operational responsibility for tidal and fluvial (main rivers only) flood risk. Along with Defra and the Environment Agency, the Department for Communities and Local Government (DCLG) is responsible for the planning framework for development and flood risk. They are also mandated to ensure that flood risk considerations are factored into the planning process. The role of the DCLG is also relevant after flood events as they coordinate local authorities' recovery efforts. The Cabinet Office is instrumental in developing cross-sector resilience programmes for civil contingencies, particularly on flood risk issues. These afore-mentioned departments all form part of the first tier of flood and water governance in England.

Regional Flood and Coastal Committees represent the second tier. They liaise with the Environment Agency, LLFAs, other local authorities and the IDBs to ensure that adequate plans are in place for managing flood risk across catchments and shoreline areas. The third tier of water governance relates to local governance arrangements provided by LLFAs, local and district councils and the IDBs. The duties of the LLFAs are set out in the FWMA 2010.

Following the lessons learnt from the floods of 2007, the need for local governance of FCERM became very expedient, leading to the development of the Flood and Water Bill and eventually, the FWMA 2010 to which I have earlier referred. Under the FWMA 2010, LLFAs were established from existing counties and unitary authorities, with the responsibility for managing flood risk from surface water flooding, groundwater flooding and flooding from ordinary watercourses.³ They were also vested with the powers to produce Local Flood Risk

³ LLFA are responsible for managing ordinary watercourses

Management Strategies (LFRMS) in their areas. IDBs are required to contribute to the development of the LFRMS, by ensuring that their programmes are reflected within the Local Flood Action Plans (LFAPs) of their respective LLFA, contributing to the objectives of the LFRMS. This represents one of the two principal means through which LFFAs provide governance to the IDBs. The other means is through the leadership of the Flood Risk Management Partnerships (FRMPs), which represent the collaborative platform for FRMAs within LLFA boundaries. LFFAs have responsibilities under the FWMA 2010 for managing pluvial (surface water) flooding, fluvial (ordinary watercourses) flooding and groundwater flooding.

Government departments and organisations involved in the governance of flood and water management in England are represented in Figure 4.3.

Bodies involved in flood risk management

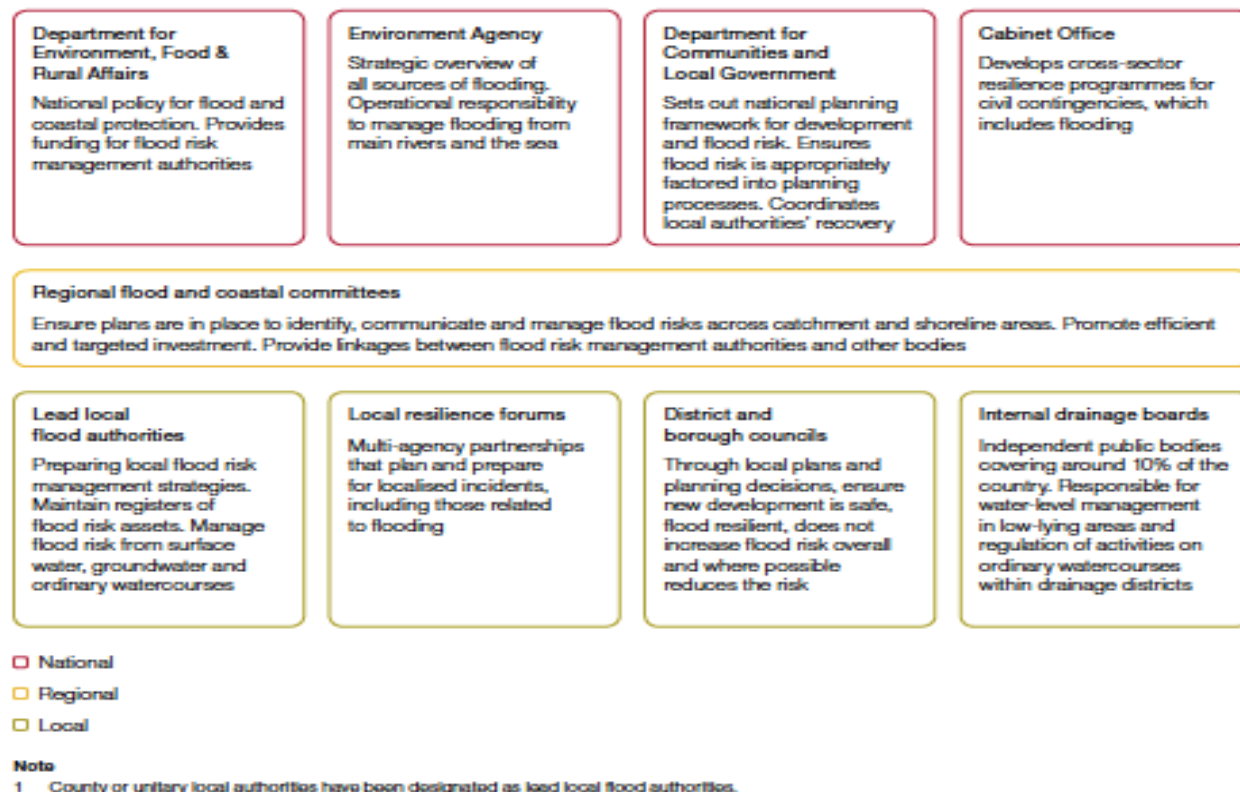


Figure 4.3 – Organisations involved in FCERM in England

[Source: NAO, 2015, p. 12]

4.2.3.2 IDB Governance under Association of Drainage Authorities

The struggle with defining an appropriate model of governance for the IDBs is historically reflected in the challenges encountered by various monarchs and Commissions throughout the IDBs' history. In my earlier historical analysis, I referred to the weakness of legislative instruments resulting in ineffectual penalties for landowners who contravened customary

land drainage laws. There are obvious difficulties in reconciling inherited, top-down powers of the monarchs, who were the custodian of the customary laws, (akin to what Foucault referred to as 'disciplinary power'), with the more liberal understanding of power as a multi-faceted instrument concerned with people (Foucault, 2004). Despite the historic challenges in the governance of the IDBs, they have emerged as a stable organisation in the 21st Century, sustained through their primary drainage function. However, they now faces a similar challenge of adapting to the new problematics of governance, transitioning from the monarchical to the neoliberal and mutually inclusive form of government characterised by the requirements of EU Flood Directive, the UK Localism Act and the requirements cooperation and collaboration within the FWMA 2010. Many state and non-state actors in the UK recognise the governance challenges inherent in IDBs' history, one of the parish council officers provided a perspective of their relationship with IDBs:

"We didn't use to have much interaction with the IDBs, we've got a few of them around us in Fenland, we used to only get involved when a culvert is blocked or something... personally I have dealt with one this year on planning applications. Otherwise, you know the IDBs... they are not big on meetings... they just wanna get things done" (Parish Council Chair).

My deduction from the parish council's perspective is that the IDBs are very efficient in their role, however, there is a suggestion that they have historically struggled with engagement with others. I will pick up on some of the challenges of IDBs' engagement with others in Chapter 5. However, returning the focus to IDBs' governance, I would acknowledge the positive impacts of enabling legislation, governance initiatives and policies deriving from collaborative governance and influence from Defra and Environment Agency.

In 1937, drainage authorities came together and formed a collective group known as the Association of Drainage Authorities (ADA). ADA has become the visible governance body for the IDBs in England, negotiating with government actors such as Defra, the Environment Agency, and interest groups such as National Farmers Union (NFU), conservation and environmental groups, on behalf of the IDBs. In this capacity, ADA has recently produced a governance guide to enhance consistency within IDBs' operations and improve their accountability to UK government legislation, EU Directives, their local communities and members.

The guidance document on IDBs entitled '*Good Governance for the Internal Drainage Boards*' re-emphasizes the importance of good governance and collective responsibility for water management and places this responsibility on IDB members. It stresses the importance of attributes such as good communication with members, being a responsible employer, adherence to robust financial system of control and audits (ADA, 2018). In addition to these governance attributes, board members are expected to adhere to the general principles of conduct for public bodies established by the Committee on Standards in Public Life (the Nolan Committee), which include accountability, objectivity, integrity and honesty.

The significance of proportional and adequate board representation goes to the heart of the question of effective governance. Hence, the ADA was right to focus on it. However, some aspects of the guidance have been left open to interpretation, particularly, the question of board size. I was able to examine the way in which many IDBs have interpreted this guidance

in my interviews with IDB boards. One of the IDB Clerks responded to my question on the extent of his board's adhering to ADA's guidance on representation:

"We have debated it. We actually downsized from 34. We got as low as 29. We debated it in the last government and they won't go any lower. The 'good guide' says 21 but our board say 29 is good" (Clerk 1)

The IDB Clerk, through this response, clearly recognises the guidance provided, but also appreciates that his board can make an objective judgement in the interest of the board.

Defra advises that larger IDBs should not have more than 21 members and recommends that "IDBs larger than this may wish to consider reconstituting to smaller sizes to see fewer vacant seats, more contested elections and better attendance at meetings" (ADA, 2018, p. 3). Defra's advice is grounded in decentralisation arguments, supported by Buser (2013), Barnett (2011) and Norman (2010) all of whom are critical of centralisation policies to various degrees. This guidance on decentralisation needs to be taken within the right context because on the opposing side of this argument are those who caution that decentralisation doesn't always result in positive outcomes, and specifically against any expectation of transformative powers resulting from decentralisation policies (Flores et al., 2016; Norman et al., 2012).

The response from IDB Clerk1 acknowledges ADA's guidance, yet the decision of the board appears to go contrary to this guidance. This raises two questions: a) Does the board's insistence to act in this way undermine ADA's guidance? and b) Is it possible that this aspect of the guidance is flawed? On reflection, it is hard to argue against the benefits of self-governance through proportional representation even when it implies a deviation of about 40% from the official guidance (as happened with this IDB). This is justified on the basis of the fact that IDBs have had a proven history of success in their roles. I would assume that this

historical success has been achieved with a significant measure of self-governance.

Nonetheless, the question of the need for consistency within an organisation, which now faces unfamiliar challenges from its historical past, persists.

Continuing with my focus on the impacts of effective board representation, I further investigated the nature of the relationship between the board constitution and representation within local communities. My findings from IDB Clerk 1 indicate that there are now less farmers on the board than previously, with a 15:14 split between farmers and elected members. Taken at face value, the reduction in farmers' representation may incorrectly be viewed as retrogression in representation of the farming community, but this would be an incorrect assumption. My assessment is based on the fact that the population of Fenland has increased by about 22% since 2001 (www.citypopulation.de/en/uk/eastofengland). Therefore, given the extent of cultural changes brought about by the impacts of migration in the East of England in the last two decades, I would argue that the 15:14 split is more representative of the socio-cultural indices of the growing population in the local area.

4.2.4 The test of accountability within a non-prescriptive governance model

Over the last 15 years, Defra has commissioned many reports to examine governance issues within the IDBs. Some of the key ones are, a) The JBA report of 2006 - JBA undertook a review of the IDBs on Defra's behalf in 2006, and made recommendations on organisational arrangements for IDBs (JBA, 2006; RPA et al., 2013); b) Entec was commissioned by Defra in 2010 to undertake a follow up to the JBA's review. Their report drew several findings in relation to IDBs' administrative and maintenance costs, the ability of IDBs' to deal with information requests and the extent of IDBs' visibility and capacity to communication within the communities (Entec, 2010); c) An extended report undertaken on Defra's behalf by RPA et al. (2013) , which dealt with the roles and function of the IDBs (Entec, 2010; RPA et al., 2013). I will now analyse and examine the drivers and findings of some of these reports with respect to IDBs' responsibilities for governance and accountability.

There was a recognition in 2006 that some of the IDBs were not operating efficiently because they were absorbing huge administrative costs which could easily have been shared with other boards. Consequently, Defra commissioned a report to assess the severity of the situation and explore options for improvements. I had an opportunity to discuss the benefits of this report with ADA in my interviews. ADA confirmed that the review was conceived as a stimulus to the IDBs to pursue amalgamation. One of the directors implied that the findings of the report had a positive impact on IDBs' amalgamation efforts:

"I remember there were about 160 drainage boards at the time, but today, there are about 112. You can see there has been a huge change. That's not boards being abolished, but that's through amalgamation." (ADA, 2019, T.1)

Subsequent to this report, the internal drainage boards in Wales were abolished as a result of gross failings in financial accountability following an audit by the National Audit Office. ADA views this as a watershed moment in recent IDB's governance history and initiated the publication of various governance model statements for the IDBs.

In 2017, the National Audit Office (NAO) produced a report addressing concerns from members of the public about IDBs' practices with respect to potential failings in governance and other areas of operation. One of the key findings of the report is highlighted thus:

“There is no statutory governance standard for IDBs, and the government has no legislative power to ensure that IDBs, as public bodies, meet expectations for good-quality internal governance and sound financial management” (NAO, 2017, p.5).

The report acknowledges the existence of non-statutory governance standards, developed with Defra's help and support, but concedes that legislative enforcement of governance standards is currently subject to the Environment Agency's supervisory-oversight role. It further recognises that although the IDBs are bound by local authorities' Local Flood Risk Management Strategies (LFRMS), the local authorities themselves “have no legal powers to directly influence IDBs' governance and administration” (ibid).

The research findings suggest that IDBs generally agree on the need for a guidance document on governance, but some argue that any guidance needs to be visible. One of the IDB Clerks stressed the importance of this visibility:

“As a statutory body, we need to have a governance mechanism in place, not only do we need to have it, we need to demonstrate that and tell people about it. Because more important than having a governance system is telling people about it. People know you are a public body and you have a governance document. Emphasising that it is a guide, it is worth picking up on that...” (IDB Clerk 2).

The need for visibility of any guidance document is arguably relevant for accountability within and outside of government organisations. As the NAO (2017) report has shown, the public are increasingly able to hold organisations in receipt of public funds accountable in their conduct, processes, and quality of service. The revelation of the absence of an enforceable governance standard for the IDBs is a significant finding of the NAO (ibid) report.

The research findings indicate that most IDBs do not strictly apply the guidance. This flexible application of the guidance by many IDBs point to a possible difference of opinion between the IDBs and the Environment Agency, particularly with respect to the purpose and utility of the guidance document. Furthermore, judging by its flexible application, the IDBs may have viewed the guidance document as a general advisory framework, but not a policy document to be implemented in its entirety. This view is shared by another IDB Clerk who discussed the experiences of his board with me during the research. Recounting a recent joint meeting with the Regional Flood and Coastal Committee (RFCC), where the RFCC chairman was emphasising the importance of strict adherence to the guidance document, the IDB Clerk suggested that there were indications that the Environment Agency, through the RFCC, was interpreting the guidance document as a policy document. To support his suggestions, he recounted some of the discussions at the meeting thus:

“...Should we as the EA say unless you IDBs have demonstrated that you have adopted the guidance document, you won’t get any FDGiA schemes?” [Referring to the RFCC Chairman] “So, he is immediately thinking of this as a policy document rather than a guidance document. And if you haven’t adopted it as a policy, then we’re gonna hit you with a stick by not allowing you to apply for FDGiA. So, from being a guidance which we should follow because it is a good document, ... EA/RFCC has interpreted it as a policy, saying if you don’t use it, we’re gonna hit you with a stick” (IDB Clerk 2).

To restore the credibility of the guidance document, ADA and Defra (through the Environment Agency) should urgently seek to clarify any possible misinterpretation of the guidance with respect to the size of the boards, or review the same, to accommodate the views of the majority of IDBs on this issue. This is particularly pertinent because, whilst some boards have attained a critical size, others may yet achieve further efficiencies through amalgamation with other consortia. As Bakonyi (2018) observes, centralisation is more effective than decentralisation during times of organisational crises. From this perspective, amalgamation through merging smaller IDBs to form a larger group in a crisis period should be encouraged.

Returning to the question of the potential value of a prescribed governance model, it seems reasonable that any further prescription of the guidance should take into account the fact that the average IDBs board sizes may need to change after amalgamation. Therefore, the size and structure of amalgamating boards should be taken into account in any future guidance on board sizes to ensure fair representation. IDBs' seem to have taken the initiative in deciding the appropriate size of the boards. However, the scrutiny on efficiency and accountability on the IDBs should persist because of the huge gaps in performance between some of the IDBs as examined in Chapter 5. It suffices to observe in this chapter that some IDBs are performing very efficiently, whilst there are others who would benefit from sustained emphasis on efficiency and accountability in governance.

A more critical analysis of the reasons behind the apparent differences in the interpretation of some sections of the guidance document could be found in the nature of the existing

relationship between Defra and the ADA. The NAO report recognises that no formal memorandum of understanding exists between ADA and Defra but acknowledges that both organisations have a “good working relationship”. The report further lauds the progress made so far in addressing governance issues within the IDBs, but concedes that as an advisory body, ADA can define the requirements of the IDBs’ annual return, but it has no enforcement powers and hence, cannot “compel an IDB to implement good practice” (NAO, 2017, p.6). Most of Defra’s powers for FCERM in England are delegated to the Environment Agency, who provide scrutiny on the IDBs’ programmes through the RFCCs. There is a need to expand the scope of existing relationships between ADA and the Environment Agency to examine opportunities for strengthening governance and accountability within the IDBs. I have made further recommendations on the scope of potential relationship between the Environment Agency and ADA in respect of the support required by the IDBs in Chapter 7.

4.2.5 The links between IDBs roles, benefits and funding

As I have established earlier in this chapter, IDBs have historically held the primary responsibility for land drainage in England. This historical role has led to the adoption of a funding model reflecting a customary law that “those who benefit from... or create a need should pay for it” (ADA 2018, p. 44). This tested principle constitutes the fundamental

framework for the present IDB funding model. Thus, in the discharge of the land drainage role, IDBs rely on 'drainage rates and special levies' from landowners and those who directly benefit from the IDB's services (ibid, p. 45). However, the range and complexity of IDBs roles are changing given increasing flood risk and environmental degradation driven by climate change. This increase in role can be evidenced from the complexity of projects which IDBs now deliver for other FRMAs, particularly the Environment Agency. The evidence for this is examined further in Chapter 5. Presently, I observe that whilst IDBs' historical funding model is tested and reliable, the *beneficiary pays model* relies on proper identification of beneficiaries for the range of services on offer. Thus for the IDBs, a re-examination of the scope of IDBs' roles and beneficiaries is necessary.

IDBs are currently seen as local independent public bodies responsible for managing water levels in low-lying areas where there is a special drainage need, and hence contributing to flood risk management (NAO, 2017). The scope of water management includes all aspects of flood risk management as well sustainable water management for agricultural purposes. As ADA (2018, p.1) puts it, "the principle of collective responsibility for water management endures at the heart of Internal Drainage Boards". The scope of the current IDBs' roles has required a shift from a traditional land drainage approach. Furthermore, new environmental requirements, frameworks and plans, such as, the Water Framework Directive (WFD) and Biodiversity Action Plan (BAP) demand a different approach to ensuring sustainable water level management, than was previously the case in the land drainage era (Butler and Pidgeon, 2011). Without digressing too far from my focus on roles, benefits, and funding, it is sufficient to highlight here that the scope of IDB roles has direct links with the funding sources

available to them. There are instances where specific environmental projects are established with funds set aside by environmental charities or organisations, as is the case for competitive grants for environmental improvement projects. Where these projects are available in IDB districts and qualifying criteria are met, IDBs can take up such projects and funding opportunities. However, these isolated and intermittent funding streams are unlikely to provide sustainable sources of funding for the IDBs. An assessment of the scope of IDBs' beneficiaries would follow from the review of the scope of roles. I have introduced this as a prelude to exploring the background to Defra's funding model, better referred to as FCERM Grant in Aid, which constitutes the major source of funding for capital flood risk management projects undertaken by the IDBs.

4.2.6 Beneficiaries of IDB operations

Defra recognised the difficulty in quantifying and attributing benefits arising from IDBs operations, and commissioned a study (by RPA et al. 2013) to identify a method for consistently assessing these benefits. The result of the study is summarised in Figure 4.4, and shows the range of stakeholders who benefit from IDBs' activities, and how much they benefit. The report explains that IDBs cover a wide range of geographic areas with diverse physical characteristics and stakeholders who derive various benefits from IDBs' operations. It

further proposes a set of performance indicators to help IDBs demonstrate the value that they provide to their stakeholders” (RPA et al., 2013).

Findings from the report summarised in Figure 4.4 shows that farmers and landowners are the highest beneficiaries of IDBs’ operations (c. 30%). Local authorities and residents are ranked second and third with 19% and 15% of all beneficiaries respectively (RPA et al., 2013). Perhaps the most surprising set of beneficiaries are service provides with 16% of all beneficiaries. The report findings are very significant from a funding point of view because whilst landowners and local authorities contribute to IDBs’ funding through drainage rates and local levy, there is no mechanism for service providers to fund IDBs’ operations. Hence, data from this study encourages wider discussions on how beneficiaries of IDBs can proportionally fund the operations of IDBs. The summary conclusion from the report is that IDBs offer many direct and indirect benefits to various individuals and organisations who may not be directly funding IDB operations.

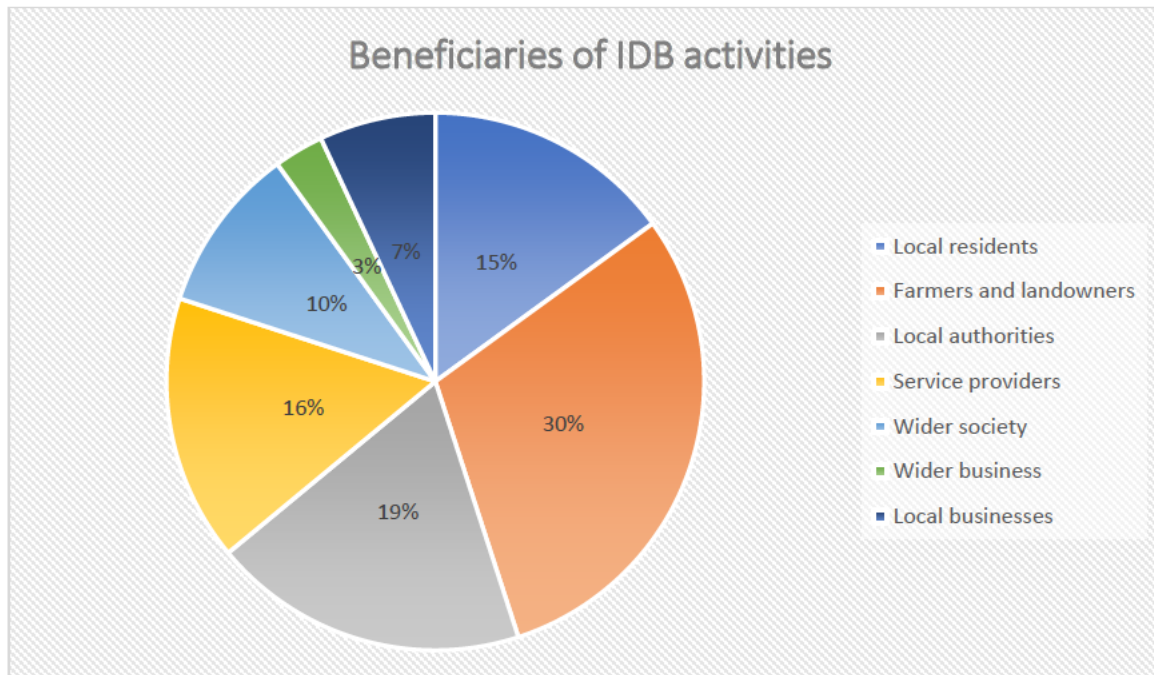


Figure 4.4 – Beneficiaries of IDBs’ operations

Reproduced from RPA et al. (2013, p. 7) Role of Internal Drainage Boards in managing water levels: Best practice and potential future roles, R&D Technical Report, WT1512/TR

Some beneficiaries provide indirect funding for IDBs, for instance, homeowners who pay council tax to local government, where special levies are payable to the IDBs, contribute to the funding of the IDBs. To provide further background to this, ADA clarifies that prior to the 1970s, IDB levies have been historically paid by landowners living within an Internal Drainage District (IDD). However, since the 1970s, IDB levies have been collected by the local district or unitary authorities through drainage rates. However, to streamline the payment process, the decision was made to merge the drainage rates and other components of the council tax so that property owners only make one payment to the local authority instead of several individual payments. The local authority in turn, pays the sum of levies collected to the IDBs as a single payment known as the Special Levy (ADA, 2016).

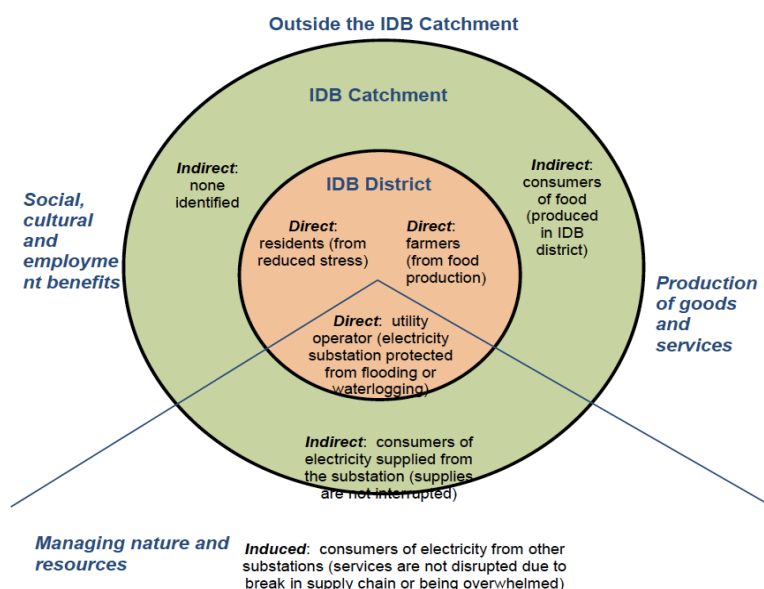


Figure 4.5 – A schematic diagram showing the range of beneficiaries of IDB operations

[Source: Defra (2015) Internal Drainage Board beneficiaries and performance indicators, Report No. FD2659.

Defra (2015) identifies three types of beneficiaries of IDBs operations. A) Direct beneficiaries: representing people, assets or organisations, who directly benefit from the service provided within the IDB district. They usually pay special levies for the services received from the IDBs. B) Indirect beneficiaries: representing people, assets or organisations, who indirectly benefit from the asset or good being provided within the IDB district. The indirect beneficiaries form the second link in the chain. They are often located within the wider IDB catchment but may also be within the IDB district. Defra (ibid) clarifies that ‘where indirect beneficiaries are located within the district, they may contribute to the IDBs’ funding through drainage rates or the local authority special levy; however, where they are located outside the district, they may contribute indirectly through council taxes or taxes to central government’. C) Induced beneficiaries are people who do not directly use the asset or goods provided within the IDB

district themselves but benefit from its existence. Induced beneficiaries are the third link and occur outside the catchment' (Defra, 2015, p. 18).

Defra (2015) identifies the necessity for proper communication of these benefits to enable communities to become more aware of the benefits and value they are getting for their contributions. Similarly, IDBs are encouraged to demonstrate greater accountability to their beneficiaries through better communication with local communities for these benefits. The ADA Chief Executive stresses the importance and purpose of the Special Levy payment to the IDBs:

"Internal Drainage Boards depend on Special Levy to help them provide a cost-effective, efficient, local service in managing water where it really matters to people and the environment. We need to publicise that service more and allow people to understand and support the work being done to reduce the risks of their lives being affected by flooding and drought" (ADA, Chief Executive).

The Chief Executive's views aligns with Defra's (2015) recommendations to both the IDBs and local authorities to improve the transparency and communication of IDBs' benefits within the local communities. This point was re-emphasised by one of the IDB Clerks in response to my question on whether the IDBs are satisfied with the communication of funds collected on their behalf by the Local Authorities:

"I have actually requested the breakdown from the LA and there is no way you will see where it is broken down. I think it is something that still needs attention. The payments need to be more visible" (IDB Clerk 1).

Figure 4.5 summarises the types of beneficiaries and their geographical location relative to IDBs' districts. This is not an exhaustive representation of IDBs' beneficiaries or benefits, however it provides a general sense and broad categorisation of the different class of beneficiaries, supplementary to the summary provided in Figure 4.4 from the report

undertaken by RPA et al. (2013). Figure 4.5 makes reference to managing nature within the scope of benefits obtainable from the IDBs. As an indirect benefit, it is often difficult to visualise without the aid of practical examples.

4.3 The funding of FCERM operations in England by Defra and significance for the IDBs

An examination of the IDBs' funding sources is very central to some of the objectives of this research. The relevance of the discussion on funding models has implications for future roles and sustainability of the IDBs.

4.3.1 Examining IDBs' funding sources and perspectives

IDBs have three major sources of funding: a) land drainage rates from landowners, b) special levies from local authorities, and c) higher land contributions from the Environment Agency.

A flow chart of IDBs' income and expenditure pathways is presented in Figure 4.6.

Landowners pay drainage rates; the local authorities pay special levies, and the Environment Agency pays contributions known as *higher land water contributions*. As explained in the preceding sections on IDBs' roles and beneficiaries, the payments from the various stakeholders are in lieu of services received from the IDBs. The Environment Agency pays higher land water contributions to the IDBs for managing water levels from areas considered

to be outside the IDBs' IDD. The drainage rates and special levies appear to be more straightforward funding streams when compared with IDBs' income (grants) and expenditure (precepts) with the Environment Agency. In terms of expenditure, IDBs pay for the delivery of their internal operations, which include planning matters, environmental schemes, emergency matters and strategic engagements. In addition, IDBs pay a contribution known as Precepts to the Environment Agency for managing water levels originating from IDBs' IDD into the Environment Agency's main rivers.

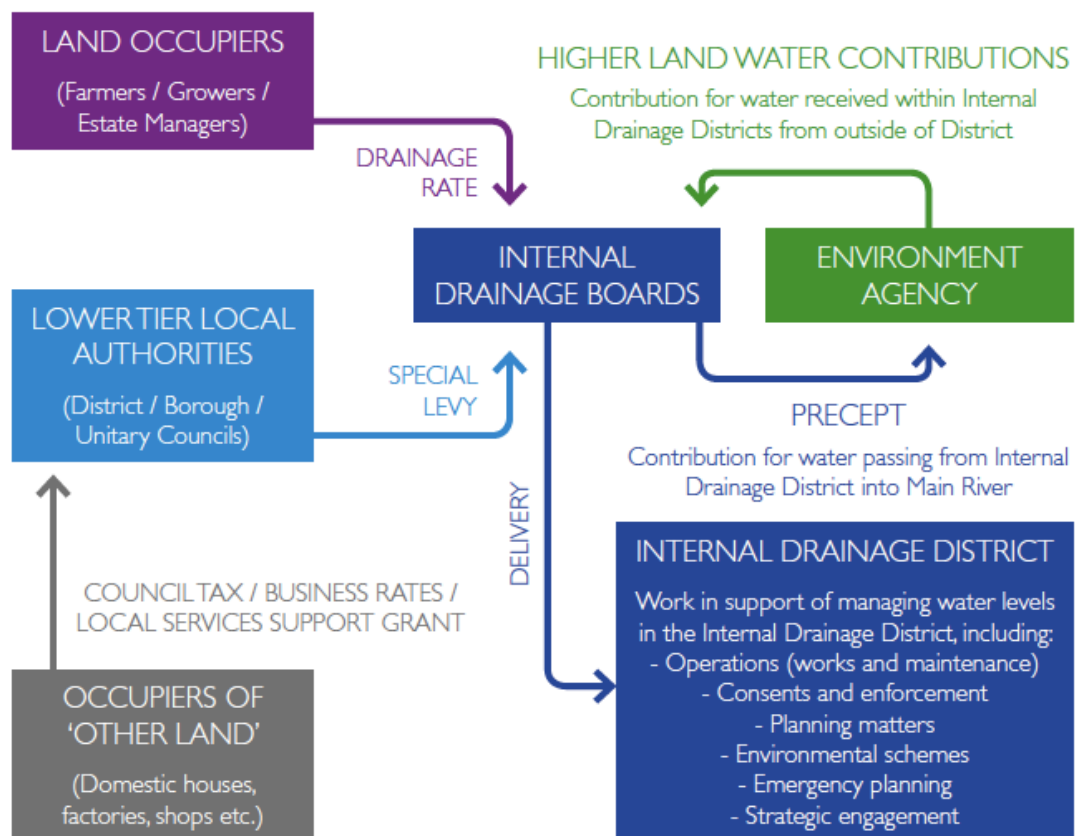


Figure 4.6 - Flow chart showing the typical income and expenditure of an IDB

Source: ADA (2018) *Good Governance for IDB Members*, p. 45.

The findings from the research indicate a general sense from the IDBs that current processes for managing income and expenditure from the Agency could be improved. There is a specific perception of lack of visibility on the spending of IDB Precepts. One of the IDB Clerks makes the IDB case:

“Our precepts to the EA should be based on the works done, because we have the ability to challenge and not pay it...and the EA over the last decade or so, understood the model of the calculation in those days, it was kind of understood we were contributing, and we saw work delivered for that contribution. These days, it all goes into a big pot, and it is not clear what is delivered from it. If we don’t see what is delivered from it, we then can’t challenge it under our Land Drainage Act because they have divorced it from the work being done” (IDB Clerk 3).

The IDB Clerk makes a very important point in his demands for greater visibility of work delivered with IDBs’ Precepts. I have earlier observed in the previous section on beneficiaries, that the legitimacy of his demands have been validated by Defra’s (2015) and ADA’s (2016) recommendations for greater transparency in services linked to IDBs’ payments and expenditures.

The IDB Clerk argues that it is more efficient for Defra to leave the Precepts with the IDBs and write off the balance against successful claims for FCERM GiA:

“I always feel it is easy for EA head office to say, we’ve got £2m quid from the IDBs, that’s two million less we have to give you in GiA because you have already got it. So we are subsidising grant in aid. They keep saying oh no you are not, but not one has been able to demonstrate it” (IDB Clerk 3).

What the IDB Clerk appears to be suggesting here is that IDBs would prefer the EA to operate a simpler income and expenditure process with the IDBs, such that successful applications for FCERM GiA can be deducted from Precepts accruing to the EA and any outstanding balance

paid to the organisation to which it is due. However, the statutory reality is complicated because of spending restrictions by UK Government Treasury Rules (TRs). The TRs were partly blamed for the floods of 2012 by the then Chairman of the EA, Chris Smith. In his defence of EA's operations pre and post 2012 floods, he explained:

“Last year, after the 2012 floods, we recognised the local view that taking silt out of the two main rivers would help to carry water away faster after a flood. The Environment Agency put £400,000 on the table to help with that work – the maximum amount the Treasury rules allowed us to do. The additional funds from other sources that would be needed didn't come in. So when politicians start saying it's Environment Agency advice or decisions that are to blame, they need to realise that it's in fact government rules – laid down by successive governments, Labour and Tory – that are at the heart of the problem” (Smith, 2014, The Guardian 09 February 2014, 20.46)

His arguments resonated with public opinion at the time and the government amended the rules. Announcing the decision of the government, he confirmed:

“That problem has now, this week, been solved by two things. The first was the announcement of £10m for Somerset, made by the prime minister” (ibid).

In the light of this precedence, the IDBs can argue that the government's approach to flood risk funding should be more proactive than reactive.

4.3.2 The FCERM funding model

Defra provides central government funding to manage flood risk in England. Defra was created in 2001, following the merger of the Ministry of Agriculture, Fisheries and Food (MAFF) and the Department of Environment, Transport and Regions (DETR) with a small part

of the Home Office. Central government funding provided by Defra has historically been disbursed through the Environment Agency (EA), who remain the lead authority for FCERM in England. The Environment Agency is a quasi, non-governmental organisation created through the Environment Act of 1995. They took over the roles and responsibilities of the National Rivers Authority (NRA), and although they retain supervisory powers for all flood risk matters in England, implementation was historically delegated to the Regional and Local Flood Committees as well as Local Authorities (Defra, 2001) as described in the earlier section.

Unfortunately, for a combination of economic and political reasons, the funding of FCERM projects in England has failed to increase in proportion to the rate of increase in flood risk (judging by the frequency and impacts of recent flood events in Europe). There has been significant progress in the research linking climate change to increases in flooding (Atanga and Tankpa, 2021). Miller and Hutchins (2017, p. 1) assert that “the available evidence has been found to be of medium-high confidence” that climate change leads to: (i) “an increase in pluvial and fluvial flood risk, and (ii) further reduction in water quality caused by point source pollution and altered flow regimes”. Their conclusions are shared by many researchers including, Bloomfield et al. (2013), Kundzewicz et al. (2014), Hirabayashi et al. (2013), Arnell and Gosling (2016), Akter et al. (2018), Oubennaceur et al. (2021), Hall et al. (2006) who have observed significant changes in groundwater levels due to climate change. Returning the focus to Defra’s historical budget for FCERM funding in England, I observe that reduced government intervention in FCERM has implications for FRMAs, particularly the IDBs. The current trend of FCERM funding in England is helping to return the focus on future funding options back to the IDBs’ traditional funding model (as well as similar funding models). The

FCERM funding model contrasts significantly with the PES funding model which I discussed in Chapter 2.

Continuing with the examination of the FCERM funding model, the process diagram is shown in Figure 4.7 and depicts various IDBs’ funding sources, including FCERM Grant in Aid, which is managed through the Environment Agency. In 2013, Defra transferred some of the budget for the LLFA to the Ministry of Housing, Communities and Local Government (MHCLG) in a bid to streamline funding roles for local authorities. This funding to the LLFAs is paid through the Local Services Support Grant (LSSG) and released to the LLFAs via a mechanism known as the Settlement Funding Assessment (SFA).

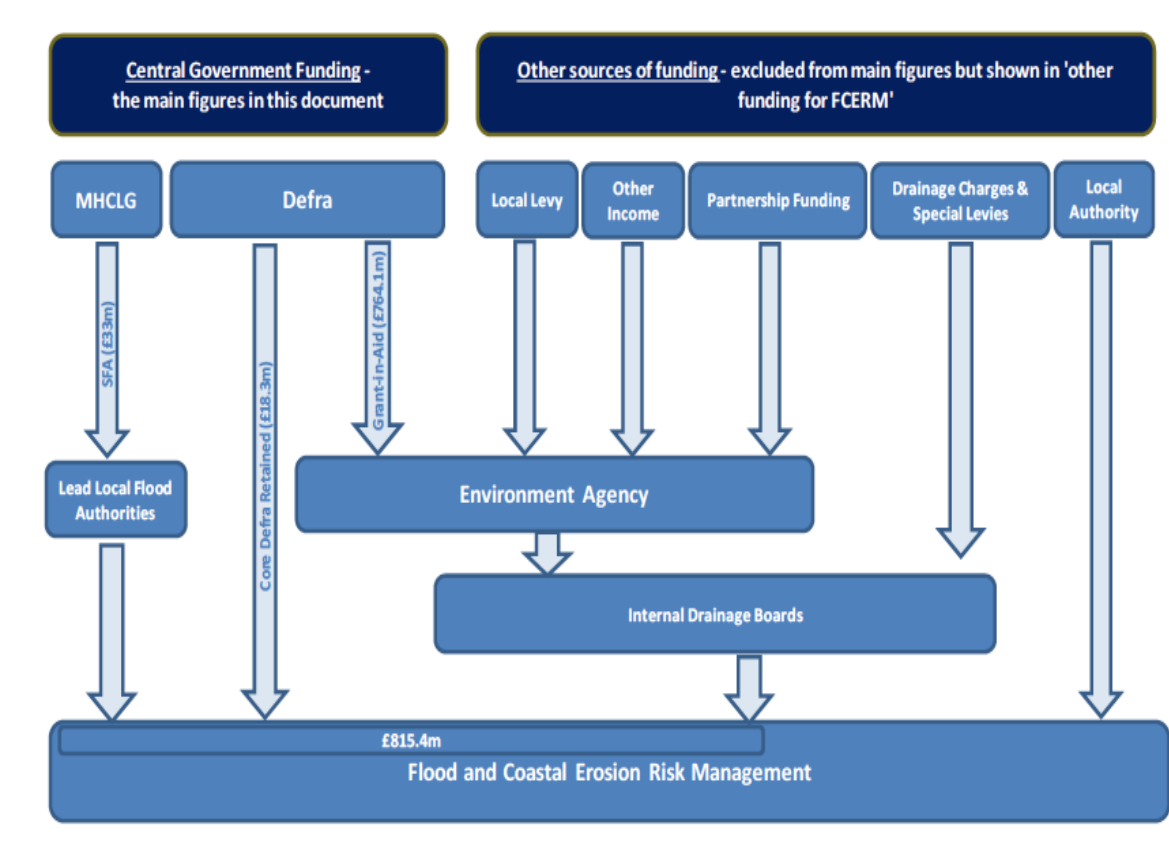


Figure 4.7 - Process diagram explaining central government funding for FCERM in England
Source: Defra, (2019) Central government funding for flood and coastal erosion risk management in England, p. 1]

Supplementary to the central government flood FDGiA funding are other sources of funding, such as Special Levies and Precepts, which I have discussed in the section on IDBs' funding sources. The influence of the tiers of flood and water governance is evident in the approval process for the various funding streams. Local levies are approved by the Regional Flood and Coastal Committees (RFCC), whose chair is appointed by the Secretary of State. Another important funding source is community funding from local partnerships. The significance of Partnership Funding (PF) in flood risk management is described by Defra (2019, p.2) as follows:

“Under this mechanism, local communities raise funding towards a scheme and either channel it through the EA or use it directly on FCERM projects, with central government also contributing. This ensures total investment in defence improvements is not restricted to what central government alone can afford over any period” (Defra, 2019, p. 2).

The UK government spent an estimated £390m on flooding in England between 1999 and 2000. About 10% of this total was spent on the IDBs, while about 15% was spent on Local Authorities (Defra, 2001). In addition, a further £40m of non-government funding, consisting of drainage charges, fees and rates from various FRMA, was spent on flooding between 1999 and 2000. Central government funding on flooding was about £221.4m in 1990 and so there has been a considerable increase in government spending on flooding in England, however, critics, including the ABI, maintain that this has been insufficient (ABI, 2002). Despite marked increase in FCERM expenditure in the last decade, the risks of flooding have also increased tremendously, consequently the considerations for future funding for FRMAs such as, the IDBs, remain significant issues of interest. Table 1 provides a summary of FCERM expenditure from 2005/6 to 2018/19.

One of the IDB Clerks, who gave his perspective on FCERM funding, argued that the 6-year funding plan within the last Defra Spending Review didn't seem to add up to the £2.6b promised:

"The 6-year plan doesn't seem to add up to the £2.6b promised. The FRCC patted themselves on the back for spending about 99% of last year's budget. And it's kind of like, shouldn't the focus be on works delivered? The EA seems to focus on money spent rather than on works delivered. The efficiency savings year on year seems to demonstrate incredible inefficiencies. For us at the IDBs, it is not possible to get any more efficiencies as we are already stripped to the bone" (IDB Clerk 3).

Table 4.1 shows a breakdown of all expenditure by central government on flooding, in addition to other expenditure from the Environment Agency (EA), including contributions from Local Levy funding. However, it does not include funding from other Flood Risk Management Authorities (FRMAs), or funding from the IDBs' drainage charges and special levies (Defra, 2019).

Table 4.1 - Total FCERM expenditure through 2005/6 to 2018/19

Financial Year	Total Central Government	EA Local Levy	EA funding from other sources	Total	Total Real Terms ¹
2005/06	508.7	19.7	41.6	570.0	743.3
2006/07	506.9	26.1	34.5	567.5	718.6
2007/08	499.8	17.0	25.8	542.6	670.5
2008/09	567.6	33.2	22.1	622.9	749.4
2009/10	633.1	38.0	18.5	689.6	818.1
2010/11	670.1	30.9	17.1	718.1	836.3
2011/12	572.9	33.7	16.9	623.5	716.7
2012/13	576.3	20.2	27.2	623.7	702.8
2013/14	606.2	29.1	39.4	674.7	746.6
2014/15	802.6	24.1	42.9	869.6	950.0
2015/16	710.8	18.2	55.8	784.8	850.6
2016/17	794.9	27.1	55.0	877.0	929.3
2017/18	777.0	29.3	49.8	856.1	889.2
2018/19	792.4	35.5	42.8	870.7	888.1

[Source: Defra, (2019) *Central government funding for Flood and Coastal Erosion Risk Management in England*, p. 7]

As mentioned earlier, Defra provides most of its funding for flooding to the Environment Agency as Grant-in-Aid. As a grant, this fund is not repayable, however, Defra has a set of procedures and guidelines for disbursing Grant-in-Aid funds to qualifying Flood Risk Management Authorities. Typically, several outcome measures have been attached to the utilisation of the Grant-in-Aid funds.

Table 4.2 – Other benefits of the FCERM funding scheme from 2011 to 2019

Year from 1 April to 31 March	Agricultural land (ha)	Commercial properties	Roads (km)	Rail (km)
2011 to 2012	74,011	5,572	1,800	107
2012 to 2013	75,645	5,874	1,774	75
2013 to 2014	84,106	5,487	2,247	54
2014 to 2015	100,580	11,282	2,340	122
2015 to 2016	74,644	11,500	1,854	150
2016 to 2017	30,442	7,041	1,090	51
2017 to 2018	32,838	7,595	1,176	55
2018 to 2019	36,307	8,677	1,343	63

Source: <https://www.gov.uk/government/publications/flood-and-coastal-risk-management-national-report/flood-and-coastal-erosion-risk-management-annual-report-1-april-2018-to-31-march-2019>

From the analysis of Table 4.2, it is interesting to note that the size of agricultural land protected by FCERM GiA funding significantly decreased from 74,644 ha in 2015/16 to 36,307 ha (in 2018/19 which represents over 51% reduction in agricultural land protected. This suggests that the volume of FCERM GiA to IDBs have significantly reduced leading to potential devaluation of the role of the IDBs. It is important to note that the agricultural sector remains a key part of the local communities within the Fens as I earlier identified in the description of the Fens in Chapter 1. The findings of the research with regards IDBs perspectives validates my suggestion. One of the IDB Clerks made his point very clearly:

“The system could be made simpler. It is very onerous. There is an underlying feeling that the agency is there to stop you delivering schemes rather than to support you through delivering schemes” (IDB Clerk 3).

I will pick up the discussion of IDBs’ perspectives on FCERM GiA in part 2 of Chapter 6, which addresses IDBs’ organisational sustainability indices. However, this brief discussion serves to highlight the significance of funding to IDBs’ operations and the sustainability of benefits accruing from IDBs roles. IDB Clerk 3, expresses very strong negative views about the overall success of the FCERM GiA, and this leads me to question: what is in the mechanism or rules governing FCERM GiA that makes it difficult for IDBs? To answer this question, I would like to examine Defra’s Partnership Funding (PF) process, and outcomes measures (OMs) definitions to understand what is expected from projects seeking FCERM GiA funding.

4.3.3 Partnership Funding (PF), FCERM GiA and Defra OMs

Defra changed the funding models for FCERM in 2011 to account for contributions from the beneficiaries of FCERM projects. Prior to the changes, the previous funding model guaranteed 100% funding to a limited number of projects, however, the changes, meant that more projects would qualify for funding under the new scheme. The principles of the new funding model are pivoted on two concepts: a) “All projects have the potential to be supported by Government over time, rather than some being fully funded and others not at all; b) More local choice, and greater emphasis on protecting those in the most deprived areas” (Defra,

2011, p. 1). This is a bold and debatable claim, which this research has tested with the perspectives of the IDBs and other FRMAs. My assessment of the extent to which this claim is supported or refuted by this research will be provided in the concluding chapter of this research.

However, I will briefly examine the calculation tool for the PF process (shown in Figure 4.8), due to its relevance to the objectives of this research, particularly in identifying potential reasons why IDBs have struggled with the FCERM funding model. The formula demonstrates that the proportion of funding from Defra increases in line with the benefits being delivered (Defra, 2011).

Share of costs funded by Defra	=	Household benefits + other whole-life benefits + environmental outcomes	X	fixed payment rates	
		÷			
		Amount of funding required			

Figure 4.8 - Formula for calculating share of project costs available from Defra

[Source: Defra (2011) Flood and coastal resilience partnership funding: An introductory guide, p. 2.]

The above formula raises several questions about how the various benefits can be calculated. However, Defra (2011) illustrates how the value of benefits (damages avoided) can be estimated by assuring that:

“based on the change in the annual chance of flooding, as a result of a scheme, it is possible to estimate the value of household damages being avoided... Defra will pay an amount equal to a share of the expected household benefits. In most cases this will be a fifth share, or 20p per £1 of household benefit... So Defra paying a fifth share of the household benefits will mean whole project costs could be met in many cases, solely based on the numbers of households protected” (Defra, 2011, p.3).

Unfortunately, this assurance is of little practical benefit to the IDBs who operate mostly in deprived areas with few household-benefits to depend on to boost the expected share of government potential funding. Even though Defra promised to stretch the share of government contribution per deprived household to up to 45 pence in 1 pound in recognition of the above challenge, most IDBs feel the model is too bureaucratic and penalises FRMAs operating in mostly rural and deprived communities as evidenced from the comments from IDB Clerk 3 and subsequent views of other FRMAs discussed in Chapter 6. Nevertheless, Defra assured FRMAs and flood risk practitioners that transparency will be the focus of the new system and explained the three criteria governing the allocation of national funding as follows: a) Value of benefits for householders owing to the project, especially in deprived areas and where risks are significant; b) Value of other benefits achieved, such as the benefits to businesses, agricultural productivity, and protection for national and local infrastructure, across the whole life of the scheme; c) Environmental benefits of the proposed scheme (Defra, 2011).

On paper, the changes introduced held a lot of promise for the IDBs, who mostly operate in deprived areas, protecting vast areas of agricultural land. However, in practice, the application and utility of the aforesaid criteria has been less straightforward and beneficial to the IDBs who have shown from the evidence of this research that some parts of the PF

process are inhibiting rather than facilitating their ability to maximise the benefits of the FCERM Grant in Aid funding scheme based on the PF funding principles.

With regards to OMs, Defra (2014a) has set out 4 OMs defined as follows: a) OM 1 (Economic benefits) - The measure examines the benefit to cost ratio of the projects. The expectation is that the benefits should exceed the costs by a good margin. The higher the ratio of benefits to cost, the greater the probability of the bid being successful; b) OM 2 (Households at flood risk) – This examines the number of households moved out of any flood probability category to a lower category. There are additional categories within outcome measure 2, which are 2b and 2c, depending on whether the households move from significant to moderate or low category, and whether the transition is occurring within 20% most deprived areas, respectively. This outcome measure is of significance to the IDBs who operate mostly from rural areas considered to be amongst the 20% most deprived areas; c) OM 3 (Households at erosion risk) – This examines the number of households protected from coastal erosion. Much like OM2, OM3 has 3b and 3c, with 3c referring to 20% most deprived areas. For the IDBs, the focus is more on 3c because of the reasons I have already given in OM2c; d) OM 4 has three classifications: 4a, 4b and 4c. OM 4a tracks the area (in hectares) of water-dependent habitats created or improved to help meet the objectives of the Water Framework Directive, section 28 of the Wildlife and Countryside Act 1981, and the England Biodiversity Strategy. OM 4b relates to the area (in hectares) of intertidal habitats created to meet the objectives of the EU Habitats/Birds Directives, section 28 of the Wildlife and Countryside Act 1981, and the England Biodiversity Strategy. However, OM 4c is defined as length (in kilometres) of rivers protected under the EU Habitat Directive, EU Birds Directive and section

28 of the Wildlife and Countryside Act 1981 improved to meet the objective of the Water Framework Directive (Defra 2014a, p. 5).

4.4 Chapter Summary

In the first section, I provided selected historical accounts of the development of the IDBs starting with the establishment of the earliest Commissioners by King Henry III in 1252. I explained that the role of the Commissioners included powers to require flood repairs. I recognized the historical difficulties the Commission encountered in the discharge of their roles. In the analysis that followed, I observed that the deterrent of enforcement in flood risk management has been historically inadequate due to the weakness of the legislative instruments.

I examined another historical aspect of the development of the IDBs with respect to funding of major drainage works. Following major maintenance works by Thomas Lovell, the locals demonstrated their dissatisfaction with the impacts of the maintenance works on their sources of livelihood by destroying the works in protest. In my analysis, I observed that funding of land drainage works continues to be a major governance challenge. I traced IDBs' historical funding model to the early practices of rewarding adventurers who funded land

drainage projects with parcels of land. I recognize that this funding model is still being used by the IDB to this day.

To conclude the first section, I established that the IDBs have evolved from an inflexible monarchical structure of governance to a democratic system with greater opportunities for the exercise, sharing and distribution of transformative power (Whaley and Weatherhead, 2014).

In the second section, I examined the constitution, structure and legislation governing the operations of the present-day IDBs. I established the distinction between boards that existed prior to 1930 as either Commissioners of Sewers or the LDA 1861, boards constituted under PO under the LDA 1861, and boards set up under the EA via LDA 1991. I confirmed that the duties of the IDBs are set out under LDA 1991 consisting of the general provision of land drainage, adhering to duties with respect to the environment and recreation, adhering to duties with respect to natural environment and public access. Furthermore, I confirmed that IDBs can set up additional legislation known as Byelaws to govern their operations.

I established that there are three tiers of governance for flood and water management: national, regional, and local; and confirmed that IDBs belong to the third tier of flood and water governance. I introduced ADA as the visible governance body for the IDBs and recognized the interactions with other organizations like the EA, Defra and the NFU. I confirmed ADA's establishment of a governance guide for the IDBs, which was supported by Defra's support. From the analysis of IDBs' perspectives, I recognized that some aspects of

the guidance document leave room for subjective interpretations, compounding IDBs' challenges of accountability.

I established the linkages between the role of the IDBs and funding opportunities open to them and provided a list of beneficiaries of IDB operations. I utilized a typical flow chart of IDBs' income and expenditure in Figure 4.6 to show the range of sources of IDBs funding and outgoings. Finally, I introduced the FCERM funding model and explained the outcome measures associated with the administration of the model.

CHAPTER 5

THE IMPERATIVE OF COOPERATION AND PARTNERSHIPS IN FCERM: BETWEEN CENTRALISATION AND DECENTRALISATION, POWER DYNAMICS AND IDBs' PERSPECTIVES

5.1 Introduction

This Chapter is presented in a narrative and exploratory form. I have deliberately chosen this unrestrained form of presentation to enrich the analysis of the empirical evidence of this research. The main feature of this form of presentation in my view is the deliberate attempt to elicit emphasis through subtle repetition of salient themes throughout the narrative, driven by research data and supported by key theoretical themes.

In this Chapter, I examine the multi-faceted challenges encountered by IDBs in their engagement processes, particularly within FRMPs. I start by exploring the challenges of collaborative partnerships from the IDB perspectives. Then, I examine the power dynamics within the engagement process and the resultant consequences. I utilise the evidence from the research to illustrate the tension between centralisation and decentralisation in IDBs' governance, typified by engagement process within and outside of the FRMPs.

I further explore how the engagement process can be sustained, identifying the need for complementary motives for engagement. I utilise examples of IDBs' experiences in working with the Environment Agency to highlight the distinction between cooperation and collaboration. The theme of decentralisation and its consequences as seen from the evidence of the research runs through the whole chapter. Supported by the research data, I argue,

that decentralisation increases opportunities for IDBs' proactive engagements within and outside of the FRMPs. I analyse the success of IDBs' engagement outside FRMPs and link the outcomes to organisational markers of success.

Finally, I examine the evidence of IDBs' collaborative partnerships in NFM with an observation on the positive impacts (of NFM) on the IDBs.

5.2 The challenges of collaborative partnerships: Perspectives from IDBs

FRMPs provide an enabling platform for collaborative engagements between FRMAs. They also create opportunities for partners to discuss and align interests in the delivery of joint project initiatives. The role of the IDBs require collaboration and partnerships with other state and non-state actors, particularly within the local communities. On this issue of partnerships, IDBs are very proactive and practical. One of the IDB Clerks effectively captures the typical role of IDBs in collaborative flood risk projects:

“As we are the delivery partner for most of these works, we use our staff to do this kind of work. We have done a lot of public sector work. Any work requiring machines, we can do because we've got the equipment in house. We can bring in other contractors to assist if we need to, particularly at very busy times. But we are usually very efficient with delivery. Generally speaking, that's where we sit” (IDB Clerk 3).

Unfortunately, the success of this ambition is impeded by various factors, such as, differences in organisational priorities, transparency of collaborative goals and visibility of programmes,

funding, and competition. These constraints will be examined further with evidence from the research. The difference in priorities is explained against the background of Boomfield et al.'s (2001) caution that the drive for consensus can engender a 'false sense of closure and an illusion of stability' (Bloomfield et al., 2001, p. 503), and the admonition by Mosse (2001) to participants striving for consensus and unanimity to ensure that alternative points of view have been adequately considered, as a means of enriching the diversity of the discourse. Focusing for a moment on the IDBs, some of the challenges encountered by IDBs within FRMPs stem from the practicalities of the terms of engagement which are often subject to statutory constraints. For instance, IDBs intending to undertake joint projects initiatives with other FRMAs through Public Sector Cooperative Agreements (PCSA) not only require confirmation of planned budgets, but also, the ability to gain pre-sight of participating organisations' programmes. This crucial information assists the IDBs in ensuring that they have sufficient resources to deliver the collaborative project. A LLFA Manager shared his concerns on the potential impacts of this challenge on the effectiveness of partnership projects:

"One of the challenges of partnership working is the challenges of time scales. All of us work on a year by year basis not knowing what our budgets would be. If we don't know what you are likely to have in time, it is difficult to plan collaboratively. Another thing is understanding other people's ambitions and being able to be flexible to other people's ambitions as well. So, it is like us saying, 'we'd like to improve that play area, we'd also like improve the surface water flooding issues around the area, and we'd also like to improve the highway, and the Environment Agency would like improve the flood risk from in-channel and probably improve the water quality also, and the drainage authorities might want to improve some watercourses; and we can all plan it to be a 3 or 4 year project, instead of it being a one year project" (LLFA, Manager).

The above narrative shows the potential value of collaborative planning when collaborating partners have a coordinated programme with shared visibility and transparency. One of the IDB Clerks expressed similar concerns:

“...If we had certainty of what we are going to be doing, we can plan a lot better. If the EA come to us and say, next year, we have these watercourses to be maintained, can you fit it into your programme, that’s fine. Generally what happens is that they don’t want to commit until they have certainty of their funding, but by March/April, we have set our programme and then it is too late” (IDB Clerk 2).

I put the specific claims of the IDB Clerk relating to delays in confirmation of budgets collaborative projects to the EA. One of the EA officers provided an explanation to illuminate some of the issues affecting the timing of budget confirmation for their capital projects:

“We [the EA] also go through a similar process to what the IDBs and LLFAs do in terms of ehm...financial and technical approval for our schemes. Ehm...I don’t accept that our processes are not transparent but, I don’t know which specific IDB you were referring to. But on the general point of working together, I think we do work quite well together” (EA Officer).

Irrespective of the differences in opinion between the IDB and the EA, there is mutual agreement on the need for collaborative partnerships. Furthermore, despite the challenges identified by the LLFA restricting opportunities for joint project delivery, the LLFA concedes that limited, but successful, collaborations do occur with the IDBs. Speaking on the opportunities for collaborative partnerships with IDBs, the LLFA affirmed:

“We got less IDBs to deal with, we’re probably more able to talk to them on a one to one basis more regularly than say, Cambridgeshire, that doesn’t on a day to day basis. So, we probably find it easier on that front. Ehm... we’ve done ad hoc projects together. Not many, but there’s have been some collaboration” (LLFA, Manager).

These limited successes belie the true potential of partnership collaborations. These findings and discussions address objective number 2 of this research and provide answers to the

second research question. One of the objectives of the partnership collaboration in project delivery is to increase the collaborative project's potential to secure FCERM Grant in Aid funding. This is achieved by increasing the prospective benefit-cost- ratio of the collaborative projects, thus improving *Outcome Measure 1* of the Partnership Funding model as explained in Chapter 4. The LLFA describes how a collaborative or partnership project could improve this outcome:

“...we can stick a brand on it and call it something like A Peterborough Improvement Scheme or whatever. And then all of a sudden, year 3 or 4, you might start pulling in 3rd party funding and the stuff you can get done with 3rd party funding like water quality can be delivered in year 3 or 4 rather than in year one or two, which is when you are using your partnership funding from the EA or the IDBs. In a partnership scheme, the cost benefit ratio really stacks up if you do what everybody wants to do rather than what you want to do. So yeah, it is the incremental improvement rather than the single solution. You may not be able to build a large reservoir, but you may build a smaller one and get a lot of other smaller schemes done at the same time. All of a sudden it becomes more viable for a lot of people to get involved and pulls a lot more money. That's the kind of vision we got for how we want to work” (LLFA Manager).

The principle of collaborative engagement does not eliminate the challenge of competition. A potential partner in a collaborative project may feel that the cost allocated to them is disproportional to the potential benefits and may seek to challenge it. Therefore, the success of collaborative projects also depends on the ability of partners to mitigate the challenge of competition. On this issue, Reed et al. (2009) caution that the engagement process is potentially problematic as many interests compete for recognition and relevance.

5.3 Power dynamics and consequences in collaborative partnerships

Thaler and Levin-Kietel's (2016) contributions on the influence of un-equal power relationships between collaborating units within a partnership is relevant in the analysis of power in FRMPs. They argue that the dynamics of power relationships between actors in the engagement process play a significant role in determining the balance of partnership outcomes. Going a step further, Whaley and Weatherhead (2016) examine the various types of power operating within partnerships using an illustrative concept of the power cube. They argue that the exercise of power within partnerships is not limited to a restricted definition in which "one group is able to exert control over another" (ibid, p. 822). Veneklasen and Miller (2002) explain that alongside the general understanding of power as a means of control, typically referred to as 'power over', there exists three additional forms of expression of power: 'power with', 'power to' and 'power within'. Waley and Weatherhead (2016, p.822) take this explanation further by referring to 'power with' as the "capacity of actors to work together", 'power to' "concerns the actor's ability to influence their world through agency" whilst 'power within' "relates to an actor's sense of identity and self-worth". Given this background, I investigated how the balance of power within flood risk partnerships is maintained. One of the IDB Clerks examined the limitations of individual IDB's power in a complex partnership project:

"As an individual Flood Risk Management Authority, we are fully empowered to do what we need to do which is really efficient. There are some benefits working with partners. Sometimes it becomes such an unwieldy entity that you put so much effort into partnership working that you lose sight of what you are delivering locally. And I guess, an example would be the Cambridgeshire's Lead on the Rain Gauge Project where we pulled resources to put a standard rain gauge, in which everyone could access, which was about £5k a rain gauge But everyone wanted a few rain gauges, Cambridgeshire wanted a lot, which meant that it suddenly required a much higher level of approval and a much higher quality business case. The EA's approval was necessary and suddenly you have a much higher level of beast to deliver from the scales of economy. It then backfired on them...." (IDB Clerk 4).

The observation that partnership working can sometimes become “unwieldy” and resource-hungry can be interpreted as part of the generic input variables demanded within the ‘cycle of influence’ in the adapted form of Ostrom’s (1994) IAD framework, where interactions, decisions and outcomes are located, as I explained in Chapter 2.

However, of greater concern is the Clerk’s observation that “sometimes, you lose sight of what you are delivering locally”. An extended explanation of the Cambridgeshire Rain Gauge Project, as described by IDB Clerk 4 in the above narrative was that the LLFA which took the lead on the project inadvertently broadened the scope without proper consultation with other partners, and certainly without a thorough assessment of the potential impacts on the project. The consequence was a gradual erosion of confidence on the ability of the partnership project to deliver the promised outcome and local benefits. The term “it backfired on them” suggests to me that the planned delivery programme not adhered to, hence, Bloomfield et al. (2001, p.503) caution that the drive for consensus can engender a “false sense of closure and an illusion of stability”. It seems that some of the partners involved in the failed project, particularly those who wanted only a few rain gauges, felt they were let down by the LLFA who provided the local project governance. The consequence of this failure was significant damage to the collaborative principles of trust, value and efficiency in partnership projects. Bidmead et al. (2002, p. 256) recognise that “it is only in the context of a trusting relationship that more personal needs can honestly be expressed”. The partnership project in my view, failed due to ineffective communication. Hence, Forrester (2009) cautions

about the value of communication as a primary tool for fostering close relationships amongst partners.

For these reasons, Mehring et al. (2018) suggest that the engagement and partnership process between FRMAs and other wider stakeholders is far from straightforward; this is because the process of co-creating solutions depends on the capacity of the actors and groups involved to communicate and negotiate the process of decision making (Muro and Jeffrey, 2008). Some argue that it takes a shared understanding of the key causes of flood risk in a particular area to develop mutual and collective solutions (Frinjs et al., 2013).

Consequently, the Environment Agency works with LLFAs to encourage the establishment of flood risk partnerships based around the administrative boundaries of the LLFA, hence, the Cambridgeshire Rain Gauge Project was based around IDBs within Cambridgeshire County.

The above argument is in consonance with Habermasian ideals of communicative rationality, whereby participation tends to exclude those who do not have the knowledge or the skills to engage. Under the veil of this argument, elitists and scientists with ‘superior’ knowledge tend to dominate the engagement process, and in the process silence participants with weaker engagement capacities (Goodwin 1998, Pellizzoni 2001). The research findings did not specifically show any evidence of active exclusion of partners from the collaborative partnerships, however, as I observed earlier, one of the IDBs did express concerns over the lack of a visible platform for collaborative engagement:

“So if we start at the top level, with LLFAs [LLFA1] know what they do. We attend regular meetings and engage with them. [LLFA2] I don’t know what they do. They never engage with us, unlike [LLFA1]” (IDB Clerk 3).

The consequence of this lack of an engagement platform and opportunity is almost as severe as elitists' domination of the engagement process. The rationality for my analysis here is an examination of the comparative outcomes of the two situations: a) the elitists domination of the engagement process leads to a poor outcome for those considered to be the inferior partners, and on the other hand, b) total exclusion of partners from the engagement platform through a default lack of governance initiative is worrisome.

On the opposite spectrum is a presumption that the participation process should treat members as homogenous units with common perspectives and interests, emphasising their common interests and overlooking the difficulties in defining individual character, interests and needs (Selfa and Endter-Wada, 2008). This engagement approach can act to suppress diversity and difference (Moham and Stokke, 2000). This is a potential weakness of the FRMP process because the engagement platform, i.e. the FRMP forum, is uniquely identifiable by the commonality of interests of the collaborating organisations. Whilst members are inherently heterogenous units and distinguished by their organisational priorities, there is a risk of an assumption of homogeneity of purpose deriving from shared priorities between some of the collaborating organisations. Due to this risk, it is important to bear Moham and Stokke's (Ibid) caution in mind when examining how collaborative engagement platforms, such as the FRMP, function.

Nevertheless, participants with different conceptions of the problem frequently advocate different approaches. This predisposition tends to lead to the adoption of subjective positions from the onset of the engagement process (Henkel and Stirrat, 2001). The challenges of the Rain Gauge delivery scheme, which was briefly summarised in the narrative by IDB Clerk 4, demonstrate the predisposition of various partners to subjective positions and approaches to solutions, which are often different from the collective position and approach to solution. In this case, the desire of one partner to pursue a subjective solution different from the collective solution created insurmountable challenges that eventually caused the collapse of the collaborative project. The IDB Clerk went on to explain how this subjective approach impacted the project:

“... case was that some of the partners decided to pull out of the scheme...[withdrawing their financial contributions in the process] They couldn’t do it. They[The partner who wanted more rain gauges] couldn’t pay for the scheme on their own. I spoke to [one of the collaborating partners] and said we could use the same supplier and get this done with our own money quicker than ... but, we haven’t started yet. Don’t get me wrong, they did everyone a favour by getting the ball rolling but it’s a shame they kept changing the plan and moving the goal post...” IDB Clerk 4”

In terms of overall success of partnership schemes, the research found slight variations in IDBs’ experiences. On the one hand, some IDBs have recorded significant successes through FRMP engagements facilitated by the LLFAs, on the other hand, others still struggle to establish meaningful partnerships with LLFAs. One IDB geographically situated between multiple LLFAs summed up their experiences of engagement thus:

“We’ve done a lot of successful projects together with [LLFA 1], but we haven’t really done anything with [LLFA 2]. They don’t seem to engage and that has implications for what you can do together. We are the proactive ones... We did the balancing pond together with [another FRMA] . That went very well, we had a challenge from an environmental point of view but, it was a good lesson” (IDB Clerk 1).

Recognising, but, unable to explain the reasons for variations in governance approaches between different LLFAs operating within the FRMP framework, the Clerk clarified:

“One of the LLFAs set up their own partnership group and we meet on a quarterly basis with Anglian Water, it has been really good actually, we look at many strategic issues but that doesn’t happen for the whole of the ‘area’. In terms of our relationships, for instance, ‘Local Authority A’, on the planning side, we have a good relationship which works really well, but Local Authority B, it is not great at all.” (IDB Clerk 1).

These reflections point to poor governance from the LLFA in question, leading to lack of engagement with the IDB on flood risk issues. Another IDB which shares similar difficulties, suggested lack of adequate resources as a possible reason why LLFAs struggle to provide proper governance for the engagement process. One of the IDB Clerks was particularly critical of the quality and outcome of their engagement with LLFAs on planning issues:

“I think the problem we have had, I guess over the last 10 years, with the recession, is that LAs have had massive cuts in their funding from central government, there have been massive [gaps] in resources. We do struggle with planners for example, where before 2008, the planning officers were fairly stable, they worked for local authorities, we built up a good relationship with them, and we’ve a relationship where they would say, oh this one is a priority, can you give us comments on this one. They knew where the districts are. But since 2010 when the funding changed, there have been quite a high turnover of staff, where new staff coming don’t really appreciate as an IDB, the value we add” (IDB Clerk 2).

The crux of his argument is that it is unlikely that a young graduate, with limited practical engineering experience, will be able to provide the level of support required to the IDBs. To highlight this point, they explained that “developers and consultants who are designing SUDS should be working to CDM Regulations, from designing, ... to demolition”. However, due to a lack of experience, often these designers do so without thinking of buildability; often not “thinking of how to get weed cutters and grass cutters to maintain these assets” (IDB Clerk 2). Unfortunately, these criticisms remain unchallenged, at least by the evidence of this research. One of the LLFAs confirmed that there had been a high turnover of staff in key planning positions, however, she did not offer any deeper insight into immediate or remote causes of

this challenge. It may be surmised that as more experienced members of staff move on, younger graduates are attracted to jobs that offer better salaries than are generally available in local government, hence, the high turnover of staff. However, whatever may be the case, the research has found that this greatly affect the quality of engagement between the IDBs and local planning authorities.

5.4 Ensuring the sustainability of the engagement process: The search for balance

On the sustainability of the engagement process, the IDBs acknowledged that a lot still needs to be done. For example, one of the IDB Clerks indicated that the question of sustainability of the public engagement process was discussed by one of the Environment Agency Directors at a RFCC meeting. Whilst noting that everyone welcomed discussions around the importance of elevating the intensity of public debates around water resources and flood risk management to similar levels as current topical environmental discourses, such as cultural changes around the use of plastics, there was general acknowledgment that current flood risk engagement processes still fall short of statutory and public expectations.

Another IDB, whilst highlighting their engagement successes, struck upon the issues raised by Henkel and Stirrat (2001) with regards to predisposition to subjective approaches to problems thus:

“We are quite fortunate in this neck of the woods that the partnerships are well established, and if we have a problem we know who to go to. It’s just that we are local-focused and have

different agenda. We have a smaller area and look after the more local issues, while the LLFAs are more central-focused, looking after the bigger picture.” (IDB Clerk 3)

From the above excerpt, it seems that some IDBs are still left with the view that the engagement process, at times, seems more central than local-focused, in tacit recognition of beliefs that participants’ interests influence the power dynamics of the engagement process (Shearer et al., 2016; Waley and Weatherhead, 2014). The overriding impression is one that re-echoes Henkel and Stirrat’s (2001) view of predisposition of participant’s subjective interests over other stakeholders in the engagement process, as I have already highlighted.

The research found further evidence showing IDBs’ dissatisfaction with the higher tiers of water governance on local issues. An IDB Clerk shared an example of a partnership relationship reflecting participatory governance, examining the activities of the Regional Flood and Coastal Committees’ (RFCC) constitution in the local area. From the perspective of the IDB, the engagement and governance arrangements reflect the RFCC’s disproportionate focus on central issues to the detriment of local issues:

“...you have the Local Flood Risk Committee (LFRC) and the RFCC, when block grants came in 2004, they got rid of the Local Flood Risk Committees. The LFRC was very focused on local issues which is why you had a group of farmers generally interested in the local area...But now, the RFCC have sort of almost devoid themselves of the local issues, local programme, as the funds are driven by FDGiA. All they are interested in is outcome measures and number of properties protected and dishing out dicta not actually trying to represent the local communities coming up” (IDB Clerk 4).

There are two important points to address here. Firstly, the RFCC represent the second tier of water governance, I have previously covered their roles in Chapter 4. The IDB Clerk highlights the fact that replacing the LFRC with FRCC has resulted in the loss of local partners’

involvement in local community development. He makes a comparison between the local-centred priorities of the defunct LFRC and the more centralised priorities of the RFCC.

Another IDB Clerk stresses the importance of spending locally raised funds within the local communities:

“My view on precepts is slightly different from others’. I don’t have any problem where the EA spend their money, but, others would insist on having a fair share of their precepts spent on projects within their board” (IDB Clerk 1).

The crux of his argument is that IDBs would like to see more of the locally generated income spent on locally-identified issues within the community. However, the decision on where locally generated Precepts are spent lies with the RFCC and the EA. This re-emphasizes the earlier point made by IDB Clerk 4.

The challenge and tension between the two contrasting policies of decentralisation and centralisation in water governance is again evident here. Secondly, there is a reinforcement of Henkel and Stirrat’s (2001) view of the unilateral promotion of one partner’s subjective interests over others, as reflected in the allegation that the RFCC seems to be directing the use of FCERM Grant in Aid funds to satisfy central government outcomes, interests, and agenda rather than focusing on local issues. This sense of abandonment leaves local participants feeling isolated and neglected, reflecting Kabeer (1996) and Parfitt’s (2004) view that some participants of the engagement process are simply assimilated into the projects of the elite and the powerful. In this respect, participation becomes a platform of veiled inclusivity aimed at legitimising the decisions of the elite few. However, on critical analysis, one could view the action of the RFCC chairman as consistent with the FCERM Grant in Aid

guidance which prioritises projecting properties over agricultural land abundant in IDBs' districts.

However, the IDB Clerk clarified further:

"I think the board-member model, which is probably similar to the former LFRCs are focused on the local interests and benefits, yes the money is raised locally, still supported by the central government but has local community involvement for their local benefits. The way the government has altered it is reduced the grants coming to local communities but offset that by saying you can keep the business rates, because council tax used to go to local authorities, while business rates used to go to central government. So, the local authorities liked houses being build, whereas central government likes factories being built because they are low cost, but people needing hospitals, schools, bin collection, so need houses built. So, if local income is elevated, then there is also a focus on appropriate infrastructure need to support that local need. So, if you wanna build more distribution centres, to manage the need you also have to build the infrastructure to support that. This is what we are seeing in Milton Keynes where we are maintaining the delivering infrastructure (rivers in our area) but the receiving infrastructure (EA main rivers) are not maintained. This creates a weak link in the network" [IDB Clerk 4].

Some of the local farmers in IDBs' districts are of the view that the central government does not consider farming and agriculture a priority anymore. They feel completely abandoned by the government on the one hand, and let down at times by the IDBs who obviously struggles in times of flood to provide adequate support:

"The government has abandoned farmers without any support... we don't get any support these days. The drainage boards do their bit but they haven't got much money to support us with losses... they haven't got the pumps, we had to bring pumps in the drain the fields to save our crops" (Landowner/Farmer in IDB District).

However, with respect to the previous point on infrastructure, the IDB Clerk makes a valid point when he stresses the reliance of central government infrastructure on local support networks. However, I feel the relationship needs to be a complementary and supportive one. The central government focus, reflected in governance policies, such as the Local Development Plans (LDPs) have set targets for certain infrastructural developments, such as new homes. It is reasonable to expect that corresponding plans should be made to improve other services upon which the new infrastructures will depend. Such services may include

plans to increase the capacity of the drainage channels and watercourses, as well as other flood assets. Ultimately, the objectives of these central and local support services are to improve the lives of the local communities, hence, my view that the relationship should be a complementary one.

Consequently, there is a need for continued engagement between central government policy makers and local community representatives. I would suggest that given the platform of the FRMPs, the framework for these engagements is already in place, however, what needs to improve is the quality, consistency and consequently the outcome of engagements. To achieve this end, the mechanism of stakeholder engagement comes into focus. For a start, public consultations on key local flood issues in England have become mandatory following the EU Floods Directive 2007/60/EC. However, the type and nature of these consultations often influence the engagement outcomes. Sometimes, the democratic system of stakeholder engagement by local representation fails in its attempt to reflect the views of the many due to the limitations in the various engagement models (O'Haire et al., 2011). However, in flood partnerships undertaken by the IDBs, a different set of vulnerability exists where elites with superior knowledge tend to dominate the engagement process. Goodwin (1998) argues that this is common with elites who enjoy close proximity to central government power. With unfair advantage in overall power dynamics, elites often dominate the engagement process, and by so doing silence participants with weaker engagement capacities (Pellizzoni 2001), and those considered to be less important. The following dialogues with two independent IDB Clerks during the research reflect the IDBs' perceptions of inequality and unfairness in the engagement and consultation process on crucial local issues. In response to my question on

how the IDB could assist in collating and integrating diverse flood catchment plans and policies within the area, the Clerk 4 responded:

“I guess we need to be engaged early as a proper partner. I do feel we are part of the Defra family, but we are almost embraced but held at arm’s length...” [IDB Clerk 4]

Clerk 5 had this to say on the same issue:

“We need to be an equal partner that is engaged at the inception because it is a strategy we have to comply with. On the Oxford-Cambridge Arc, it is a failing of the EA not to engage with us early. We are also a policing authority and will argue that we need to be engaged equally. I would have thought the EA and the RFCC hold the power and consider the LLFA as an important critical partner and we are just the IDBs. The EA should be embracing us equally, but I don’t believe they do” [IDB Clerk 5].

These statements underpin a perception of unequal power relationship in flood partnership engagements between IDBs and key stakeholders in local flood governance. The desire of the IDB to be treated as an equal partner indicates a positive disposition for participation in developing shared solutions to local flood risk problems. The Environment Agency’s response on the issue of perceived inequalities in the engagement process did not address the perceived failings of this specific strategic engagement process, however, the local Environment Agency officer clarified the policy of the Environment Agency with regards to strategic engagements:

“Our policy is to engage with our partners as early as possible to take their views on board. Different teams within the Environment Agency, whether on the environmental side of things or on flood risk issues understand the importance of early engagement, and for the most part, we have a good relationship with our partners. Ehm... one issue for us is that compliance to statutory legislation, should not be confused with lack of engagements, it is a different issue. It doesn’t mean we can’t talk about it or explain the policy, we can and should, but it is not meant to be a subject of negotiation or engagement” (Environment Agency Officer).

The explanations offered by the EA Officer highlight the distinction between cooperation and collaboration. As I explained in Chapter 2, cooperation is viewed as a relationship where actors assist one another in achieving separate objectives, and this is particularly the case

with regulatory bodies who would often seek the cooperation of others to ensure compliance to statutory legislation (Kanev et al. 2008). On the contrary, collaborative partnerships have different goals as outlined in Chapter 2. Collaborative partnership goals are primarily focused on the delivery of mutually-beneficial interests through joint efforts, the operative words in the distinction being mutually-beneficial interests and joint efforts.

Accepting that the strategic engagement process requires multiple and often divergent views, it does appear however, that there is a sense in which the IDBs' engagement with the EA can be perceived as a top-down power-relationship. In this kind of relationship exemplified by IDBs' demands for fair engagement, the potential gains of rescaled local governance structures remain unrealised. Hence, it is easy to rationalise this loss of opportunity by accepting that the Environment Agency, as the custodian of Defra's central government powers, should recognise the missed opportunities in failing to engage with local IDBs as equal partners. Nonetheless, an important distinction needs to be made between challenges resulting from the bureaucracy of institutions and difficulties encountered in managing relationships between local governance structures and the engaging partners. This distinction was made by one of the IDB Clerks:

"We have partnerships with the EA, which are generally good with local officers, but, bureaucracy is difficult..." [IDB Clerk 6].

IDBs have already established that the outcome of the FRMP engagement process is variable, depending on local interests and many other factors. One such factor is the resources available to the IDBs for engagement. One of the IDBs explained how resource issues affect the process of engagement thus:

“It is quite onerous on us because there are many LLFAs in our area, and us not having a political link to the top tier. So, it is a problem for us. The second tier is less of a problem. We have to go to [LLFA1] meeting one day a month, [LLFA2] meeting one day a month, [LLFA3] etc. You can give us one FTE for just going to meetings with partners...We do work closely with them, where we’ve got those agreements and recognition of the benefits, it works really well. Whereas, less recognition of the benefits, it can be onerous. So, partnerships can be bitter-sweet. Sometimes it is really good, other times, it is time consuming and doesn’t deliver anything” (IDB Clerk 2).

The above statement accurately captures the balance of IDBs’ perspectives on the challenges and effectiveness of the FRMP engagement process. Setting aside IDBs’ involvement in FRMPs, IDBs’ engagement with wider stakeholders sometimes suffers a similar fate, as narrated above by the IDB Clerk 2. Nonetheless, despite various challenges and constraints, the research found that the IDBs have made significant progress in the delivery of some innovative partnership projects. These findings and discussions significantly address research objectives 2 and 3.

5.5 IDBs engagement outside of the FRMPs: Visible markers of success

IDBs are increasingly developing partnership projects outside the FRMP platform. There is good evidence for this, from research on a successful partnership project involving an IDB and a conservation group. The partnership project aimed to eradicate a non-native species of mink, known in conservation circles as American mink, credited with the destruction of water voles in UK watercourses. The IDB Clerk involved in the partnership explained how they got involved in the project:

“I was approached by a gentleman called Tony XX [name redacted]. He is a rate payer. He lives just outside of Ely. He is a professor at XX [name redacted] University, specialising in conservation. On one project he won an award as the conservationist of the year from the Zoological Society. He won this award for the eradication of rats from the South Georgia islands. He approached me to start a project to eradicate mink from the UK. What he was asking from the board was to purchase mink traps. These are traps that sit on the drain. These don’t need checking like a typical animal trap. They are controlled electronically. When an animal goes inside, it sends a text, and they go and check. If it is a mink, they are taken away and eradicated, but if it is a water vole or a fish, they are released back. We have now purchased in a region of about 30 of these traps at about £200 -£250 per trap” (IDB Clerk 3).

The IDB’s voluntary involvement in this project is a good indication that as an organisation, they can adapt priorities when required in response to growing environmental and conservation concerns. This partnership project is a great credit to the IDB, whose involvement has persuaded other boards to join the scheme. The IDB Clerk confirmed the growing scope and scale of the project because of the IDBs’ initial involvement:

“A [Anonymised] has people working with him to check these traps when the alarm goes off. They are not being managed by the boards. There was a meeting I attended, Defra, was there, RSPB, NFU, other IDBs, all major conservation groups. The meeting was about eradicating mink from East Anglian to start with. So, you can have a buffer zone around the coast and then spread it across the country. There’s obviously an issue here, because mink is an animal and some animal welfare people may not be comfortable with it, but mink is non-native. And it can decimate the natural habitat. I have looked at some Animal Liberation sites, and they have classed mink as native as some of them were released to these parts in the 70s and since then, they have grown. So, we are the first group of boards that are involved with this...Other boards are just getting involved now” (IDB Clerk 3).

The increasing participation of the IDBs in partnership project outside of the FRMPs is a visible sign of growth in the organisation because the IDBs have historically found partnerships very challenging. This is supported by the view of one of the IDB Clerks who enlightened me about their efforts at developing strategic partnerships:

“We are working with AW on ... [partnership] initiative. Getting the IDBs to be very progressive... that’s more of a challenge. I personally think we should upscale and do a lot more” (IDB Clerk 1).

Given the growing evidence of IDBs' engagement with other organisations outside of the FRMP platform, the evidence from this research indicates that the IDBs' willingness to develop and participate in these partnerships is a visible marker of organisational success, despite the limitations or outcomes of the current engagement initiatives. Further examples of IDBs' innovative partnerships will be examined in the next two sections.

5.6 Decentralisation: An incentive for partnerships?

The Environment Agency are increasingly relying on IDBs to deliver some of their core roles, particularly, to maintain effective conveyance of water through a main river, along with any flood defences and structures for controlling water level. Given the close similarity in the roles of the EA and the IDBs with respect to river maintenance, and the IDBs' historical experience and increasing capacity to take on partnership work on behalf of other FRMAs, it is rational for the Environment Agency to explore opportunities to transfer some of its role to the IDBs.

Another successful partnership story was shared by an IDB Engineer, who explained how his IDB was able to work in partnership with the Environment Agency to improve some of the

watercourses which were affecting water levels in the IDB's catchment, but are under EA's responsibility:

"We did a survey and it established that something needed to be done. So, we got in touch with the EA and said, we've got to get something done here. It has an impact on our catchment and our ability to maintain and manage our catchment. So we looked at a way of desilting that watercourse, we looked at what I classify as conventional methods, that's using a large excavator for the removal of silt. Ideally depositing somewhere on the bank to be used for agricultural purposes. Ehm, this could be possible in places but not possible in others. From a cost point of view, we looked at places where it wasn't possible to deposit silt in this way. We would make sure that they had to be loaded and carted to suited areas to cart that material to. We found that that made a lot of difference. But our process was more innovative. It didn't impact on the environment. Ehm, we felt that the process was a lot more sympathetic, it meant that there was a lot less damage to the banks. We agreed our processes with the EA, the process we chose was a floating barge, with a suction. The silt is held in a holding lagoon to settle before the water is discharged back into the watercourse. We have completed 11km so far, and are now in a negotiation with the EA, to get a further 9km done, which is between the two main roads across the Forty Foot drain" (IDB Engineer 4).

The narrative above is self-explanatory, however, it is significant to highlight the IDB's proactive approach in initiating this process. This is a positive indication of growth and progression in the IDB's collective operational culture. The success of this approach would invariably encourage other IDBs to explore proactive opportunities for engagement.

Furthermore, this example has led to the Environment Agency's decision to transfer these responsibilities to the IDB in a negotiated process of decentralisation. From this perspective, one could argue that decentralisation and delegation encourages engagement and partnerships. Thus, IDBs' proactive initiative engenders greater opportunities for engagement with the local farmers and landowners in the community. These engagement opportunities ensure that ordinary members of the community have a voice and that their concerns matter to the IDBs.

Another example seen from the evidence of the research where decentralisation seems to promote engagement is through the administration of land drainage consents. Some LLFAs have delegated the role of managing land drainage consents in their area to IDBs through negotiations. These negotiations are driven by the requirements to support section 23 of the FWMA 2010. One of the IDBs explained how they were able to operate as the principal consenting authority for local authorities in their areas, following implementation of s.23 of the FWMA 2010:

“The ... effect of our partnership role is the s.23 Consenting which we do for the [LLFAs]...The other example which predates this, is when the preliminary flood risk assessments (PFRA) come out in ... 2011, we produced a combined one for [LLFAs]. Each of them were allocated 20k from Defra. The EA did a lot of work to support this because they produced all the maps but we did a joint PFRA for the three Local Authorities which cost £15k, so it cost each LA £5k, but they were allocated £20k. There was a massive efficiency saving in the activity of working together.” (IDB Clerk 3).

The most common outcome of partnership engagements, whether in projects or other activities, between the IDBs and other organisations is captured in the last sentence of the above narrative. These successful cases demonstrate the value in cooperation and partnerships. These findings and discussions address research objectives 2 and 3. However, for the IDBs, the resource implications of the increase in their engagement and partnership activities have far reaching consequences on the sustainability of the IDB as an organisation. I will examine challenges with IDBs’ organisational sustainability in Chapter 6.

5.7 IDB participation in Natural Flood Management (NFM) partnership projects

Black Sluice IDB, farmers and other local partners are currently in a collaborative partnership with the Environment Agency and Heriot Watt University to implement a pilot NFM project at Swaton, Threekingham and Spanby. According to the Environment Agency Project Manager, the project will help reduce flood risk to the villages of Swaton, Threekingham and Spanby, where about 25 homes and 38 businesses are at risk of flooding. Lane and Milledge (2013) agree that NFM projects such as these will help reduce peak flows downstream of the drainage networks. This research and development project will use natural flood management techniques to hold back water to reduce the risk and severity of flooding. From a governance point of view, the Swaton NFM project was predominantly funded by central government through the NFM Research Programme which ran between 2016 and 2021. The project budget has been topped up using other government department funding, including local levy funding from the RFCC and a small amount of FCERM Grant in Aid (Environment Agency, 2020).

At the point of data collection, the Swaton NFM was being implemented on site. The partnership project was undertaken with active engagement from farmers and included installation of specialist ponds and grass revetment. The mechanism of the solution is such that the attenuation ponds were used to store water during flooding, allowing attenuation by slow infiltration into the ground. The technical basis for this NFM implementation is provided by Lane and Milledge (2013) who are convinced that this implementation will help reduce peak flows downstream of the drainage networks beyond the attenuation points. In total, five specialist attenuation ponds were designed across three farms. Cumulatively, they have the

capacity to store approximately 22,000 cubic meters of flood water. Additionally, the Swaton ponds were designed to include a permanent wildlife habitat in the middle of the attenuation area.



Figure 5.1- NFM partnership project team at Swaton

Source: Environment Agency website (www.gov.uk/government/organisations/environment-agency)

The grassed areas in Figure 5.1 known as field edge swales, are 2 to 4 metre wide strips and are capable of intercepting water flowing over the land. There were 29 swales across the 3 farms which were sown with wildflower seeds to boost benefits for pollinators. These have the capacity to hold back approximately 26,000 cubic meters of flood storage water, the equivalent of another 10 Olympic sized swimming pools (Environment Agency, 2019).

The funding for the partnership project was provided by the Environment Agency, however, Black Sluice IDB undertook the on-site project management. Some of the farmers were also involved excavating the swales, making this a true partnership project. Wingfield et al. (2019) agree that collaborative application of NFM as represented by this project often comes with multi-sector benefits. The sectors benefiting from this collaborative project include, flood risk

management, agricultural sector, environmental management and conservation. I was able to get the views of the Environment Agency Project Manager from the documentary analysis of data from the Environment Agency website:

“So far we have constructed 1 pond and around 1.8 kilometres of swales and are pleased with the progress we are making. The rest of the features should be constructed over the summer, finishing with the last ponds and swales after the harvest. The project is 1 of the first natural flood management schemes to be installed in an arable landscape. More usually schemes are located on grazed land or in woodlands, so we are keen to see how well it will work. We would like to thank the 3 farmers whose farms we are installing the scheme on. The project wouldn’t be possible without them” (EA Project Manager, EA Website).



Figure 5.2 - Construction of the attenuation pond at Swaton as part of the NFM partnership project

Source: Environment Agency website (www.gov.uk/government/organisations/environment-agency)

Another Environment Agency Project Manager involved in the project commended the spirit of cooperation and partnership driving the project thus:

“It’s been a pleasure to get involved in this unique project and to build a strong team consisting of the Environment Agency, suppliers, the Internal Drainage Board and farmers. I am pleased we are able to see progress on the ground. I am looking forward to seeing the findings from the monitoring to see how effective the project is in reducing local flooding” (EA Project Manager, EA website).

Heriot Watt University will monitor this pilot scheme for three years after completion and will report on the effectiveness of the scheme following the monitoring phase. The involvement of the IDBs in innovative partnership projects such as the Swaton NFM demonstrates the critical relevance of the IDBs to the success of innovative local flood partnership projects. On the Swaton project, the expertise of the IDBs was essential in the implementation of the project. The spatial and organisational proximity of the IDBs to the farmers, and the wider local community, guarantees the IDBs sustained prominence in future collaborative and partnership projects within the local communities within and outside of IDBs IDD. Hence, by extension, this underscores the imperative of the IDBs in the implementation of future catchment based strategic flood risk management initiatives. From a governance point of view, the initiative for this innovative partnership approach seems to have been developed without ADA's involvement. The success of this partnership seems to have been driven by the collective will of all the collaborating members of the partnership. The Environment Agency may have initiated the process but, without the participation of the local farmers and IDBs, the project would not have been implemented. It is therefore reasonable to conclude that the IDBs are by these innovative partnerships enamouring themselves to the local communities in the delivery of flood risk management programmes. These findings and discussions address objective 2 of this research and provide answers to research question 2.

5.8 Chapter Summary

In this chapter, I have examined the challenges of collaborative partnerships from the perspective of the IDBs under the platform of FRMPs. The findings of the research agree with Mering et al. (2018) that the engagement process is far from straightforward. The challenges of collaborative partnerships can be grouped into two classes: a) the challenges of the objects (processes), and b) the challenges of the subjects (people). The challenges of the objects or processes include lack of transparency and visibility of partners' programmes, poor timing of projects leading to potential loss of packaging opportunities, lack of budgets, etc. Conversely, the challenges of the subjects or people deal with the mechanisms of interactions within partnerships. The power dynamics between partners come into focus. The analysis of findings in this chapter has shown that IDBs' experiences of partnerships are not immune to the consequences of power imbalance. The evidence points to the mechanism of exclusion as the typical example of inequality in the exercise of power by members of the FRMP, such that Moham and Stokke (2000) agree that the engagement process can serve as a vehicle for suppressing diversity and difference.

Despite the challenges of collaborative partnerships, the IDBs continued to expand their ambition for strategic partnerships beyond the typical scope of FRMPs. IDBs' involvement in NFM is a clear demonstration of IDBs' intent to translate their environmental goals, particularly the Biodiversity Action Plans (BAPs) into tangible project. IDBs' participation in NFM further validates the visible and transparent strategic goals of the organisation without which Wingfield et al. (2019) argues, progress in governance can't be achieved.

Finally, this chapter has examined, with examples of IDBs' experiences, the impacts of decentralisation policies in IDBs' partnerships. The findings show that IDBs can be proactive and most importantly that IDBs are able to position themselves to take effective advantage of growing opportunities from decentralisation policies within FCERM. Undoubtedly, these policies have had a positive and empowering influence on the IDBs.

CHAPTER 6

EXAMINING PERSPECTIVES ON IDBs' SUSTAINABILITY INDICES: FUNDING, EFFICIENCY, EFFECTIVENESS, INTERNAL CAPACITY AND ORGANISATIONAL RESILIENCE

6.1 Introduction

This chapter is divided into two parts. The first examines issues relating to IDBs' organisational sustainability. I start by reviewing the FCERM Grant in Aid (GiA) funding model which constitutes the major source of government funding for FCERM projects for the IDBs. I focus on FCERM GiA funding model, where the IDBs are involved as lead organisations or contributing partners to the partnership project. The findings of the research reveal an overwhelming dissatisfaction by the IDBs on the effectiveness of the FCERM GiA funding model for IDB projects. This section addresses objective number 5 of this research which requires an analysis of FCERM current funding models, and further provides answers to research question number 5, regarding the sustainability of current funding models for FCERM. The chapter further discusses and analyses FRMAs' and other governance perspectives on the effectiveness of the process for the application and approval FCERM GiA funding.

The second part of this chapter is enriched with discussions and analysis of findings of the research with respect to other indices of organisational sustainability such as effectiveness, efficiency, internal capacity and resilience. The first section introduces some of the sustainability variables and examines selected IDBs' contextual experiences and challenges with improving these variables. The second section suggests strategies for mitigating IDBs'

capacity issues and the third section examines ADA's argument for utilising amalgamation as a tool for increasing IDBs' internal capacity and resilience. The fourth section provides a lot of insight on ADA's environmental governance initiatives and guidance to the IDBs. It explores some of the environmental challenges and opportunities associated with the role of the IDBs and establishes a correlation between these challenges and IDBs' broader sustainability challenges. These discussions contribute to addressing objective number 4 of this research which seeks an examination of some of the indices of IDBs' organisational sustainability as a means of determining future roles for the organisation.

The chapter concludes with recommendations from ADA on how the IDBs can mitigate some of these challenges, arguing the need for a review of the balance of intra-partnerships, as well as the need for the implementation of innovative approaches to ensure the sustainability of the IDBs.

6.2 Historical background to the FCERM GiA funding model

The Secretary of State for Defra changed the process for funding FCERM projects in May 2011, introducing the 'Partnership Funding' (PF) approach. This policy was published under the Conservative and Liberal Democrat coalition government. The PF model was characterised as an outcome-focused approach, as discussed in Chapter 4, and promised to

“allow any worthwhile project (where benefits are greater than costs) to qualify for government money, known as grant-in-aid (GiA)” (Environment Agency, 2020, p. 3). The governance arrangements for the PF scheme are established as follows:

“The Environment Agency updates the allocations of FCERM GiA to manage a national programme of projects within the funding available. Regional flood and coastal committees (RFCCs) set local priorities, with advice from other interested organisations, including lead local flood authorities (LLFAs), internal drainage boards (IDBs) and coastal groups” (Environment Agency, *ibid*).

The requirement for a lead organisation amongst the participating group is very significant in the application of the PF scheme and the GiA funding model. This chapter examines issues around the application of the GiA funding model where the IDBs are involved as lead organisations or contributing partners to the partnership project. The findings of the research are discussed with an analysis of the implications of the impacts of IDBs’ perspectives on the on the application and utilisation of the PF scheme and overall sustainability of the flood governance role of the IDBs.

6.3 Criteria for FCERM GiA funding application and IDBs’ perspectives of the process

Defra assures FRMAs that “any project where the benefits are greater than the costs can qualify for a contribution from Flood and Coastal Erosion Risk Management (FCERM) Grant-in-Aid (GiA)” (*ibid*). In terms of its application, this assurance is limited to an understanding of the GiA scheme as an outcome-focused model as I already stated above. The range of outcomes associated with the PF scheme have been discussed in chapter 4, however, I

provide a summary of the anticipated outcomes here to highlight the limitations of the scope of outcomes for IDBs' operations: a) Outcome Measure (OM) 1 examines the economic benefits; b) OM 2 examines the number of households at flood risk; OM2b examines the number of households moved from very significant to significant flood risk; OM 2c examines the number of households moved from 20% of the most deprived areas, from very significant to significant flood risk; c) OM 3 examines the number of households at erosion risk; OM 3b examines the number of households protected from coastal erosion in a 20 year period; OM 3c examines the number of households in 20% of the most deprived areas protected from coastal erosion in a 20 year period; d) OM 4a examines the length of water dependent habitat created or improved in hectares; OM 4b examines the length of intertidal habitat created or improved in hectares; OM 4c examines the length of rivers protected in kilometres under the EU Habitat or Birds Directives (Defra, 2014). These have been clearly set out in chapter 4, but briefly mentioned here to set out the baseline against which IDBs' partnership projects seeking FCERM funding should be assessed. In other words, these measures highlight the immediate constraints and challenges facing FRMAs intending to seek recourse to the FCERM GiA funding model.

FRMAs including IDBs are expected to submit forecasts of OM's deriving from GiA funded projects as part of the Medium Term Planning (MTP) process undertaken on Defra's behalf by the Environment Agency. Therefore, prior to the submission of the business case, which for large projects may take the form of a Project Appraisal Report (PAR), or, for smaller schemes, a proportional report, utilising suitable EA approved templates, FRMAs, including the IDBs are expected to have undertaken a forecast of potential OM's, to facilitate the inclusion of the

forecast OMs in the business case. Confirmation of OMs for projects benefiting from GiA is one of Defra's key performance indicators associated with the GiA funding model.

Having provided the above background, I will now examine the research findings on the utilisation of the PF scheme, examining the challenges encountered by the IDBs in the application of the GiA process. I have set out in details, the operational mechanisms of the PF scheme and explained how the funding calculator works in Chapter 4, therefore, any mention of the PF scheme here refers to the entirety of the operational process for administering the PF scheme as already explained in Chapter 4. The research provides strong evidence in support of the view that the PF scheme has not lived up to the assurances given by Defra at the inception of the policy. The unanimous verdict on the GiA from IDBs' perspectives is that the application of current partnership funding model has done very little to encourage the delivery of more flood risk management schemes in their areas. Before I go into IDBs' specific criticisms of the GiA, I discuss ADA's views on the variations in the GiA application process between the Environment Agency and the IDBs. ADA recognises the limitations of the revised⁴ partnership funding model and its overall impact on the IDBs. ADA's Technical Director, illuminated some of the challenges of the revised partnership funding model on the IDBs:

"Unlike the EA, drainage boards have had to bear the burden of capital projects they have to move ahead with. Prior to Partnership Funding that used to be 45% of the capital scheme, but with the Partnership Funding (PF) that has changed slightly. So, the boards are all familiar with getting their own money through their local levies" (ADA, Technical Director).

⁴ Defra periodically updates its guidance on PF. The latest version is [Partnership funding calculator 2020 for FCERM GiA](#)

The collective view of the IDBs is that the process could be simplified even further to assist the IDBs given the low value of some of their projects. One of the IDB Clerks questioned the need for the complexity of the current GiA funding model:

“It needs to be made much simpler. I have been on many courses about calculating the benefits and all the rest of it, and everybody comes home none-the-wiser. For the scale of projects we put in, the process has to be simpler. It can be done... it can be done! When it suits the system to simplify it, they do it” (IDB Clerk 1).

Another IDB Clerk had similar views on the GiA process:

“The system could be made simpler. It is very onerous. There is an underlying feeling that the Agency [EA] is there to stop you delivering schemes rather than to support you through delivering schemes...” (IDB Clerk 2).

A third IDB Clerk illustrated the complexity of the PF process with an example of a PF project for which the board had applied for FCERM GiA funding. The scheme was estimated to cost about £350k. The IDB had secured partnership contributions from other beneficiaries of the scheme, thereby reducing the FCERM GiA requested to £50k. They paid a consultant to develop the business case report and submitted to all partners for review. Unfortunately, approval for the GiA funding was delayed for reasons explained in the narrative below, challenging the Environment Agency’s claims of proportionality-of-value assessment to which projects applying for GiA funding are subjected. The frustration of the IDB Clerk is clear to see from his criticism of the GiA funding scheme managed by the Environment Agency:

“The EA flips depending on whether they think they can get houses from it or not. Got the draft report from [the consultant], submitted to all the partners in December for comments, got a couple of comments from the EA, addressed them, now submitted it again, it came back with about 46 comments. The EA are only contributing 50k of the total 350k with risks, and yet they keep talking about a proportional approach to schemes. We spent 25k to write the report, what we don’t want is to spend 50k on a 250k” (IDB Clerk 3).

The IDB here observes that the costs of producing a project appraisal report is one of the main issues they have had to deal with. Due to the lack of adequate internal resources within the IDBs, they have outsourced the task of producing project appraisal reports to consultants.

Unfortunately, the nature of these contracts are based on the Professional Services Contract (PSC) model which means that the consultant is paid for the time spent on the project. Therefore, when the EA reviews the report and identifies further comments to be addressed, these will go back to the consultant, and in so doing the consultant's cost of the project rises. As the IDB Clerk 3 observed, they could easily spend up to 50k on a project they had hoped to spend considerably less with endless review of the document. The key issues and questions that readily come to mind are, a) were the comments received from the same EA reviewer or another reviewer?, b) is the consultant familiar with the guidance and process of producing FCERM projects? I could not get answers to the first question from the EA, but the IDBs confirmed that the consultant they hired to produce the FCERM Appraisal Report was very competent and had previously done similar jobs for other FRMAs, including the EA. Therefore, I can only assume that there must have been a breakdown in communication between the EA reviewer and the IDB resulting in inadequate support for the consultant. This reinforces the significance of communication in partnerships. On the relevance of effective communication, Forrester (2009) observes that this enhances close-working partnerships between partners.

Another IDB Clerk summed up the helplessness of the IDBs in the face of obvious challenges thus:

"I have only taken a few projects through the FDGiA, they keep getting pushed back, in other words, they didn't hit the right straws on the doors. But in that meantime, we still have to undertake works on our pumping station..." (IDB Clerk 4).

The difficulties encountered by IDBs in getting through the GiA process have a cause-and-effect consequence, particularly for the IDBs. The consequences for the IDBs are often very drastic and almost punitive, often resulting in delays and cancellation of planned delivery of FCERM projects. As a result, some IDBs increasingly prefer to explore other internal sources of

funding rather than the GiA process for smaller schemes. There have been cases in the past where critical IDBs' project such as pumping station refurbishments and embankment repairs have failed to receive GiA funding, purportedly due to lack of adequate justification within the business case justification reports. In the worst case scenario, this leads to the postponement of these critical maintenance works which support the standard of flood risk protection within the local catchments. From a risk management perspective, the failure of critical flood assets has many potential consequences, ranging from the deterioration of other dependent assets to severe flooding capable of endangering lives and properties. The cost of dealing with the consequences of flooding far outweigh the cost of maintaining critical assets when maintenance is undertaken in a timely manner. Hence, the IDBs believe that a simplified process is required. Understandably, this would require a review of the current process by Defra and the EA. At a strategic level, this avoidance approach limits rather than enhance the opportunities for implementing flood risk management solutions. These findings and discussions address objectives 4 and 5 of the research.

However, when I put IDBs' concerns to the Environment Agency, they explained that the GiA funding scheme has clear application criteria, which have been made available to participating FRMAs, including the IDBs. They suggest that the difficulties faced by the IDBs are related more to lack of adequate resources required to produce satisfactory business case as required by the GiA process and offered to provide more support in the future to the IDBs. In fairness, the claims of lack of adequate resources for most IDBs were borne out by the evidence of the research. One of the IDB Clerks reflected on the difficulties and challenges of inadequate resources:

“[EA] has approached me to undertake work... but we don’t yet have the capacity as we were in our busy time. Once thing I have struggled with is our staffing levels in the office. We are covering 16 boards now... engineering-wise, we have myself and an assistant, and someone that came in to help on a part time basis”. [IDB Clerk]

There are also limitations on IDBs’ affordability of specialist resources required to facilitate the GiA funding process. IDBs argue that it is not economically viable to hire a consultant for the sole purpose of writing business cases for GiA schemes. Hence, some IDBs are now trialling a system of pooled resources for the services of a consultant to produce business cases for GiA schemes. Early indications of the viability of this approach appear disheartening, as one of the Clerks laments the futility of their efforts in this regard:

“... It was packaged together for efficiency on the advice of the EA, but at the end of it, the outcome was the same. I don’t care how you wrap it up, it is not efficient.... I have been on many courses about calculating the benefits and all the rest of it, and everybody comes home none-the-wiser. For the scale of projects we put in, the process has to be simpler. It can be done, Austine... it can be done! When it suits the system to simplify it, they do it” (IDB Clerk).

The current situation deserves an urgent review given IDBs collective feeling of despondency with the complexity of the FCERM GiA funding model and its inability to support IDBs’ objectives. Hence, in the short term, the IDBs hope that Defra and the Environment Agency will reflect on the growing evidence of the unsuitability of the current FCERM GiA funding model for the IDBs and recommend a review of the criteria in recognition of the challenges of the IDBs. The research recognises that some improvements have been made to certain elements of the PF model, improving the valuation of benefits for agricultural lands. However, the findings of the research indicate that IDBs would welcome a wholesome overhaul of the current PF process aiming to simplify the process. The rural nature of IDBs’ districts makes it more challenging for IDBs to maximise the benefits of the current FCERM GiA outcome-based model, which prioritised the protection of properties. Consequently, unless the qualifying

outcomes are reviewed to increase the value given to agricultural land, it is almost certain that IDBs will struggle to maximise the benefits of PF scheme in their areas.

With regards to alternative funding opportunities, ADA summarises the options available to the IDBs:

“They are also able to seek funding through other sources like the Local Enterprise Partnerships (LEP), you also have the Humber drainage boards, who have been successful in getting funding from LEP for the improvement of drainage issues connecting more of the catchments together. However, there is an uncertainty about how such funding can be used for local drainage works in the future” (ADA, Technical Director).

ADA’s recommendations contain an admission of some uncertainty about the use of these alternative funding options for flood risk management purposes. However, IDBs operate within a well-established benefit-for-services funding model for their current roles. As the roles expand, the question of funding for these additional roles become imperative to their growth and sustainability. Evidence from the research has shown that IDBs feel less secure about their ability to compete for external funding sources for the delivery of FCERM objectives due to lack of adequate resources within the boards.

The research also uncovered IDBs perceptions of inherent inefficiency in the reconciliation process of current income and expenditure streams between the Environment Agency and the IDBs. The boards would welcome a more streamlined accounting system covering their income and expenditure with the Environment Agency. There is an overwhelming feeling from the IDBs that monies due to the IDBs from the Environment Agency (Local Levies) and Precepts due from the IDBs to the Environment Agency could be better reconciled to avoid the current complexity.

One of the IDB Clerks presented a picture of the EA/IDB income and expenditure relationship:

“We recognise we have to have reserves because we can have emergency next year. We need to have some reserves to fall back on. The EA’s is very complex in our area, we get grant in aid, they get local levy, they get IDB Precepts, and we get the general drainage charge and to have to play tune on each of those funding streams through different project, through different maintenance works can be difficult...” (IDB Clerk 5)

Drawing comparisons between the Precepts or GiA and Local Levy funds, the detailed distinction of which has been made in Chapter 4, the IDB Clerk elaborated on the challenges of utilising IDB Precepts for the delivery of schemes:

“I think, for example, IDB Precepts can’t be carried over year to year, but the Local Levy can. The FRCC saved up over several years and was able to make up several million pounds of contribution for schemes. It suggests to me that they realise that with the IDB Precepts or GIA, if they don’t spend it, they lose it. I think this is tied to treasury rules. But all the local levy raised money, I would say, is more intelligently used.” (IDB Clerk 5)

The distinction which the IDB makes between Precepts or GiA and Local Levy funds relate to flexibility in utilising the funds for FCERM projects. The FCERM GiA funds are meant to be spent in the year they allocated but the IDBs’ Local Levy funds can be spent whenever the IDBs choose. The observation the IDB Clerk is making by inference, is that the flexibility in the use of Local Levy funds is admirable and intelligent, suggesting to me that the FCERM GiA funds can also benefit from the same level of flexibility. IDBs which struggle to get FCERM GiA funds for critical maintenance projects usually resort to other sources of funding, typically the drainage rates and special levy. Unfortunately, there is an acknowledgement that some of the changes desired by the IDBs are difficult to achieve without recourse to further legislation.

6.4 IDBs' perspectives on the suitability of the PES model

The IDBs' traditional funding model characterised by the provision of land drainage service in lieu of payment in the form of land drainage charge is arguably one of the earliest applications of the PES model. This assessment provides the basis for a much wider application of the PES model in future flood risk management activities. As I explained in chapter 2, the application of the PES model requires a thorough assessment of the benefits provided and the range of beneficiaries benefiting. This is especially relevant for the IDBs as the current scope of the role of the IDBs is much wider than the traditional land drainage role. The broad remit of IDB beneficiaries is shown in Figure 4.4, however, of all the beneficiaries identified, the proportion of beneficiaries making direct or indirect payments for services provided is very low. This is justified against a comparison of the range of beneficiaries in Figure 4.4 with current IDBs' income sources in Figure 4.6.

Other FRMAs are encouraged to assess the merits of the PES funding model and determine its appropriateness for their services. The findings of the 2019 review of flooding in Doncaster suggest that public trust in the traditional forms of flood insurance is waning. Amanda Blanc (2019) in her Foreword of the Independent Report had this to say:

"Throughout the review, I encountered numerous examples of people or businesses having little trust in insurance or insurers. I am not making a judgement about whether this mistrust is warranted, but this problem was clearly not helped by my own discovery of some worrying instances of poor behaviour by insurers in handling claims from the 2019 Doncaster flood" (Amanda Blanc, 2019, p.3).

Going further, she acknowledged that more government support is needed to ensure adequate flood insurance for people living in low-cost houses:

"The impact of flooding for people already living in more precarious situations can be profound and in a world in which the risk of flooding is increasing, it is vital that we do all we can as a society to help those most at risk to get the support they need" (Amanda Blanc, *ibid*).

Table 4.1 on FCERM funding has shown that year-on-year increases in funding for flooding seem to have tapered off in the last two years. The introduction of Flood Re (Defra, 2014) which I explained in section 2.6.3 is a good indication of the UK government plan for reduced funding intervention for flooding. Therefore, in the long term, the sustainability of flood insurance in England should rely on innovative ‘benefit-for-service’ models, such as the PES. However, FRMAs considering this funding model must quickly overcome the ‘social welfare-mentality’ that encourages arguments for subsidisation of flood protection for many, by the few. In a limited sense, the UK government’s Flood Re model which is a joint initiative between the Government and insurers, represents one such hurdle. For, despite its altruistic aim of combining flood insurance within household insurance, the real test will depend upon the longevity and sustainability of the model. Given fears of reduced government intervention in flood risk management, the social-philosophy mentality is set to be overtaken by the likes of the PES funding model.

On balance of analysis, the IDBs’ drainage-rate and special-levy funding model represents a historically-tested template upon which the FRMAs can base the application of future PES models. New PES initiatives can benefit from adapting and utilising the principles at the heart of the rigorous assessment procedures governing the IDBs’ drainage-rate and special-levy funding model. The IDB funding model is designed as a benefit-for-service model, and hence very sustainable. But the crucial question is ‘what makes the IDB funding model very resilient?’ One of the independent consultants I interviewed during the research provided an answer:

“What makes the IDB case very special is that they are providing a service which would always be in demand, due to nature of issues people face in the local areas... The ground conditions, agricultural

drainage needs, etc. If the local need remains, the IDBs will remain in service. If the need ceases, the demand for IDBs' service will cease" (Independent Environmental Consultant).

Still on the resilience of the broad benefit-for-payment model, one of the IDB's commented on the value of historical trust on the IDBs as a basis of broader application of the PES in their role:

"It depends on how much control you have over what is going on... the landowners we work with understand that we are here to stay... the farmers understand that in the past, we were able to focus on drainage issues, ... now we are able to provide more benefits in the way we manage water levels"
[IDB Officer]

Two things stand out for me in the above narrative: The first is a sense of an IDB as an organisation which has become an inseparable part of the culture and way of life of the local communities, in their districts. This is supported by the views of another IDB Clerk, who clarified that "the beauty of the IDBs is historically shown by our ability to meet the local needs" (IDB Clerk1). Secondly, there is an acknowledgement that the benefits on offer have improved significantly from what they used to be in the past. As expressed by the officer, the IDBs are now recognised for their *water level management* role in the local communities. This is a much broader role, which includes the introduction of projects to improve water irrigation for farming in times of drought. Through the local relationships and engagements with the community, IDBs thus demonstrate compliance to EU Floods Directive 2007/60/EC. These findings and discussions address the first objective of this research and provide answers to the research question 1.

As I indicated in the introduction, I will now examine various perspectives from FRMAs on identified indices of sustainability namely, efficiency, effectiveness, internal capacity and resilience.

6.5 Arguments for IDBs' sustainability through the indices of efficiency, effectiveness, internal capacity and resilience

6.5.1 Introducing other variables of sustainability

The sustainability of the IDBs as an organisation with developed capacity to meet local flood governance challenges undoubtedly relies on more than their funding models. We have seen from the evidence of this research, that some aspects of IDBs' funding models need to be reviewed to enable IDBs maximise the potential benefits of existing funding models, particularly, the FCERM GiA funding model. However, the quest for organisational sustainability in the face of changing roles, requires greater focus on other variables, such as, efficiency, effectiveness, internal capacity and resilience.

The research found that many IDBs were concerned about lack of progress in their efforts at strengthening internal capacity and resilience through succession planning. The significance of this challenge is reflected in the words of one of the IDB Chief Executives:

"I think we need to have more people in the office. I know we have talked about the difficulty of recruiting and succession planning but we need to have some younger people learning how to take over so that when I leave, or when my assistant leaves, there is someone there to replace them. And also, we need, for instance in my role as the Chief Executive, to be out there influencing large planning schemes and telling people about the IDBs" (IDB Chief Executive).

The frankness with which most of the IDBs discussed this sensitive issue of capacity was very significant. Another IDB officer expressed the impacts of the consequences of the limitations in internal capacity of the board to deliver multiple projects simultaneously:

"Sometimes, ... it is quite resource intensive as well. There's only one of me, and if I need to make a contribution to someone else's project, I still have my workload. Resourcing is becoming the bigger issue, because other demands on your time keep escalating" (IDB Officer).

The logical solution would be for the IDBs to strengthen internal capacity through recruitment campaigns. However, there were many challenges identified by the research why this solution is far from straightforward. In the first instance, the research found an instance where the Chief Executive of an IDB tried unsuccessfully to get the approval of the Chairman of his board to recruit. His reasons for seeking an increase in internal capacity though logical and rational in my view, did not meet with the board's approval:

"For instance, in my role, I could be out there in a meeting with MPs, or the NFU, the next minute, I could be pulling boards out of a dam. We have had a meeting with our chairman about the need to recruit, and we have been asked 'why do you need it' (IDB Chief Executive).

The chairman's request for further justification in the above narrative may suggest that either the initial justification wasn't sufficiently robust, or the board simply doesn't recognise this as a priority. There is also a sense in which some of the challenges of FRMPs discussed in Chapter 5 affects the IDBs' recruitment strategy. In my interview with one of the IDB Clerks about the sustainability of IDBs' resources for collaborative flood risk partnerships, he agreed that there is a relationship between visibility of future work and increase in internal capacity:

"You are right. Are we resourced for it? Only just. But if someone said to me, you have this job for 3 to 5 years, then we will be able to resource better. At the moment we are fire-fighting. I will rather they have time to plan ahead" (IDB Clerk 1).

Unfortunately, the availability and sustainability of funding has significant impacts in strategic planning for flood risk management. An increase in the sustainability of the flood risk management funding sources will greatly enhance FRMAs internal capacity. Nonetheless, regardless of the challenges, the consequence of inadequate internal capacity impinges on the board's overall effectiveness, because a board with insufficient capacity struggles to optimise its effectiveness. Furthermore, the drive for efficiency is a critical key performance

index for the IDBs. However, a balance needs to be maintained between the drive for efficiency and increase in internal capacity for delivering these efficiencies. Typically, in any IDB, the Chief Executive, who leads the development of the strategic vision and operations of the IDB, is best placed to recognise when this critical balance is tipped, and communicate the board appropriately, as has happened with this IDB. Therefore, one can only speculate on the reasons for the board chairman's less than favourable response. A possible interpretation of this narrative is a suggestion of lack of shared strategic goals, between the board members and the administrative members of the IDB. But is this really true? From my viewpoint, there is sufficient evidence from the research in support of a routine adherence to a demonstrable process of shared strategic goals between the board members and the administrative members of the IDB, as demonstrated by interactions evidenced from the minutes of IDBs' board meetings.

The analysis of various board meeting reports confirms that strategic discussions are routinely communicated with board members during periodic board and project meetings. An excerpt of the minutes of one of the IDBs in February 2021 demonstrates the quality of interaction and the need strategic importance of collaboration:

"The Operations Engineer presented a photograph of a Pump number 1 being lifted out for repair at Postland Pumping station. There had been some vibration from the pump after the Christmas Rainfall Event and the pump is currently at Y [name redacted] being repaired. He reported that the thrust bearing on Pump number 2 at B [name redacted] had overheated and had been removed on 2nd February 2021 for repair... A concern was raised regarding the continuation of works on X [name redacted], the Operations Engineer explained that the Board would not carry on works due to the CDM requirements by the EA. The EA have confirmed that the works will be resumed this year using framework contractors. Cllr [name redacted] asked if the culvert at the bottom end of W [name redacted], C [name redacted] was a Board asset. The Operations Engineer confirmed that it is not a Board culvert...[name redacted] recommended that the Highways Officer be contacted for problems on roads. He commented that local authorities do not seem to recognise the Boards position in an emergency. Cllr [name redacted] suggested that the Board approach Councillors for direct numbers so that they can put the Board's case forward...The Chief Executive commented that in 2010 a Water Management Action Plan had been drawn up with the LLFA in the lead role, partnership meetings had

been taking place for 10 years but he is still of the opinion that more is required to resolve the issues. Cllr [name redacted] also raised concerns that in an emergency contact is poor and welcomed the request for partnership cooperation” (IDB 6, minutes of February 2021 board meeting).

The above excerpt highlights the nature of the dynamic and collaborative intra- partnership relationship between internal IDB members on the one hand, and the limitations of the inter-partnership relationship between the IDB and other FRMAs. On the former, the IDB Operations Manager who is part of the administrative structure of the IDB as shown in Figure 4.2, is held accountable by members for the progress of the delivery of the projects. This type of scrutiny promotes accountability and transparency of board operations. However, on the latter, the Chief Executive of the IDB highlighted that despite the existence of an action plan with the LLFA, more is required to resolve the issues they face. Much worse is the claim that the local authorities do not recognise the position of the IDB in emergency situations. However, the excerpt concludes with an acknowledgement from one of the elected members that partnerships cooperation is necessary.

This excerpt from the minutes of another IDB’s meeting raises issues of intra-partnership between members and inter-partnership with others:

“It was questioned why this work wasn’t being undertaken by the landowner under riparian responsibilities? And subsequently if this work is undertaken, the Board may see an increase in requests for works of a similar nature. The Director of Operations added, historically the Board has considered request for works of this nature, assessed by officers on a case-by-case basis and reviewed by Members for using the Boards Permissive powers to maintain the existing infrastructure for the benefit of the drainage district. The Senior Operations Engineer added the request came from the owner who has offered to clear and remove the trees personally. The Director of Operations reassured member the additional works are affordable. Members questioned if a contribution could be taken from the local council and the landowner benefiting from the work? The Director of Operations advised the District Council pay the Board a Special Levy and therefor public body partnerships should be encouraged. It was there for suggested that the Board should undertake the open section of watercourse and the highways undertake the section within the highway boundary as a good example of partnership working. Members felt moving forward as more requests of this nature are received, a mechanism is needed to help determine, assess and prioritise the works as well as negotiate a contribution. The Chairman requested this is further investigated and proposals brought back to the Board for discussion and approval” (IDB 4 Minutes of November 2020 board meeting).

In the above excerpt, the intra and inter partnership relationship is evident. On the former, the interaction between IDB members is seen from IDB reviews of requests from landowners (who are rate paying members of the IDB) for further intervention works. The approach taken by the IDB in the assessment of these requests is an important lesson for FRMAs and organisation seeking to implement PES. The IDB recognise that members routinely turn to the board for these additional services, which are considered above and beyond the land drainage services for which rates are payable. Similarly, on the latter, the IDB Director of Operations suggests that the scope of IDB services could be explored under the benefit-for-service model. This approach to service delivery is supported by Ostrom (2011, p.16) who supports the view that “those who benefit from a service should bear the burden of financing that service”. These findings and discussions on intra-partnerships and inter-partnerships address the 2nd objective of this research and provide answers to the 2nd research question on the nature and relevance of cooperation and partnerships.

Continuing the focus on sustainability indices of effectiveness and internal capacity, one of the challenges of collaborative partnership as I identified from IDBs’ perspectives in Chapter 5, is visibility of collaborating partners’ programmes. Therefore, another plausible reason for lack of internal capacity within the IDBs could be the perception, in my view, within IDBs that building extra capacity without any clarity on when the resources will be utilised, results in inefficiency. Hence, this constant drive for efficiency within IDBs may be responsible for board members’ reluctance to increase staffing levels, despite obvious challenges. I will examine how this alternative explanation fits in with the views of another IDB board, with vastly improved internal capacity.

The Bedford Group of IDBs have made significant progress in developing their own infrastructure in pursuit of greater internal capacity. The board's engineering director suggested to me that their decision was based on long term aspirations and sustainability of the IDB. Conscious of their contributions to the local growth agenda, he confirmed that their approach to capacity building and overall sustainability plan is informed by the board's specific water level management approaches, especially the type of resources associated with those approaches:

"The beauty of the IDBs is historically shown by our ability to meet the local needs. That's why the IDBs have different set ups. For example, the North Level or Ely IDBs could have pumps, M & E (Mechanical and Electrical) engineers, we haven't. We got flood storage engineers, we have Civil Engineers... We do a lot of work on development control, planning liaison, consenting much more than any other in the Fens. We're more than happy to expand as we have done by taking on the consenting for our fellow LLFAs. We are actually in such a big office because we built it to future-proof ourselves. Actually we have got spare seats in the office and a bit of room for extension at the back. We are actually expecting to grow to meet the needs of planning. We thought we have a bigger involvement with planning because we are a statutory consultee, so, absolutely, as we are a small organisation, people have to be engaged and busy. So we can't just have people sitting around, doing strategic blue sky thinking; being small, everybody has to earn their keep" (IDB Engineering Director).

From the above narrative, it is striking to note that despite the board's developed infrastructural capacity, the sense that "everybody has to earn their keep" sums up the IDBs strive for efficiency. It seems that the constant drive for efficiency, though positive, may result in a restrictions of IDBs' strategic goals. I came to this conclusion after a careful consideration of the response by an IDB Chief Engineer to my question on IDB capacity issues:

"We will need to increase our workforce to cover the Environment Agency partnership working. [EA Officer] has approached me to undertake work for the EA, but don't yet have the capacity, as we were in our busy time. Once thing I have struggled with is our staffing levels in the office. We are covering 16 boards now...Engineering-wise, we have myself and an assistant, and someone that came in to help with [an IDB area] on a part time basis. Only two people managing 16 boards. I wanna try and make us one of the best groups in the country" (IDB Chief Engineer).

It is unsurprising that the IDB is unable to take advantage of any decentralisation initiatives from partnership working given the lack of internal resources and capacity to manage their

internal workload adequately. Undoubtedly, two people managing 16 boards would be considered very highly efficient in terms of cost savings, but, the degree of effectiveness, which measures the total outcome remains in doubt. Nonetheless, the IDB Engineer, maintains a very high aspiration for the IDB group despite these challenges.

Another IDB Executive makes a parallel point in his distinction between capacity and effectiveness:

“There will no doubt be some IDBs that can already do this and others who may have aspirations [speaking about amalgamation of IDBs]. There are still several small IDBs who will never be able to do this and have no desire to grow. The key question ... is demonstrating value for money in these instances. Having capacity does not mean that a service will be delivered cost effectively” (IDB Clerk 5).

Though he makes a distinction between IDBs with growth aspirations, and smaller IDBs who have no desire to grow, and suggests that smaller IDBs may benefit from further amalgamation, in order to develop an efficiency of scale; the focus on capacity and resilience persist. Another IDB engineer, whose board is interested in delivering more work for other FRMAs, raised concerns about the board’s current capacity and internal resilience to meet these challenges. In response to my question on whether the board would like to grow internal capacity to facilitate more partnership engagement, he confirmed thus:

“I think we need to. I don’t think we are particularly resilient at the moment if I am honest. Because being so lean, we are completely stripped down as far as we can, but, being resilient comes at a cost. Either that or you expand and take on more areas. But I don’t think we are particularly resilient at the moment” (IDB Engineer).

Following this admission, I sought the engineer’s perspective on how the IDB is coping with internal capacity issues, particularly as they are delivering work for other FRMAs. On this, he added:

“I don’t really know how we can mitigate that risk. We do accept the risk and try to manage it. Obviously, it is very difficult to be a resilient team, growing... We are very good at covering up for each other. We can all do each other’s jobs. If one person was absent, someone else will cover their role.

Trying to keep each other in the loop, but there is always something that crops up...As we are the delivery partner for most of these works, we use our staff to do this kind of work. We have done a lot of public sector work. Any work requiring machines, we can do because we've got the equipment in-house. When we can bring in other contractors to assist if we need to, particularly at very busy times. But we are usually very efficient with delivery" (IDB Engineer).

The above narrative paints a picture of a very lean and efficient delivery workforce, despite previous protestations of lack of internal resilience. Therefore, there the line between efficiency and ineffectiveness thins out progressively. This supports the point I made earlier about the constraining effects of IDBs' constant drive for efficiency on strategic aspirations, not least, the ambition to take greater role in partnership projects through PSCA. These discussions contribute to addressing objective number 4 for the research, providing answers to the questions around the organisational sustainability of IDBs. Sutton (1999) believes that for the concept of organisational sustainability to be meaningful, there must be a renewal or restoration of specific attributes of the organisation. In relation to IDBs' ambition to remain relevant in future water governance, there needs to be constant renewal of internal attributes namely, staffing and skills resources, funding, equipment, and most importantly, renewal of relationship between local communities and institutional actors.

6.5.2 Strategies for mitigating capacity issues: Public campaigns and recruitment challenges

Many IDBs are beginning to recognise the crucial correlation between greater internal capacity and the ability to deliver works deriving from PSCA more efficiently. One of the major reasons why IDBs' bids to deliver PSCA projects seem very attractive is because they claim to

deliver PSCA works with internal resources. The IDBs argue the efficiencies obtainable by utilising in-house delivery are difficult to be matched by through external procurement route. Fundamentally, the IDBs recognise the benefits of having an in-house delivery team and necessary equipment in their bid to undertake flood risk management roles for other FRMAs:

“We can increase our efficiency with better equipment, so, a simple example is this year we installed a front cutter on our flail tractor. So, that’s bigger and cuts better. Again, like A [name redacted], we struggle to recruit. We have had a couple of people retire and we struggle to replace this experienced resource. If we had certainty of what we are going to be doing, we can plan a lot better. If the EA come to us and say, next year, we have these watercourses to be maintained, can you fit it into your programme, that’s fine. Generally, what happens is that they don’t want to commit until they have certainty of their funding, but by March/April, we have set our programme and then it is too late” (IDB Clerk 2).

The Clerk makes a significant point which links some of the challenges of FRMP engagement I discussed in Chapter 5 to the indices of sustainability in this Chapter. He recognises that an investment in better equipment can improve efficiency. However, this initial investment requires funding. He then follows this up with a point which I made in the previous section about the importance of the visibility of future work to IDBs’ internal capacity planning process. Crucially, he admits that long term collaborative partnership with the EA can be enhanced by having certainty of funding and visibility of future collaborative opportunities.

The research uncovered another critical issue with regards to some IDBs’ desire for increased internal capacity and resilience. This relates to the challenges of recruitment. For reasons already given in the preceding paragraph, IDBs agree that inadequate internal capacity presents a serious risk to the sustainability of the organisation. One of the IDB engineers admits that the board finds it “difficult to bring in the right level of resources”. ADA recognises this risk, but confirms that they are working hard with the IDBs to provide the level

of support required to address this challenge. ADA's perspective on how this challenge could be overcome was captured by the Technical Director thus:

"We have introduced the foundation degrees to the IDBs but the take up has been too low. We have invited the foundation degree from the Brunel University to attend our conferences to learn more about what we do. I think one of our members have spoken about giving a lecture about what we do with students. We also have an apprenticeship training scheme. It is EA backed for Water Environment backed. The Somerset Consortium have been leading on that and working out the consultation through the department of education. [With regards to alternatives] A lot of IDB recruitment comes from other Risk Management Authorities (RMAs). In terms of communicating with communities, this is something we are now engaged in. A few boards wants to engage with schools, but, they may not really know how to engage. There are also schools who may want to visit the IDBs and do not know which part of the curriculum the visit would relate to" (ADA, Technical Director).

The IDBs agree that the difficulties with recruitment could be mitigated with increased visibility of the organisation in schools and local communities. During the interviews, I was keen to understand what progress, if any, the IDBs have made in this regard. The gaps in progress made by IDBs can be seen from the accounts of two different IDB groups, represented by their Clerks:

Clerk A explains their efforts:

"About 6 years ago, we invited all the parish councils within the board area, 2 members from each, we gave them a presentation and took them on a tour of key IDB infrastructures to show them what we do. We were very successful with that such that each year, we had the same people turning up asking for the tour. The first year we did it, we did it for Thorney. Most people in Thorney didn't have a clue what we were doing. So, we have been successful with this, and I understand it is something we gonna carry on doing" (IDB Clerk 1).

Clerk B admits the challenges and difficulties they have had with recruitment, citing the contrasting attractiveness of working in the IDBs versus working in the construction industry:

"Yeah, I think it is a real struggle at the moment. I think [due to climate change] there are a lot of construction projects going on, probably, working at a back water in drainage is not as attractive as other jobs, such as, a major road or railway contract. From a PR point of view, it is a bit of a struggle, because I think we are local" (IDB Clerk 3)

On the limitations of the IDB's public relations efforts, he went on to say:

For instance, I started a twitter page sometime ago, I posted a few things but didn't really get much traction. I have let it slide for a while now, but I will pick it up again. It tends to be only local people that

follow you. For instance, I have been attending open farm Sundays, we have a large farming group in this area. We have attended their farm Sunday event and it is as much as 4 to 5 thousand people through the door. We have a bit of stand and we take our machine and talk about our boards. That's gone down well. I think it is important to say, there are a lot of local people don't even understand what the drainage boards do, and the reason is that they don't know how they worked. And sometimes, for instance, ... we do go out and give a talk about the role of the IDBs, explaining our roles to the public" (IDB Clerk 3).

Two points of interest emerge from the above narratives. The first is an acknowledgement from the Clerks that prior to the start of their public relation campaign, the IDBs were largely unknown within the local area, secondly and more importantly, by persisting in their efforts, they were able to attract, and to some degree, sustain the interest of their local communities. The limited success of the IDB's local engagement efforts can be examined from the scalar-debates perspective. Feitelson and Fischhendler (2009) recognise that there could be significant variations in engagement outcomes at different scales of engagement. Perreault (2005) on the other hand, questions the effective scale for water governance as it relates to institutional norms and social networks, the type of which the IDB Clerk described in the above narrative.

It is evident that this IDBs recognise these challenges and are working very hard to address them. So, it was important for me to understand how ADA, the central governance body for the IDBs, are addressing these challenges. On this note, the research found that ADA not only recognises these problems, but it has also been working with the IDBs to implement innovative measures to address them. ADA's Technical Director, explained how ADA has been working with the IDBs:

"They [IDBs] do have an image problem... [Their problem is two-fold] one, that people don't know what they are, and where they are known, they are typecast by their historical image, in terms of what they used to be with regards to lack of environmental credentials. That, I don't think is right. We no longer have the NRA, we have the EA, so, there is a brand image problem. Also, there is an almost ubiquitous problem across the board that boards do not promote their work. They do not invest in promoting the

work they do. That's to the detriment of the governance side of things as well as to improving their work. This is something we have pushed quite hard on within the last few years, and we still have an awful lot to do. But some boards are getting better at promoting what they do" (ADA, Technical Director).

Given the recent successes in IDBs public relation campaigns, there are indications that the concerns raised by ADA in the above narrative have been communicated to the boards.

However, successful public campaigns are not the same as successful recruitment campaigns.

Nonetheless, I accept that public campaigns contribute to increased public awareness of the IDBs, irrespective of limited successes in recruitment efforts. Furthermore, IDBs recognise that the ambition to gain wider recognition as a good model for floods governance cannot be realised without increased awareness through public campaigns.

Nevertheless, ADA offers insights into the pathway for lasting solutions to the combined challenges of IDBs' public relations and recruitment. For ADA, the long-term solution would require the education and mentoring of students:

"A lot of IDB recruitment comes from other RMAs. In terms of communicating with communities, this is something we are now engaged in. A few boards want to engage with schools, but, they may not really know how to engage. There are also schools who may want to visit the IDBs and do not know which part of the curriculum the visit would relate to. Teachers being what... they do not really want to invest their energy in needless exercises. The farming groups have funded an activity where we have contracted some people to investigate how to inculcate some of the work we are doing in secondary school curriculum. in the future, we would like to meet up with the drainage boards or if the drainage boards want to visit a school, we can pick up the paper developed on this and show them a range of tasks and activities which may be useful to them. The main issue is linking the activities to the school curriculum" (ADA).

The benefits of successful partnership between ADA and the National Farmers Union (NFU) could be seen from the above narrative, with farming groups funding public engagement research in the interest of the IDBs. From a wider FRMAs perspective, the research found that the views of partners, particularly, the LLFAs, mirrored some of the challenges reported by

the IDBs. A LLFA who works very closely with the IDBs shared their perspective on the depth of IDBs' public relations challenges:

"I think they definitely have the connections with the locals. They don't have that same connection with other communities outside of their areas. Even to an extent, when I have spoken to Councillors, some of Councillors have said, 'Oh we didn't know the drains went to the river' And you think, if a councillor doesn't know, the residents are not gonna know. It needs a bit of a PR [public relations] exercise. Communities being what they are, even if you did a PR exercise, in six months' time, you would have to do it again" (LLFA, Manager).

The LLFA makes a very good observation, which can be linked to IDBs' recruitment challenges:

IDBs are largely unknown outside of their areas. This fact resonates with Gearey and Jeffrey's (2006) assessment of the relevance of spatial proximity to the development of relationships.

Given IDBs' lack of close spatial geographical relationships with other relevant institutions and communities outside of IDBs' areas, the ability to develop new partnerships is somewhat impeded. This limitation helps underpin the importance of ADA's partnerships with educational institutions, which are guaranteed to provide publicity for the IDBs beyond their areas. ADA's ability to engage with educational institutions in this way underscores Waley and Weatherhead's (2016) power analysis description of power-with and power within relationships. ADA can overcome the weakness of spatial proximity in their engagement efforts with educational institutions on behalf of the IDBs in ways the IDBs cannot through the aid of what Gearey and Jeffrey (2006) explain as institutional proximity.

6.5.3 Debates about IDBs' utilisation of amalgamation as a tool for the pursuit of resilience in internal capacity

The research has shown the limitations of IDBs' endeavours to improve resilience in internal capacity through ADA's intervention. The range of solutions being implemented are not guaranteed to yield instantaneous results. Hence, ADA has advised IDBs to investigate the possibility of further amalgamation for as a means of increasing resilience in internal capacity.

In identifying the critical thresholds for amalgamation, ADA suggests that:

“... I would say that where a board is struggling to employ a member of staff on a full time or even a part time basis, then clearly they are below a threshold that in itself brings with it, a lot of issues. The larger boards may share administrative costs for an office and other staff resources. Tiny drainage boards have come together to form consortium groups, and then, within the consortium they have formed a single board or a couple of boards within the consortia” (ADA).

ADA's suggestions above were backed up with examples of IDBs who have benefitted from amalgamation and other forms of structural changes which have increased the effectiveness of the IDBs, facilitating the boards' ability to focus on other local priorities. Amalgamation often results in loss of local knowledge within the new administrative structure of some of the amalgamating boards. In a partnership context where decentralisation of powers is viewed as a progressive step towards the empowerment of local actors, it seems odd for ADA to be reintroducing the theme of centralisation of governance by way of amalgamation. However, Ostrom⁵ et al. (2007, p. 15176) observe that “there is no panacea where a single type of governance system applies to all environmental problems”. This means that various governance systems are useful in certain situations. ADA's advocacy of amalgamation as a tool to mitigate IDBs' acute resource challenges does not diminish the potential gains of

⁵ Ostrom, E., Janssen, M., Anderies, J. Going beyond panaceas. *Proc. Natl. Acad. Sci. USA* 2007, 104, 15176–15178. [CrossRef] [PubMed]

transformative power inherent in process of empowering local actors through decentralisation. Every system has its own challenges, however, governance authorities implementing systems must first identify the weaknesses inherent in systems they seek to implement and introduce necessary mitigations.

Returning to ADA's recommendation of further amalgamation to the IDBs, they proactively suggest the use of committees as a means of mitigating the loss of local knowledge through mitigation. They validate this suggestion by identifying IDBs which have benefited from this structural change:

"In the late 1998 to 2000, 3 drainage boards came together and amalgamated; and that covers a lot of the Lincolnshire coasts. For the very small boards, they really need to look at amalgamation more closely. In terms of losing that local knowledge, there are ways in which we can work around that. A lot of drainage boards, even though they haven't amalgamated to a larger side, they often have sub-committees, there will be a good spread of board members on those committees. The Black Sluice, they are split into a North-side Committee and a South-side Committee. But also these committees are made up of younger farmers or younger representatives from the council, they maybe staff members or others who may want to get involved in the work of the drainage boards in the future, may use that as a launching pad. Also that allows you to retain a localised focus as well on a sub-district scale" (ADA, Technical Director).

Given these suggestions, it follows that the desire for greater sustainability requires a loosening of the grip on what I refer to as historical inflexibility and resistance to change. Admittedly, this approach may have served IDBs' historical role of land drainage, however, the current role of the IDBs require sustainable approaches, which can only be developed through collaborative efforts, demanding flexibility and willingness to change. ADA recognises this challenge and admonishes IDBs to address the resistance to change:

"There's ways in which boards can do it. [Talking about a change of perspective]. It comes down to this sort of broader existential threat about attitudes on a board where people would say we've always done it like this, we've always done it this way. We are small and perfect as we are, we don't need change. If they don't have that broadness of mind to look at how others have done it, and manage that transition and willingness to change, then, that's a threat. But it is not necessarily an age thing, look at the Chair of a small board in Nottingham, they had a lot that they wanted to achieve but they didn't have the expertise. They would have had to wait years in order to achieve what they wanted, but,

through amalgamation, they were able to achieve a lot. They can also rationalise pumping stations in a meaningful way, so, there are those with a broader mindset” (ADA).

The examples above should encourage IDBs who may benefit from amalgamation as advised, to consider it favourably. To assess the residual capacity for further amalgamation, boards which have previously amalgamated are advised to utilise catchment boundaries as possible critical thresholds to determine limits of amalgamating boards’ capacity:

“But you obviously wouldn’t want a board covering the whole of Anglian region. We’ve always stuck to a catchment boundary as a guide with regards to board groups” (ADA).

The suggestion to utilise catchment boundaries resonate with the acknowledgement that the challenges of scale in water governance is mitigated by the catchment or watershed approach to water management (Hooper, 2005). Norman et al. (2012) in acknowledging the relevance of power and social networks in the scalar debate suggest that the dynamics of scale are influenced by ‘economic forces, ideological shifts and sanctioned discourses’ (Penning-Rowse and Johnson, 2015). In the case of the IDBs, ADA has recognised the influence of the economic shift through the impact of lack of adequate resources and swiftly adjusted the focus from the theme of decentralisation to centralisation to the benefit of the IDBs.

ADA, as do most of the IDBs, accepts that the challenge of climate change and other environmental risks require greater collaboration from FRMAs. Hence, amalgamation, being a form of internal partnership, is again recommended as a tool for addressing this multi-faceted challenge. ADA leaves this note of warning for IDBs who may be left isolated:

“I think it is because the IDBs are an aging demographic. They obviously bring a great deal of experience, but given the average age, they are not able to get involved in active work as much as possible. And so, there is a challenge of renewing those skills. And it comes back to this question of amalgamation ... consolidating into a group of drainage boards in an area. If the drainage boards,

particularly the smaller ones continue to operate as they are, there may come a point when they cease to become relevant particularly if there are large group of drainage boards around them” (ADA).

6.6 ADA’s governance initiatives in support of IDBs’ environmental compliance

Recent focus on environmental priorities of many organisations in the UK has increased the pressure on IDBs compliance with environmental legislation identified within their respective BAPs. Given the urgency of this focus, and the renewed determination of the UK government to meet the zero emission targets, it follows that environmental compliance should rightfully become a factor in determining the sustainability of IDBs. ADA recognises the need for IDBs to pay closer attention to risks arising from climate change:

“[Focusing on] Climate change, [And establishing] how they [IDBs] can adapt to that and how they make use of information from the environment agency is important. Working in partnership is great part of managing these risks. Gone are the days when RMAs worked alone. Those that continue to do so will come up against risks and challenges in the future” (ADA).

The assessed impacts of the changing relationship between the UK and Europe, particularly on maintaining existing environmental frameworks and policies, such as, Water Framework Directive (WFD), Floods Directive and Eels Directive, could potentially affect the sustainability of the IDBs. I should perhaps mention that the research data on this issue was collected at a time when negotiations were ongoing between the UK and EU on the Brexit deal.

Nonetheless, the research found that no significant disruptions to existing environmental

standards were anticipated given the trajectory of negotiations at the time. ADA, who was involved in the negotiations on behalf of the IDBs gave this assurance:

“... we looked at this [the Brexit negotiations] at an early stage in terms of are we gonna be tearing up the rule book in terms of the Water Framework Directive, or the Floods Directive, Eels Directive or regulations that have come from that. But that’s not the case. We will broadly be maintaining a similar set of environmental regulations as we have done in the UK into the 2020 and probably beyond that. We will be largely consistent with Europe” [ADA, Technical Director].

This expectation of a sustenance of the general burden of compliance to existing environmental standards requires a review of the IDBs’ BAPs. The need for a general review of the BAPs was identified by ADA and is associated with IDBs’ aspirations for greater success in their bids for environmental and conservation grants. ADA explains the benefits of linking funding aspirations in IDBs’ BAPs:

“What we encourage the drainage boards to do is in writing their Biodiversity Action Plan (BAP), to build in a lot of the forward plan in their BAP. So, if they were to get any funding, to state what they will use the funding to achieve. Look at the things they need to do, and they look ahead and include some aspirations in their plan as well” (ADA, Technical Director).

IDBs have struggled with making successful bids for environmental grants. The research found that part of the reasons for this challenge is the lack of expertise in grant application process on the part of IDBs. However, ADA encourages IDBs to strive to overcome these challenges:

“But obviously for these competitive bids, you are up against groups like the Wildlife Trust, RSPB and other groups who have dedicated national team of bid writers for these kinds of bids. That’s how charities like that work. A smaller drainage board wouldn’t necessarily have the skills needed to develop the bids in as much detail as these other groups. So, there will be challenges, but, they have been successful. The Ely group of drainage boards were successful in getting a Heritage Lottery Funding Scheme for environmental enhancements to the Old West River and the watercourses within that catchment” (ADA, Technical Director).

In spite of these challenges, the role of the IDBs as a ‘water level management organisation’ provides opportunities for greater collaboration with environmental charities and organisations, particularly, on projects involving Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC). ADA highlights that “IDBs are managing a network of

corridors through a landscape that provide that connectivity of habitat corridors for sustaining ecological improvements” (ADA, Technical Director). This strategically positions the IDBs to deliver environment improvements necessary to achieve government targets relating to ecological standards.

In terms of environmental governance, the research found that ADA has consistently worked very closely with the IDBs to ensure opportunities for ecological improvements are maximised. IDBs are historically known for introducing artificial drains within agricultural lands for water level management purposes, and these water bodies provide opportunities for environmental improvements. However, the guidance on how to enhance the environmental benefits of these water bodies wasn’t always understood:

“There is good ecological status that we should be striving to achieve on the ecology side of things under the WFD for our natural water bodies. But then there is also a somewhat overlooked part of the directive which is ‘good ecological potential’ for the artificial or heavily modified water bodies we have in the UK. These are artificial watercourses that have been mucked around with over many generations, many centuries. They may have been built to perform a particular type of function, whatever that might be; but, we do recognise that we should try to enhance them to achieve ecological potential whilst performing the function for which they were built. Whereas that was well understood within the EA, very often the guidance that came out only focused on the good ecological status-side of things. And trying to force that guidance into the type of watercourse we have in the Fens wasn’t particularly a good mix” (ADA, Technical Director).

It was important for ADA to find a way to get around this challenge, because, the binary position framed as, either an IDB water body meets a good ecological status, or it doesn’t, diminishes the potential for improving these artificially-created water bodies. ADA recounts how they support the IDBs to mitigate this challenge:

“In 2017 we published a document ‘management strategies and mitigation measures for achieving good ecological potential for Fenland water bodies’. This was particularly focused on the Fenland and other parts of England as well. So, that’s trying to take that knowledge forward, because previously it was becoming a bit of a binary situation. Either we said that the WFD applied to these water bodies, and we had to make them perfect, as in good ecological status, or effectively trying to find ways of saying they do not apply and decide to ignore them. But neither of those two scenarios is acceptable,

so, this is trying to find that middle ground, so, we can support the ecological improvement of these water bodies” (ADA, Technical Director).

Digressing briefly from the environmental issues to general support required by the IDBs from government through ADA and Defra. The Parliamentary Under-Secretary for Natural Environment, Water and Rural Affairs, Richard Benyon MP, wrote to Internal Drainage Board (IDB) Chairmen in 2012, inviting input from IDBs on concerns relating to underrepresentation and support. This led to a report by Defra (2012b) highlighted the views of IDBs through a survey undertaken by ADA involving 119 IDBs. The outcome of the report found with respect to issues around potential support for the IDBs that:

“Several Boards ... commented on the need for Government to be convinced that grant aid for the work of IDBs is vital and that many areas where IDBs operate are under threat due to a lack of investment in recent years” (Defra, 2012b, p. 11).

The findings of this report offer critical insights into the requirements of organisational sustainability from the IDBs’ perspective, clarifying the importance of funding as a key attribute in IDBs’ future.

Returning the focus to IDBs’ organisational potential for improving the environment, I have earlier made the point that the opportunities within IDBs’ current role for environmental improvement is very significant. However, an area that has been probably overlooked in the past is the exploration of opportunities within the artificial water bodies for habitats creation, particularly, fish spawning. The research found that this is an area of focus for IDBs’ collaborative engagements, in the next decade:

“... a lot of the work of drainage boards now is planning and controlling water levels, maintaining the freshness of that water through the summer and effectively through drought conditions in the Fens. To support the irrigations in that area, and also the water abstractors in that area. But also that freshwater input into the wetness of the area. The EA often worry about the freshness of the main rivers, but the smaller channels that feed into main rivers are areas where the fishes spawn before the adult fish

makes it into the main river. That's sort of an overlooked side of their function, but, will become a growing part of their function in the next decade or so" (IDB Clerk 6)

IDBs' environmental aspirations represent positive indices in the overall sustainability focus of the organisation. As the research has established, the role of the IDBs creates opportunities for environmental improvements, increased cooperation and partnerships with environmental organisations and provides a good opportunity for the UK government to meet an ever-demanding list of environmental targets, driven by climate change. With the UK now outside of Europe, ADA doesn't think much will change for the IDBs with regards to environmental grants:

"Those European funding would probably be replicated with domestic funding streams in the future, but they may be more targeted at environmental NGOs or more targeted at rural business. IDBs see themselves in a very strange situation in so far as they are government, or local government, that means that they are at the lowest ... order of other funding" (ADA, Officer).

Recently, the Environment Act (2021) has received royal assent and passed into law in the UK. The implication of the new legislation for the IDBs are still being assessed, however, there are no significant impacts expected from the legislation on the current arrangements for the governance of the IDBs. Nonetheless, the focus on improving environmental governance through the incorporation of sustainable environmental and conservation measures in IDBs FCERM plans will definitely persist.

6.7 Chapter summary

The IDBs drainage-rate and special-levy funding model has been found to be resilient given its historical application. Increasingly, the IDBs are forming partnerships with other FRMAs in a bid to expand their roles and increase their funding stream. These commendable efforts are set to continue as the IDBs address the critical issue of resources constraining most of the boards' progress. The IDBs' success-rate in winning competitive environment grants is very low. However, of all the FRMAs, IDBs' utilisation of the PSCA has seen the most increase in recent times.

IDBs are unanimous in their dissatisfaction with the present FCERM GiA funding model. Given the analyses on this issue, it appears that suggestions or arguments correlating poor IDBs' outcomes in funding applications with lack of adequate training on the FCERM GiA processes are currently unsupported by the evidence of this research. From the IDBs' perspective, there is collective frustration with the design and structure of the FCERM funding model, due to its complexity and lack of adequate value given to the vast agricultural land that require protection from flooding. The agricultural sector in the East of England owes a lot to the work of the IDBs, who have historically endeared themselves to the sector as an indispensable partner. Therefore, the IDBs make a reasonable case in their collective request for an urgent review of the FCERM GiA funding model to simplify its structure and recognise the value of agricultural land, to ensure that IDBs benefit more effectively from the model.

There are lessons which other FRMAs in particular, and environmental managers in general could learn from the IDBs' traditional funding model, especially given the prospects of

reduced government intervention in flood risk management. Whilst the demands for, or expectations of changes in treasury rules to accommodate IDBs' operational flexibility is perceived to be too ambitious in the short term, efforts should be made to assist the IDBs get the most out of the FCERM GiA process. Consequently, I have made recommendations on further areas of research in this regard in Chapter 7. In terms of method and approach, this would require candid cooperation and partnerships between government departments and FRMAs such as, Defra, Environment Agency, LLFAs, ADA and the IDBs to balance government's critical targets on protection of properties with frank and persistent criticisms of the current FCERM GiA funding model, perhaps incorporating the principles at the heart of the PES funding model.

Having survived for centuries, it seems reasonable that the principle behind IDBs' traditional funding model should be looked upon in the assessment of the appropriateness of future funding models for flood and coastal erosion risk management, particularly, the PES benefit-for-service model. The FCERM GiA funding model in its current form doesn't appear to be a sustainable funding model for the IDBs, for the reasons already established, however, if government's intervention in FCERM is set to continue at least in the short term, then it is imperative that the scope and mechanism of intervention is such that considers the reality and pertinence of benefit-for-service funding models. Defra is hereby encouraged to seriously consider the argument of researchers such as (Cole et al., 2012) and Midgley et al. (2012) who recommend the broadening of the scope of PES to environmental services, and potentially flood risk management.

I have examined IDBs' attempts at increasing internal capacity and resilience, and the challenges faced by IDBs in these attempts. IDBs have historically recognised efficiency as one of their best attributes, however, the demands of their 'water level management role' have introduced unprecedented challenges, requiring new approaches. Many IDBs recognise this imperative for change but have struggled to sustain their progress due to the intrinsic organisational resistance to change. Sutton (1991) sees the renewal of important organisational attributes, like capacity, efficiency and internal resilience as imperative to the sustainability of the IDBs' roles. However, for some IDBs, the challenge of remaining efficient, as charged by most board members, is becoming very difficult. Nonetheless, as IDBs improve their strategic foci and ambitions through greater collaboration and partnerships, there is bound to be a strengthening of key local and institutional relationships, with corresponding increase in critical attributes of sustainability. The research has found that for some IDBs, this expected growth in internal capacity has not happened, partly due to the weakness in strategic relationships between institutional actors and the local communities. As a natural consequence, some IDBs have become unwittingly inefficient and ineffective.

The challenge of IDBs' internal staff recruitment as a means of growing capacity is one that requires innovative approaches, most of which focus on longer term sustainability of the IDBs. In the short term, there is a growing consensus amongst IDBs, FRMAs and ADA, that the organisation needs to review its public image and overcome its traditional resistance to change, in order to guarantee its organisational sustainability. Hence, IDBs are recommended to improve operational transparency with the wider public by sharing its strategic objectives and celebrating successes. Whilst the fruits of these public and partnership engagements

take time to come to fruition, ADA advises IDBs to explore further internal partnerships, through amalgamation, recognising the delicate balance between centralisation and decentralisation models in water governance. However, it is worth bearing in mind the concerns of Perreault (2005) and Cohen and Davidson (2011) who worry that rescaling doesn't always lead to the desired outcomes, particularly as it relates to gains in transformative power through decentralisation and the potent danger of centralisation without accountability. Therefore, the tension between "the efficiency and reliability of centralisation and the responsiveness and flexibility of decentralisation" would need to be managed carefully for IDBs to sustain the efficiency and gains of transformative power, because flood risks are set to increase due to climate change (Propper and Phillips, 2020, p.1).

Chapter 7

Conclusion and Recommendations

7.1 Introduction

This concluding chapter provides a summary of the key findings and recommendations from this research and assesses the implications for the IDBs, ADA and other FRMAs. As part of this summary, I will demonstrate the extent to which the research aims and objectives have been addressed. I start by providing a summary of the historical account of the IDBs and examine the implications of some of the critical findings for the future of the IDBs. I follow this with a summary of IDBs' experiences in decentralisation of powers from the EA, then, a summary of the challenges of partnerships and indices of IDBs' organizational sustainability.

Following the summary of findings, I make a series of recommendations with implications for Defra, ADA and the IDBs, all of which derive from the findings of the research. The recommendations touch upon the ongoing challenges of governance and the requirement for additional resources to support the role of the IDBs. In furtherance to these, I explore the critical but related issue of accountability with recommendations on how IDBs can improve their record. I observe that the centralization policy of amalgamation has been a key feature of resilience within the IDBs, thus, I examined opportunities for further amalgamation from the findings of the research. I conclude by suggesting areas of further research on the IDBs, and examine the wider implications of the research at national and international scales, returning the focus back to the significance of the findings of the research on the IDBs at this time.

7.2 Summary of key research findings and conclusion

7.2.1 Significant points in the historical development of the role and function of the IDBs

The research has identified several key issues in the historical development of the IDBs, some of which are still relevant to the role of the IDBs today:

a) Historical challenges with the enforcement of land drainage legislation:

The Court of Sewers which were vested with powers to require necessary land drainage maintenance works were frequently ignored without any significant legal penalty, nullifying the supposed detriment of enforcement. The weaknesses in the enforcement of customary land drainage laws were recognized by Davis (1994, p.14) in his reference to a Commissions report in 1307 in Angiers where “practically everybody was evading their repairing obligation.”

The IDBs today face related challenges of inadequacies with land drainage legislation in the administration of land drainage consents. As an IDB Clerks admitted, it is currently illegal for IDBs to issue land drainage consents retrospectively as there is no provision within the legislation to accommodate contraventions which were not brought to the attention of the IDBs prior to their completion. The consequence of these weaknesses creates more challenges for the IDBs who are left with a dilemma: a) Allow the bad precedence where the law has been contravened, or b) mandate the removal of such illegal structures however well designed, and risk the loss of goodwill in the community. Either way, this weakness in the legislation affects the IDBs’ ability to discharge their roles effectively. It is important to re-emphasize the need for goodwill in maintaining and enhancing good relationship with the

local community, because compliance in the face of weak legislative instruments require persuasion, trust, and goodwill. These attributes are more likely to be maintained where there are strong relationships at the local community level. In the short term, there is no immediate solution to this fundamental weakness in the legislation as this stems from the legislation. However, in the long term, the IDBs and all other FRMAs who rely on the legislative provisions of the LDA 1991 for flood risk enforcement should liaise with elected members to explore opportunities to amend the affected parts of the legislation to mitigate this challenge. The summary of this historical account along with the details previously provided in Chapter 4 address objective 1, of this research and provide answers to research question 1.

b) IDBs' historical funding model and links to the PES model

Historical accounts of the development of the IDBs recognize the benefit-for-service funding model as a suitable funding model for the land drainage role of the IDBs as in Chapters 4 and 6. This was demonstrated in the practice of rewarding early adventurers with parcels of land in lieu of land drainage costs. Complementary to this, taxes were historically levied on landowners to fund major land drainage projects. Consequently, this benefit-for-service practice has thus been part of the IDBs' history for centuries in England. Therefore, it is no surprise that the IDBs have retained this model in their water level management role.

The research has found that IDBs are unanimous in their dissatisfaction with the adequacy and sustainability of the FCERM GiA funding model for IDBs' operation. Whilst largely in support of the objectives of the model, they worry that selective focus on the number of

properties protected reflects the disproportionate attention to outcomes which lie outside of the IDBs' key priorities. This worry appears to be justifiable, given the analysis of the number of hectares protected by the FCERM GiA funding between 2016 to 2019 as shown in Table 4.2. The research also identified a major concern with the complexity of the PF application process which IDBs argue is too onerous and often disproportional to the amount of funding sought. However, Defra continue to support the use of the PF FCERM model, first introduced in 2011, on the basis of its ability to promote local choices (Defra, 2011). To clarify the concerns of the IDBs, there is a need to make a distinction between the request for financial approval⁶ as contained in PF Calculator for FCERM 2020 GiA, and the subsequent requirement for a project business case to seek technical⁷ approval for the commencement of the project. IDBs' complaint about disproportionality relates to the level of information required at both the financial approval and technical approval stages. Fortunately, IDBs are not isolated in their concerns about the complexity and disproportionality of efforts required by the FCERM GiA application process. The research also found that the LLFAs have equally made similar complaints. In their response, the assurances provided by the EA about availability of support and further training on the application process have not dented the IDBs' convictions that nothing short of a review of the process will address the existing challenges.

Therefore, given IDBs' current challenges with the FCERM GiA funding model, and the need for a sustainable model for FCERM in the future, it is necessary to re-examine the PES model, especially in the light of the IDBs' established history with the funding model. Cole et al.

⁶ Financial approval is the outcome of a successful PF FCERM application

⁷ Technical approval is the outcome of a successful business case application by a FRMA. It is a legal requirement for FRMAs to submit a business case following the receipt of financial approval.

(2012) have observed that the PES is more suited to some services than others, however, the IDBs' experiences with the model provides the necessary reassurances that government and policy makers require to explore wider application of the PES model in English flood and water management.

Currently, the role of the IDBs have become slightly more complex than it was during the land drainage era. Despite the broadening of the role of the IDBs to water level management, the underlying principle and practice behind the benefit-for-service funding model has remained unchanged for landowners and major beneficiaries of IDBs' operations pay for the services they receive from the IDBs. Therefore, as the assessment of the range of beneficiaries of IDBs' services improve, there is bound to be greater clarity on potential additional funding sources for the IDBs.

There is a synergy between the research findings on the potentials of the PES funding model and UK government's aspirations for broader testing of the PES concept. In this regard, Defra (2016) commissioned 3 rounds of PES pilot research which agree that the PES is an "enterprising way to generate new income streams for investment in ecosystems" (Defra, 2016, p. 5). On the crucial question of the applicability of the PES model to the UK water governance, the findings of the Fowey River Pilot are instructive. The conclusion of the pilot report indicates that PES can deliver cost-effective investments in water quality "through reverse actions" (ibid). These limited but successful trials which were funded by Defra provides reassurances to the IDBs and other FRMAs intending to develop the PES model for their services. The findings of the research with respect to aspirations for the PES model

aligns with the UK government's policy on the use of PES. The UK is not isolated on its policy on conducting pilots to assess the extents of wider practical application of the PES. Bhatta, et al. (2014) in their examination of the utilization of PES in Nepal recognize the benefits of the wider examination of the benefits of PES within government policy through the use of pilots.

Despite the challenges of PES application some of which include identification of potential beneficiaries, and introducing PES within the context of existing local initiatives and regulatory frameworks (Defra 2016), there is no doubt that PES pilots have strengthened the case for IDBs' and wider FRMAs' application of the funding model in flood and water management. This summary, in addition to details already proved in Chapters 4 and 6, address objective 5 of this research and provide answers to research question 5.

7.2.2 Decentralisation, power dynamics and challenges of IDBs' FRMPs

IDBs' engagement in FRMPs has led to increased visibility of the capabilities of the IDBs amongst FRMAs. This increased visibility has benefited IDBs immensely, such that IDBs are now increasingly utilized by FRMAs for the delivery of routine flood asset maintenance projects. This has presented an opportunity for the EA to transfer some of its statutory duties to the IDBs as a form of decentralisation. The research found that this is achieved through mutual negotiations and legislation to ensure proper accountability for decentralized roles. The research examined another type of decentralisation in which the IDBs perform the consenting role for LLFAs. This role enhances IDBs' opportunities to build greater local

partnerships within the communities. Consequently, decentralisation helps to foster social bonds in the society by creating ‘horizontal intermediate institutions of connected society’ (Buser, 2013, p. 7).

The research findings have shown that collaborative partnerships involving groups with different objectives can often be challenging. The IDBs’ experiences in the research focused around the FRMPs. Significant among the challenges of FRMPs are, a) lack of visibility of shared strategic goals and programmes, b) inequalities in power dynamics, and c) lack of support resources from the upper tiers of English flood and water governance.

The visibility of shared priorities within FRMPs can be improved with better planning and coordination among members of the partnership; however, this requires leadership from LLFAs. The ability of LLFAs to provide this leadership has been called into question by the findings of the research. The research has found that some LLFAs lack the resources required to provide proactive leadership within FRMPs. Some planning departments within LLFAs have been mentioned in particular by the IDBs for lacking the depth of experience within their current resources. The use of inexperienced staff in key position within LLFAs has been identified by the IDBs as a potential source of weakness in LLFAs’ governance. Overall, the lack of sufficient support, leadership and coordination from some LLFAs was a source of significant concern to the IDBs. In their response, LLFAs blame the lack of adequate resources on years of funding cuts from the government.

The inequality in power dynamics, particularly within FRMPs between the EA and the IDBs was highlighted by the research as another source of concern. The findings of the research suggest that the EA does not always engage with the IDBs as an equal partner, particularly at a strategic level. The research found instances where strategy reviews in IDB areas were conducted without any request for contributions or input from the IDBs. This is reflective of arguments by Goodwin (1988) and Pellizzoni (2001) in which elitists with superior knowledge tend to dominate the engagement process at the expense of weaker participants. As I discussed in the analysis, elitists domination of the engagement process often leads to poor outcomes for those considered to be inferior partners. The nature of this exclusion may be subtle, benign or direct, however, the impacts of any sort of exclusion weakens collaborative partnerships.

I have alluded to the gains of transformative powers in this research as an outcome of successful decentralisation of powers from higher to lower tiers of flood and water governance on the one hand, and an outcome of successful collaboration between partners on the lowest tier of flood and water governance and the local communities on the other hand. In both cases, the transformative nature of power sharing or exchange occurs when the exercise of power transfer proceeds with the singular objective of empowering partners at the lower tiers. The success of transformative power can only be truly measured by the extent to which the lower or weaker members of the partnership have been empowered.

To facilitate the progression and sustainability of transformative power within the local communities, the IDBs urge the RFCCs to be more locally-focused in the selecting projects for

delivery. The research found from the perspective of the IDBs that the RFCCs tend to be more central-focused, prioritising only projects that show high values of property-count⁸ at the expense of other. The potential results of this property-centric prioritisation process is the exclusion of rural areas with predominantly agricultural land which falls within the role of the IDBs. This summary along with details already provided in Chapter 5 addresses research objectives 2 and 3.

7.2.3 Sustainability of the IDBs

The research examined four inter-connected indices of sustainability namely, funding, internal capacity and resilience and efficiency. The sustainability of funding is tied to IDBs' ability to effectively assess beneficiaries of all aspects of their operation and develop mechanisms to value these benefits. IDBs already have a reliable funding model which is based around benefit for service, therefore, the challenge lies in IDBs' ability to monetize the range of services they provide. Fortunately, the IDBs already have systems in place for valuing direct benefits, however, indirect benefits require a lot more assessment. PES can be utilized to establish a proper marketplace for all IDBs' services, including, indirect benefits. Savy and Turpie (2004) acknowledge that successful PES depends on the achievement of good valuation, effectiveness of the legal and institutional frameworks, and the organisation of stakeholders. The implications of this acknowledgement for the IDBs are three-fold: a) IDBs

⁸ Property-count in this context refers to the number of properties protected by FCERM project

are encouraged to revisit the mechanisms for valuing the cost of their services to ensure that they continue to achieve good valuation, b) there is a need for the IDBs to explore whether additional legislation is necessary to develop the legal and institutional frameworks required to establish a proper marketplace for IDBs' direct and indirect services, and c) IDBs are encouraged to re-assess the costs and benefits of their services and relationships with all stakeholders to ensure that the net-effect⁹ of these relationships feeds into any new funding model.

IDBs are generally renowned for their operational efficiency. However, the research findings suggest that some IDBs are operating with insufficient internal resources than are required to achieve any sort of growth. This could be a deliberate strategy by some boards to limit the size and scope of the IDBs' operations. The assumption derives from the research findings, where an IDB Clerk was denied approval to recruit additional resources without any reason despite having made a formal case for the role. Nevertheless, for most IDBs, the challenge of inadequate capacity has an impact on all aspects of operations, including resources for engagement. Thus, the research found that the IDBs' ability to engage in FRMPs is adversely affected by the availability of internal resources. Hence, IDBs with adequate internal capacity have demonstrated significant success in collaborative partnerships with other FRMAs. The research findings demonstrate this with an example of innovative collaboration on NFM between Black Sluice IDB and the EA. This has significant implications for the sustainability of the IDBs on two accounts. Firstly, the need for greater internal resilience is highlighted by the

⁹ Net-effect relates to a comparative assessment of the costs and benefits of IDBs' relationship with each stakeholder

evidence of successful partnerships, thus providing encouragement for boards who may have the same aspirations. Secondly, the sustainability of IDBs' water management role and any future role in flood and water governance depends on the ability of the IDBs to urgently resolve the critical challenge of capacity and internal resources. Without increased internal capacity, opportunities for continued delivery of services for other FRMAs through PSCAs would diminish considerably. This would in turn, diminish the visibility and role of the IDBs within the local communities with significant impacts for the reputation of the organisation. This summary combined with the details provided in Chapter 6 address objective 4 of this research and provide answers to research question 4.

7.3 Recommendations from the research

7.3.1 IDBs governance and accountability

The findings of this research with respect to governance have implications for both the upper and lower tiers of flood and water governance in England. The upper tiers of governance including Defra, EA and the RFCC have a duty to ensure that the views of the IDBs are reflected in key strategic decisions in flood and water management. The research findings are clear on the wishes of the IDBs to be engaged as an equal partner. Defra and the EA should consider the views of the IDBs and LLFAs as reflected in the findings of this research on the

limitations of the current FCERM GiA funding model and its impacts on the operations of the IDBs in particular, and FCERM in general. There is an urgent need to complement existing funding models with appropriately scoped pilot-trials of the PES funding model within flood and water management. The resilience of IDBs funding model should provide the justification for this approach. Understandably, this would require bold and proactive governance from government to ensure that future flood risks are managed in a sustainable way with the involvement and contributions from those who will benefit the most.

This potential shift in direction should in no way conflict with government's ambitions to support the most vulnerable people in the communities. However, the findings of this research have shown that government's funding of FCERM projects is contracting rather than increasing at a time when the risks of flooding are increasing. Urgent action is therefore required from Defra to clarify its strategies for dealing with gaps in funding for FCERM projects in the short term.

The research has found that additional clarifications are required on IDBs' governance guide to ensure consistent application of the guidance. Furthermore, there is an urgent need for Defra and the EA to define and clarify the scope of application of the guidance to assist the IDBs with its compliance. In other words, IDBs deserve to know whether the guidance should be adhered to as a policy document, or a flexible template, to enable a reasonable challenge of sections or areas, which conflict or confuse, rather than enlighten or support the IDBs. Consequently, I would recommend that ADA liaises with Defra to provide these clarifications

to improve the consistency of interpretation, and compliance with the application of the governance guide.

The need for consistency stems from the public's general expectation of accountability from the IDBs. In terms of public expectation, the research found that some IDBs have been the subject of complaints from members of the public with regards to lapses of accountability and governance. The subsequent introduction of the principles of transparency and diligence in financial accounting has led to some improvements, but as the research found from the findings of the NAO (2017), more work is required to improve IDBs' financial and governance accountability. From the analyses, It is fair to say that the sense of freedom inspired by a flexible interpretation and application of the *good-governance-guide*¹⁰ document could have contributed to issues of supervisory oversight highlighted on the NAO (2017) report. IDBs' annual statements routinely lack sufficient details to enable proper conduct of financial supervisory scrutiny. The requirements for IDBs' annual reporting are limited to "summary financial statements and compliance declarations". Though this information is reviewed, it is not "routinely subject to detailed analysis" by Defra (NAO, 2017, p. 6). Consequently, an investigation is only triggered by exception, mainly in the event of blatant non-declaration of financial statements by an IDB, or through proactive investigations from external auditors' reports (NAO, *ibid*).

¹⁰ Good governance guide refers to the guidance document developed by ADA with support from Defra, to improve IDBs' governance.

Furthermore, the IDBs are particularly vulnerable to potential conflicts of interest given the history of private interests from land and estate owners. Of interest however, is the acknowledgement that “neither the Department nor the Environment Agency has a statutory role in addressing these possible conflicts of interest” (NAO, 2017, p. 7). These gaps weaken the fabric of governance, eroding the strategic goals of strengthening performance and accountability for IDBs.

Defra has an urgent duty to strengthen its governance of the IDBs in a manner that not only recognises the gains of transformative power through local partnerships, but, also shores up the foundations of trust in governance. The first aspect of this duty requires another review of the guidance document to enhance consistency of interpretation on all sections, but most importantly, to ensure the views of IDBs are reflected. Undoubtedly, the gains of transformative power have combined to strengthen local viability of the IDBs throughout their districts. It is therefore, noteworthy to re-emphasize that the challenge of ensuring greater accountability within the IDBs must be met with greater sense of responsibility on Defra’s part, to ensure the much-needed clarity in the guidance provided to the IDBs.

On the horizontal relationships amongst IDB members, the research found evidence of internal accountability as shown from the documentary analysis. Administrative members of the IDBs (shown from a typical structure of an IDBs in Figure 4.2) are routinely required by the members of the board to provide accounts of programmes and projects progress, justify technical decisions and provide financial accountability of expenditures to board members at

routine monthly and project meetings. These internal checks and balances increase members' confidence on the ability of their boards to make the right judgements on their behalf.

7.3.2 Centralisation – Calls for further of amalgamation

The findings of this research indicate that some IDBs could benefit from further amalgamation as a means of improving internal resilience. Some IDBs have come to this recommendation through a self-assessment of their internal capabilities and recognition of further potential efficiencies through amalgamation. Overall, IDBs have benefited significantly from effective participation in partnership projects. Undoubtedly, there is a lot to improve in this regard, but, the underlying causes have to be addressed for progress to be made. Lack of adequate internal resources is a key factor of interest from the analysis of the research, hence, all IDBs are recommended to review organisational resilience by considering whether there is further scope for amalgamation.

Furthermore, it is positive to note that having gone through the initial amalgamation process, some IDBs have identified the need for further amalgamation through an internal review of their performance. Besides the immediate goal of improving overall effectiveness, it is significant to note that some IDBs are focusing on the long-term sustainability of the board's operations, betraying goals and ambitions beyond the current roles of the IDBs. Others, satisfied with the balance of their boards, are desirous of greater influence within the FRMP

engagement process and wider flood governance within their areas. The benefits of amalgamation were severally highlighted by ADA in this research. Moreover, any fears that centralisation policies such as amalgamation would significantly erode the gains of transformative power have not been justified from the findings of this research. This is because the amalgamation process neither affects the geographical locations of amalgamating boards relative to the local communities, nor eliminates the validity of relational proximity to local partnerships (Geary and Jeffery, 2006). In fact, the governance of amalgamated board considers the potential significance of geographical centrality in the choice of administrative locations and impacts on amalgamating the boards. Amalgamation, however, limit the number of potential representatives from each amalgamating IDB in a proportional manner, whilst encouraging continued links with the local communities.

A subjective assessment of IDBs' performance at FRMPs show a direct correlation between IDBs which have attained an optimal size through the process of amalgamation and the level of effectiveness at FRMPs. Arguably, given the savings from streamlining administrative costs, It is reasonable to assume that the process of amalgamation increases capacity and reduces the cost and increases the efficiency of IDBs' operations. Thus, amalgamation interpreted within the context of stakeholder engagement, becomes an internal tool for engendering intra-cooperation among IDBs, and inter-cooperation between IDBs and other FRMAs, for increased efficiency and effectiveness of the IDBs' operations in water level management. However, amalgamation can weaken the links between amalgamating IDBs and the local communities. Although some argue that the decentralising does not necessarily result in

empowerment of local actors in the first place, but simply provides the structural framework for justifying and sustaining existing power structures (Bolin et al., 2008, Begg et al., 2015).

The major theoretical contribution of this research to flood and water governance is its examination of the use of the diametrically opposed policies of centralisation and decentralisation in governance of the IDBs and potentially in English flood and water governance in general. The research found that the default governance policy for flood and water management broadly shifts in accordance with the interests of the political government in power as shown in Chapter 2.6.3. For example, Stocker (2004) recognises attempts made by the Labour Government between 1997 and 2000 to implement an ideological policy of power decentralisation from central to local government levels. Buser (2013) agrees that this decentralisation efforts strengthened the coordination of organisations at local level leading to effective partnerships.

From the findings of this research, it appears that there is an optimum limit at which decentralisation ceases to be an effective policy in flood and water governance. This position is supported by Begg et al. (2015) who posit that decentralisation doesn't always result in the empowerment of local actors. In the case of the IDBs, when the optimum decentralisation limit is exceeded, there is a reduction in IDBs effectiveness and increase in inefficiencies. This could be seen in the inability of smaller IDBs to participate effectively in partnerships due to lack of adequate internal resources. The research evidence shows that IDBs which have provided evidence of successful collaboration with other FRMAs through collaboration in NFM, consenting role for the LLFAs, or taking over de-mained watercourses from the EA,

have all amalgamated with other IDBs in the past. Thus, the IDBs are a good test case for the determination of this optimum and critical threshold. The centralisation policy of amalgamation acts as an anchor that stabilises the decentralised IDBs from organisational inefficiencies. Hence, the policies of decentralisation and centralisation will continue to be relevant to the governance of the IDBs, and by extension, to the flood and water governance sector in England.

7.4 Assessment of future roles of the IDBs in flood and water management

The research found that IDBs have demonstrated great organizational resilience over many centuries, through various wars, changing legislation, economic and cultural shifts, and socio-political ideas. The key attribute which has sustained the role of the IDB in the local communities is the need for their service. The need for water level management will continue to be a key requirement for local communities within IDB districts. Given the experience, expertise and operational efficiency of the IDBs, it is hard to contemplate the displacement of IDBs from their current role in water level management.

IDBs are increasingly broadening their scope of involvement in flood, water and environmental management. The innovative and collaborative partnerships involving the IDBs, such as their collaboration with the EA on NFM, or with environmental consultant on

the eradication of American Mink, deduced from the findings of this research all demonstrate the ambition of the organisation to broaden the scope of their roles. However, this ambition can only be fulfilled with adequate internal resources.

The IDBs, like all corporate organizations need to develop succession planning measures to maintain their current role in water level management into the future. With regards to succession planning, there are indication from the research that ADA is already working with some IDBs to develop strategic links with educational institutions to create a sustainable pool of resources for the IDBs. Whist hope persists, there is no guarantee that these initial efforts will deliver the results expected by the IDBs. Therefore, it is safe to conclude that the sustainability of the roles of the IDBs is predicated on the successful implementation of these succession planning measures.

There are two significant variables which amplify the critical nature of the role of the IDBs. On the one hand is the fact that from the evidence of the research, it appears that FCERM funding in England is reducing when flood risks are increasing, such that the EA are now delegating critical flood risk roles to the IDBs. On the other hand, IDBs have developed great proficiency in flood and water management. Consequently, it unlikely to visualize a future in English flood and water management without the role of the IDBs. If the IDBs are able to successfully improve their internal resources, there are good indications from this research that the role of the IDBs can be sustained if not broadened in the future.

7.5 Suggestions for future research on the IDBs

The future of the IDBs is predicated on successful development and implementation of succession planning measures. Consequently, it is important to examine IDBs' strategic plans for the development and implementation of succession planning within the organisation. This examination would require a detailed assessment of the demographics and characteristics of IDBs' current workforce and internal resources to understand the gaps in succession planning. Given the findings of the research on IDBs' challenges with recruitment, the proposed research on IDBs succession planning should provide responses to the questions: where will the next generation of IDB staff come from and how do the IDBs plan to transfer the skills, knowledge and experience of its current workforce to the next generation of staff?

Many organizations are learning how to adapt to new ways of working due to the challenges of Covid-19. An examination of how the IDBs are utilizing technology to manage the challenges of succession planning would provide significant insights into the scale of work required to develop the capabilities required to facilitate this transition. The impact and relevance of technology to the IDBs would make a useful contribution to knowledge and support the organizational resilience of the IDBs.

The research has found that IDBs are strengthened when they broaden their strategic engagement with others. IDBs ongoing partnerships with the EA and local communities on NFM, Consenting role, WRE, Eradication of American Mink, provide opportunities for growth and learning. An investigation of how the IDBs plan to sustain these types of partnerships

whilst continuing to develop internal resources would contribute significantly to understanding and highlighting the stresses and limitations of IDBs' internal resources. This crucial information is relevant on a governance level to making the business case for IDBs' increase in internal resources.

Finally, given the findings of the research on the challenges of current FCERM funding model, particularly, the unanimous criticisms by IDBs and LLFAs on the complexity of its application and assessment, it would be useful to undertake a case study research with the IDBs, LLFAs, Defra and the EA to, a) examine these criticisms and the broader limitations of the FCERM funding model, and b) explore the possibility of wider application of the PES for all benefits (direct and indirect) deriving from IDBs' services, c) explore the development of a hybrid funding model options that retains Defra's stated objectives of the PF FCERM funding model, whilst exploring the benefits of the PES model, in a manner that sustains the argument that beneficiaries of flood risk management activities should pay for the services they receive.

7.6 Wider implications of the research findings at national and international scales, and re-examination of the key theoretical frameworks

The research has illuminated the benefits and challenges of collaborative partnerships in water governance and management in England. Fundamentally, IDB's collaborative

partnership experiences have also raised many questions with regards to the functional operation and governance of partnership engagements with significant implications at both national and international and scales. In Chapter 1, I stated that one of the key drivers of this research on the IDBs was to further the progress of one of the UN Sustainable Development Goals, relating to cooperation and partnerships. The IDBs' experiences within collaborative partnership as highlighted by this research demonstrate the need for greater accountability for the governance of collaborative partnerships. Necessary governance should ensure that appropriate and enabling structural frameworks are utilised to establish clear objectives, methodologies, and pathways to the creation of mutually acceptable solutions to shared problems.

The scalar implications of collaborative partnership challenges, particularly, at national and international scales are significant. Earlier in Chapter 2, I highlighted Geary and Jeffrey's (2006) concerns about the effectiveness and consequent legitimacy of partnerships and collaborative engagements at wide geographical scales citing the challenge of spatial proximity. I hereby utilise the Integrated Water Resource Management (IWRM) to illustrate the wider benefits of the findings of this research in the mitigation of the challenge of spatial proximity in collaborative engagement at broader national and international scales.

The IWRM, defined as "a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" by Global Water Partnership (2001), requires effective collaboration

between various national and international water governance institutions. Although IWRM has had significant attention following the International Conference on Water and the Environment in Dublin and the Earth Summit in Rio de Janeiro in 1992 (Watson, 2014), and supported by governments, environmental NGOs and resource management agencies, the interpretation of the implementation models would benefit from the findings of this research on the IDBs, particularly in sustenance of its promotion as a key part of the solution to the sustainability challenges of future water management (Molle, 2008).

A brief examination of the general attributes of the IWRM would facilitate an assessment of the extents of potential benefits from the findings of this research. It is generally acknowledged that the IWRM has been a subject of considerable debate, not least due to potential “political, institutional and organisational obstacles” which routinely constrain attempts to “integrate the management of water and other resources” (Watson, 2014, p.445; Jeffrey and Gearey, 2006). Thus, the major criticism of the IWRM has been its implementation. The handbook for IWRM in Basins wrongly assumes that the best-practice approach upon which universal application of the IWRM is sustained is sacrosanct, however, given the differences in strategic, political, economic, institutional, and social contexts, additional resources beyond the handbook are required to provide a comparative analysis of potential models to the implementation of IWRM. This research on the IDBs provides alternative practical data with which to improve the IWRM implementation models. Watson (2014) analyses the top-down and bottom-up models of implementation of the IWRM with the aid of the EU’s WFD and Defra’s Catchment Based Approach (CaBA) respectively. The top-down model derives from a position of power with clear mandates on stages of application,

requiring strict bureaucratic processes to ensure compliance with policy objectives. Sadly, the top-down results in “vague and ambiguous goals, which cause confusion, misunderstandings and disputes” (ibid, p. 447), with frequent deviations from stated objectives and lack of cohesion. Conversely, the bottom-up model is which is focused on the ability of local actors and others affected by the problem to develop shared solutions to challenges, investigates the relationships between participating actors, and other stakeholders. The challenge of the bottom-up model is seen in “over-specification or lack of agreement regarding goals; exclusion of affected groups from the policy design process; and too much control and direction over implementers” (ibid, p.447). These same challenges have been replicated from the IDBs’ experiences in this research. Therefore, this finding of this research would make a substantial contribution to proposals and solutions for managing the challenges in the effective implementation of IWRM models.

The potentials for wider lessons from the findings of this research at an international level is very significant. IDBs in the UK have strikingly similar history and role with the Water boards in the Netherlands. The governance arrangements for IDBs, provided through the Association of Drainage Authorities (ADA) share certain similarities with the Union of Dutch Regional Water Authorities, which oversees the Water boards in the Netherlands. The findings of this research will provide useful data and shared lessons for international land drainage and water governance authorities, such as the one described above, which have similar structural arrangements like those in the UK. It will also provide comparative data for analysis for countries like Canada which shares water governance responsibilities across federal, provincial, and local government authorities. Despite the absence of an independent

organisation like the IDBs, Canada's historical flood management processes share a lot of similarities with that of England. Given the emerging critical importance of collaborative partnerships as a fundamental framework for analysing shared problems and developing shared solutions, the findings of the research on the IDBs can offer illuminating insights into the challenges facing potential national and international actors involved in collaborative partnerships and engagement.

7.7 Assessment of IDBs' legitimacy as water management and governance institutions

IDB's experiences have highlighted the continued distinction between water governance and management. In Chapter 2, I observed that debates on phases of flood governance revolved around three phases: land drainage era, flood defence era, and flood risk management era (Butler and Pidgeon, 2011; Johnson and Priest, 2005, Penning-Rowsell et al., 2006). The transition from one era to the next seem to have been accompanied by aspirations for greater role in water governance by the IDBs. Broadly, the research makes a distinction between water governance and water management. Water governance is seen as "the processes and institutions through which decisions are made relating to water" (Lautze et al., 2011, p. 4); whilst water management, in my view, refers to the operational roles involved in managing the risks associated with water. The operative word in water governance as defined by Lautze et al. (2011) is the ability to be involved in *decision-making*, conversely, the emphasis in water management is on *practical operations associated with managing risks associated with water*. This distinction helps to clarify the current limits of IDBs' capabilities in

water governance on the one hand, and their progress in water management on the other hand.

Broadly, the research findings have shown that whilst the IDBs feel supported by the Environment Agency in their operational role, they do not yet feel they are being engaged with as an institutional decision-maker. This acknowledgement belies a feeling of inadequacy which I have addressed sufficiently in Chapter 5. However, the implication is that the IDBs are yet to gain proper legitimacy as a water governance institution. Conversely, at a flood management level, the IDBs have historically earned and continue to sustain operational legitimacy. However, given the variances in IDBs' performance as demonstrated from the sustainability indices, I would say that the concept of legitimacy in water governance is far from binary. Regardless of this admission, the IDBs will always be assessed on the performance of its members. Scalar considerations and influence in the question of IDBs' water governance legitimacy is also worthy of examination. Utilising the findings of the research, ADA's views on the proportion of performing IDBs, as assessed through the indices of organisational sustainability suggests that innovative IDBs are in the minority. Thus, a broader scalar assessment in geographical terms, of IDBs' water governance legitimacy is accompanied by a diluting factor on net-legitimacy.

It is possible to envisage a different perspective on the issue of IDBs' water governance with ADA in the equation. Undoubtedly, ADA has the proverbial *seat at the table* of water governance, and frequently represents IDBs' interests. However, with the increase in ADA's

governance role, it does seem that the IDBs may already have a *seat at the table*, with work to be done on the mechanisms of internal representation to ensure that the views of all IDBs are represented. The irony here is that the concept of transformative power requires effective decentralisation of powers. Arguably, ADA's role could be said to be impeding effective decentralisation of water governance powers to the IDBs, for '*how can individual IDBs get a seat at the table if ADA has already taken the available seat?*' This exemplifies the power-transfer paradox by centralised representative governance institutions because any claims to transformative powers is illegitimated in the same process. Overall, the research findings have shown that the IDBs would like to have greater involvement in water governance through self-representation. Nonetheless, ADA continues to make an existential case for centralised representation of the IDBs at both regional and national governance levels¹¹ thus sustaining the existing paradox in the question and search for IDBs' water governance legitimacy.

7.8 Assessment of the benefits of the analytical frameworks utilised by the research

The utilisation of Ostrom's (1994) IAD framework and Watson's (2015) conceptual framework have served the research very well. The research has utilised the IAD framework, as shown in Figure 2. 1 to demonstrate the wide range of outcomes possible from the engagement process. The IAD framework as utilised in this research maintains its structural flexibility which predisposes its application in this way. On the other hand, the introduction of Watson's (2015) conceptual framework, as shown in Figure 2.3, has supported the pragmatic

¹¹ See Figure 4.3 on the three levels of water governance: national, regional and local

illustration of processes involved in collaborative engagement, and has thus, resulted in the analytical processes of engagement outputs and examination of outcomes. Consequently, the findings and conclusions of this research have benefited from the application of the methodological processes of Watson's (ibid) analytical framework. The introduction and utilisation of both frameworks in this research has worked very well in my view.

In Chapter 2, I introduced the concepts of scale, centralisation, decentralisation, transformative power, legitimacy, and governance. These concepts are not to be viewed as discrete, self-sustaining quantities because the findings of this research have shown that they are interdependent to various degrees, in the analysis of water governance. The concept of scale is equally important to both water management and governance from the findings of the research. The influence of scale in water management is seen in Chapter 5, with the example of IDBs' NFM partnerships, whilst the introduction of scale in water governance has direct impact on transformative powers, whilst itself being heavily influenced by centralisation and decentralisation governance approaches. In the final analysis the legitimacy of the IDBs with regards to their water management or flood governance credentials in this research is dependent on their ability to feel empowered and able to meet the present and any future roles in flood and water governance and management.

Some would argue that the IDBs, viewed as water governance institution are currently structurally ill-equipped to command legitimacy. Others may focus on the gaps being left by established water governance institutions at a time when flood and other environmental risks are increasing due to climate change and would argue that the IDBs are on the right track to

gaining proper legitimacy as a water governance institution. My views align more with the latter group, however, regardless of whichever side of the divide one takes, the findings of this research support the focus on the IDBs as a relevant institution in water management and governance in England.

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APPENDIX A

INTERVIEW QUESTIONS

List of respondents and interview questions

A Flood risk management authorities (FRMAs)

A0 Internal Drainage Board Groups

(Respondents)

- a. Clerks
- b. IDBs Engineers
- c. IDB members

A1 Environment Agency

(Respondents – Team leaders and technical specialists)

A2 Lead Local Flood Authorities

(Respondents – Flood and Water Managers)

A3 Utilities companies

(Respondents – Flood Risk Managers)

A4 Highways Authorities

(Respondents – Engineers and planning departments working with the IDBs)

B Local Authorities

(Respondents – Drainage engineers or representatives of Flood Risk Partnership groups)

C Parish Councils

(Respondents - representatives)

D Environmental and Conservation Groups

(Interviewee groups – Representatives involved in FRM activities)

E Association of Drainage Authorities

(Interviewee groups – Technical Officer)

F Technical Consultants and contractors involved in FRM works

(Respondents – consultants/contractors involved in delivering IDB drainage works)

G Independent and interested members of the public (flood risk management)

(Respondents)

Range of interview question areas for different respondents

A0 Internal drainage boards

Interview questions for the IDBs will be developed around the following areas:

Governance and relationship : [A0, a, c]

- Self-governance of the organisation and of members
- Governance role for FRM within the larger communities
- Governance within the wider FRMAs
- a. Given the historical development of the IDBs in your area, how do you feel the governance of your board has changed from, say, what it used to be in the last few decades?
- b. In your view, has the board lost or gained more members in this period?
- c. How is the relationship between members of the board and the local community?

Local relationships

- d. Does your board still work closely with the farming community?
- e. Do you think any of these relationships have changed from what it used to be?
- f. What type of relationship do you want the IDB to have with these communities?
- g. Do you feel the local communities clearly understand the roles of the IDBs?
- h. In relationship to FRM activities within IDB districts, and other areas impacting on the IDB catchments, do you feel that the IDBs should have more powers with regards to decision making in governance?
- i. What other changes do you feel should be made to empower the IDBs to take effective decisions on flood risk issues?
- j. In what ways can the local community support your board?

Planning and development [A0, a, b, c]

- a. How has the demand for affordable housing impacted the IDBs in your area [your IDB]?
- b. Has your IDB been involved in providing comments on the suitability of new development in your area to the planning authorities?
- c. Do you feel your views are taken into account when the local authorities make planning decisions?
- d. On occasions where there have been differences of opinion, how do you ensure that your views still count?
- e. Does the FRM partnership platform play any part in resolving these differences?
- f. From the point of view of your IDB, do you feel other FRM organisations understand the pressures you face from increasing local development needs in your area?
- g. If not, could you suggest what actions the IDB may take to help improve partners' understanding in this regard?

Partnerships and cooperation [A0, a, b, c]

- Partnership working arrangements with other FRMAs
- Partnership working between IDBs and their members
- Partnership working with other environmental organisations
- a. Do you think the government and other partners, sometimes, focus more on their own agendas rather on key flood risk issues when setting objectives within FRM partnerships?
- b. Is your IDB represented at FRM partnership meetings?
- c. Do you contribute to the agenda items for the meeting?
- d. Who represents your IDB at partnership meetings?
- e. Do you feel there is sufficient cooperation and partnership between the IDBs and other FRM and environmental organisations?
- f. From the point of view of the IDBs, are these partnerships effective and supportive to IDBs objectives?
- g. From an IDB's perspective, are there any challenges to these partnership collaborations?
- h. Have these challenges always been there? Do they differ from organisation to organisation?
- i. Which FRM organisation do you work mostly with?
- j. How has your relationship with this organisation developed over the last few two or three decades?
- k. Can you give me some examples of where/when collaborative partnerships with other FRM organisation have been beneficial to the IDB?
- l. Have there been cases where FRM partnerships haven't primarily or in some ways promoted IDBs objectives and interests?
- m. Do you feel the IDBs have enough voice in the current FRM partnership arrangements?
- n. Are you satisfied with the balance of power between FRM partnership members in decision making processes within the partnership?
- o. If not, what type of partnerships would benefit the IDBs in the future?

Performance and efficiency [A0, b, c]

- Methods of delivery of FRM projects within the catchments (in-house, external, contractors, consultants, packaging of works, etc)
- Structure of operations team
- Resources for delivery
- a. In the delivery of FRM projects, does your IDB use an in-house delivery team or external consultants/contractors?
- b. Has your IDB delivered schemes through other IDBs or FRM partners?
- c. If you have, how did you find the experience? If not, would you ever consider delivering your schemes through other IDBs or FRM organisations?
- d. Do you have enough resources, in terms of funding, tools and personnel to deliver your schemes?
- e. In the delivery of flood risk projects, how well do you think the IDBs have embraced sustainable and resilient measures as options in flood risk management.

Funding and sustainability of funding model [A0, a]

- Sustainability of FDGiA funding model
- Sustainability of the IDBs funding model
- Other funding streams
- a. How successful has your IDB been in bidding for Flood Defence Grant in Aid schemes?
- b. What are your sources of funding for delivering FRM schemes?
- c. Are these sources sufficient for your current and future needs?
- d. Do you feel your members are satisfied with the benefits they receive for their contributions in rates?
- e. Would consider increasing members' rates if it meant providing better protection to members?
- f. Do you have a view on the appropriateness of the current formula for IDB Precepts contributions?
- g. Do you believe the FDGiA funding model is sustainable for the IDBs over the next decades? Could you please explain your answer?

- h. Do you have any suggestions on how a sustainable funding model can be achieved for FRM at present or in the future?
- i. Do you currently have the capacity and resources to undertake FRM work for other FRMAs? If not, could you develop such a capacity?

Change and capacity for growth [A0, a, c]

- Social (age structure of the industry, awareness of flood risk issues)
 - Cultural tolerances for flood risk, awareness of diversity and impacts to the sector)
 - Economic (review of government funding and efficiency targets, sustainability of drainage rates, impacts of government substitution policy on CAP following Brexit, indirect impact from reduced farming interests and income from farmers, labour market issues)
- a. Given the historical development of the IDBs, in terms of their objectives and function, would you say the role of the IDBs would remain the same or change in the future?
 - b. A lot of people have migrated into the UK in recent years, most of whom live and work in the countryside. How has the socio-cultural impacts of migration affected your IDB? (Consider the impacts in terms of membership size, demographics, and funding from drainage rates)
 - c. Brexit negotiations could impact many sectors, particularly, the Agricultural sector. Given the tone of the negotiations so far, what potential impacts do you see envisage for the drainage boards, and specifically your own board?
 - d. What would you say to anyone who suggests that the IDBs can play a broader role in FRM than they currently do?
 - e. What changes do you want to see in FRM policies and strategies to encourage further growth and development of the IDBs?

Environmental and agricultural sectors relationships [A0, a, b, c]

- Relationships with environmental groups
- Internal policy towards climate change, environmental regulations,
- Land and water use policies, conflicts between food production and flood risk

- a. How would you assess the changes in the historical role of the IDBs in terms of the objectives of the organisation?
- b. Historically, most of your members are farmers by profession. Do you know what proportion of your members that are still farmers?
- c. What kind of relationship currently exists between the farming community and the IDBs? (Has this always been so?)
- d. Given the shift to natural approaches to flood management, particularly, considering the strategy for making space for water, how have you dealt with the conflicts between flood risk management approaches and agricultural priorities of food production?
- e. How often do you work together with environmental groups like the NFU, RSPB, Wildlife Trust, Natural England, National Trust, Forestry Commission, Game and Wildlife Conservation Trust, or the CLA?
- f. Which of these groups do you work mostly with?
- g. What kind of projects have you involved the groups in?
- h. Are there any case studies that can demonstrate close working relationship between the IDBs and environmental groups?

Policy reviews and changes [A0, a, b, c]

- Farming policies,
 - Future Brexit policies on agriculture and land use
 - Planning policies and growth agenda
 - Sustainable water management policies
- a. What is your view on current flood risk policies, particularly, on natural and sustainable approaches to FRM, as well as, catchment approaches to flood risk management?
 - b. Are these policies in conflict with any other policies you work with, particularly, farming policies? If so, how do you resolve these conflicts?

- c. As one of the key partners in FRM in England, the IDBs can impact on many policies and instigate changes. Are there aspects of the existing flood policies you would wish to change?
- d. Does your board have any concerns about the current Brexit negotiations with regards to the interests of members who are farmers?
- e. What impacts could Brexit have on your board's activities?

A1 – A4 FRMAs

Cooperation, partnerships and roles

- a. How well has flood risk partnerships worked in your area?
- b. With regards to working with the IDBs, what is your assessment of the level of cooperation between the EA and the IDBs in your area?
- c. Have you worked on any joint programmes or projects with the IDBs?
- d. Does the project governance for these joint schemes lie with the EA or the IDB boards?
- e. Do you feel that the IDBs currently have the experience at the right levels and governance structures to lead on joint partnership schemes?
- f. What roles do you see for the IDBs for flood risk management in England in the future?
- g. Would you support the broadening of the scope of current FRM roles of the IDBs?
- h. In your view, is there anything the IDBs do better than other FRMAs?

Funding

- a. Are you familiar with the FDGiA funding process? If so, what is your view on the level of justification required for FDGiA?
- b. Are you familiar with the Defra PF funding scoring mechanism for partnership projects?
- c. Are you able to suggest an alternative funding model for flood risk activities for FRMAs?

- d. Do you have an experience of successful partnership flood risk projects with other RMAs, particularly the IDBs?

Strategic flood risk management

- a. Do you consult with the IDBs on your flood risk strategies and plans?
- b. Do the IDBs consult you on their flood risk strategies and plans?
- c. What if anything would you see improved in your relationship with the IDBs?

Innovation in the delivery of flood risk projects

- a. From your experience of working with the IDBs, what is your assessment of the level of innovation in their plans for the delivery of FRM projects?

Pace of transition from flood defence to flood risk management

- Do you believe on the evidence of working with the IDBs that the organisation have embraced sustainable flood risk management approaches in contrast to land drainage and flood defence approaches?

B and C Local Authorities and Parish Councils

Cooperation and partnership

- a. Is your parish in an IDB district? Do you pay rates as a parish council?
- b. How well do you work with the IDBs in your area?
- c. Are you routinely consulted by the IDBs as part of their project delivery?
- d. Are there any areas of conflicts or grey areas in your roles and the roles of the IDBs?
- e. Do you share information on your flood risk activities with the IDBs in your area?
- f. Have you jointly worked on flood risk projects with the IDBs?
- g. In your view, are the IDBs in your area properly resources to deal with flood risk issues in their area?

- h. Do you feel the scope of the IDBs roles should be reviewed? If so, what would you like to add or remove?
- i. Has your local authority/parish council used the IDBs to deliver simple flood risk projects in your area?
- j. What contributions, if any, do the IDBs make to local development in your area?

D Environmental and conservation groups

Cooperation, partnerships and joint working arrangements

- a. What is your experience of working in partnership with the IDBs?
- b. How long have you worked with, or been aware of the IDBs work?
- c. Do you believe the IDBs demonstrate a good awareness, understanding and compliance to environmental issues in planning and delivering their work?
- d. Has this always been so?
- e. What changes would you like to see in your partnership with the IDBs?
- f. Given the primary role of the IDBs for managing flood risk, have there been conflicts of priorities in your relationship with the IDBs? And how have you worked together to resolve these?
- g. How can the IDBs contribute to the sustainability of your operations and organisation?
- h. Have you got any case studies on past or present collaborations with the IDBs?
- i. What is your view of the future role of the IDBs?

E Association of Drainage Authorities (ADA)

- a. What is ADA's role?
- b. The IDBs underwent a restructure about a decade ago, do you remember reasons for the restructuring?
- c. What has been ADA's role in improving the governance of the various boards? Can you provide me examples of case studies of ADA's intervention?
- d. How would you assess the progress in the historical roles of the IDBs?
- e. ADA's role for improving environmental governance within IDBs

IDBs and food security

- a. How significant has the role of the IDBs been to food security in England?
- b. Do you envisage any challenges to the IDBs role in food security?
- c. Given these challenges, do you feel the IDBs would continue to play a crucial role in the agricultural sector?
- d. How relevant is your organisation to the agricultural sector in your area?

Brexit and roles in flood management

- a. Do you feel the IDBs could play a greater role in the governance of flood risk management than they currently do?
- b. If so, is any change required in the current structure of the IDBs?
- c. What improvements would you recommend to the structure and operations of the IDBs if the scope
- d. What would you say is responsible for the longevity and relevance of the IDBs as an organisation?
- e. Has your organisation undertaken an independent assessment of the impacts of Brexit on the activities of IDBs' activities?

- f. If so, what were the greatest potential impacts and how do you plan to mitigate them?

APPENDIX B

RESEARCH INFORMATION FORM

Research Title: *Governance, cooperation and partnerships in flood risk management: The past, present and future role of Internal Drainage Boards (IDBs) for sustainable flood governance in England*

Project Description

This research is being conducted to satisfy the requirements of a Doctor of Philosophy degree at the University of Birmingham. The aim of the research is to examine the development of the Internal Drainage Boards (IDBs) as a flood risk management organisation and explore how the organisation has maintained its role and functional relevance over many centuries through changing legislation and policies. The research will also aim to understand the nature of the historical relationships between the IDBs and other organisations with similar or inter-dependent roles, and how the dynamics of these relationships have shaped the IDBs past, present and future role in flood risk management in England.

Procedure and Risks

The interview will take about 45 minutes. We would like to record the interview and use the notes to produce transcripts for research analysis. However, we will only record the interview with your signed consent. The interview transcripts will contain no personal identifiers to ensure your anonymity. Please feel free to say as much or as little as you want. You can decide not to answer any question, or to stop the interview any time you want. The transcripts will become the property of project.

There are no known risks associated with participation in the study.

Benefits:

The research will provide a lot of insight into the development and operations of the Internal Drainage Boards. Partnerships and collaborative working practices are being encouraged by governments all over the world as a better way of understanding and managing flood risks; hence, any contribution that fosters the integration of such partnership is step in the right direction. This research is one of such steps.

It is hoped that the results of this research will provide necessary information to support the development of key policies in flood risk management in England.

Cost Compensation:

Participation in this study will involve no costs or payments to you.

Confidentiality and use of data collected:

Data collected during the interviews may be used to produce the final thesis as well as technical reports for publication in academic journals. No publications or reports from this project will include identifying information on any group or individual participants. Data collected may be stored for up to 10 years in accordance to the policy of the University of Birmingham.

Contact details of the researcher and supervisors:

Augustine Nwankwo	Dr Steve Emery	Dr Chris Bradley
Department of Geography	Department of Geography	Department of Geography
University of Birmingham	University of Birmingham	University of Birmingham
(Researcher)	(Supervisor)	(Supervisor)
Tel: [redacted]	Tel: [redacted]	Tel. [redacted]
[redacted]	[redacted]	[redacted]

APPENDIX C

CONSENT FORM

Governance, cooperation and partnerships in flood risk management: The past, present and future role of Internal Drainage Boards (IDBs) for sustainable flood governance in England

Name of Researcher: Augustine I.I. Nwankwo

Please
initial box

1. I confirm that I have read the information sheet dated 26th March 2018, (version: v0.2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐
3. I understand that I can no longer withdraw my data from being used as part of the research from 1st September 2019. ☐
4. I understand that the information collected about me will be used to support other research in the future, and may be shared anonymously with other researchers. ☐
5. I confirm that I am happy for my interview to be recorded and used in accordance with the information provided on the information sheet dated 26th March 2018, (version: v0.2). ☐
6. I agree to take part in the above study. ☐

Name of Participant

Date

Signature

Name of Researcher

Date

Signature

APPENDIX D

SAMPLE TRANSCRIPTS

Transcripts of interview with the Association of Drainage Authorities

INTERVIEW 1

Interviewer: Good morning X [redacted].

Respondent: Good morning Austine, how are you doing?

Interviewer: I am well, thank you. As I said to you in our email communication, the key objective of this research is to review how the role of the IDB has changed over the years, particularly in terms of their engagement and partnerships. I know that ADA is very central to the governance of the IBBs, so, it would be useful if you start by explaining ADA's role both on a present and historical level.

Respondent: ADA is a membership body for all of the different FRM authorities. It was set up in 1937 as a membership body for drainage boards but also the Rivers Authorities, and various other Acts, but these have changed since then since back then. Our role is very much about representing our members to government and to others. But very much now about not only that but also about communicating between members, between different drainage boards and other areas of the public sector. So, for instance, we've probably done a lot of it, the PSA, we will come to it later. This was something the EA initiated and we promoted to our members.

Interviewer: That's really important, any policy and medium that promoted interaction between RMAs is a positive thing. Now, let's step back a bit. Do you recall the last restructure the IDBs underwent in about 2007? How in your view have things changed since then?

Respondent: Sure, you are referring back to Defra's review of about 2006?

Interviewer: Absolutely, that's the one.

Respondent: I first started with ADA in 2007. So, I wasn't around for the start of them, but I very much saw the report from JBA, who were appointed to undertake that work to Defra on that. From there, Defra had to decide how to take forward the findings of that report and interpret it into a package of improvements. I am very familiar with it because I was very involved in a lot of that. There were recommendations around the size and scale and working of the drainage boards, the governance arrangements, and maybe in particular the working in relations to the environment as well. ADA at that time worked with Natural England on developing model biodiversity action plans at that time, of which there was a very strong take up. I think there are about one or two, maybe 3 that doesn't have that in place now. They were quite taken up by the boards. We are actually going through a review of those and seeing how to link them to the government's 25 year Action Plan. The more up-to-date thinking is that boards would have reviewed those by themselves, but we would like to encourage those who haven't.

The review that took place was also a bit of a stimulus to drainage boards for amalgamation. I remember there were about 160 drainage boards at the time, but today, there are about 112. You can see there has been a huge change. That's not boards being abolished, but, that's through amalgamation. There's not been a huge pressure from government recently on that front since then.

In terms of governance arrangements, there are two large pushes on that since 2012 I would say. Wales doesn't have any drainage board anymore. They are administered by Natural Resources Wales. Then they did have drainage boards, one of them was called '*Costerwentlu*' [incoherent]. The boards were investigated by the National Audit Office (NAO) and there were failings in financial management and other areas. That stimulated ADA to pursue a series of model statements that are available on our website on governance accountability. In about 2012/13 we did a lot of work around that. In about 2017, the NAO undertook a review of drainage boards generally. That came as a result of a whistle blower, no, it came from a persistent individual. They had some findings around governance arrangements. That led to a code of good practice arrangement for drainage boards, which have been highlighted on our website and other bits and pieces of literature but have not been published formally. The National Association of Local Governments did a similar thing a few year ago. So this was

something we wanted to bring to the drainage boards. So, with guidance from Defra, we published the governance good guide at our national conference last year, and then held a series of 5 regional workshops across the country. I believe it was March and April 2019 that we did those. That stimulated some further work. The evolution of that would be to produce HSW and Environmental procedures. That's something we are planning to start in 2020.

Interviewer: From my conversations with the board clerks, I understand there is now a formal guidance document (blue booklet) which provides for a consistent approach to governance amongst all boards. What was your role in developing this?

Respondent: The Order that establishes a drainage board sets out in law how many elected members, ie. Agricultural rate payers that should sit on the board, then elected council representatives from local authorities is an additional to that number. Overtime, as the council develops, the cost they are paying on behalf of the resident to drainage authorities may increase, you can increase in board membership as a result of that. The recommendation of the JBA review made recommendations on board sizes. And it says that for large drainage boards, the number should be 21, but for the smaller ones, I think the number should be about 13. This good governance guidance which we produced, we transposed the numbers from the recommendations of the report. The NAO report did highlight boards which had larger numbers than recommended, and there are some 3 boards which were more than the recommended guidance. These were boards formed through amalgamation. Some of them were about 40 to 50 members which were too large. Last year, they went through a process of reconstituting to smaller boards of about 21.

Interviewer: What is your experience of innovative partnership works from the IDBs?

Respondent: There are some variations amongst the drainage boards and you can group them into two: larger stand-alone drainage boards with their own offices and staff, example of that would be Black Sluice IDB with an annual turnover in excess of £1m. They have driven some good practice in terms of working with the EA over the last years in terms of making decisions about the future of South Forty-foot river catchment which is also known as the

Black Sluice Catchment, because the Black Sluice is the name of the PS maintained by the EA at the area. The boards have been involved in making decisions with huge impacts for present and future flood risk management in the catchment. Using a novel Dutch technique, utilising suction dredging barge, they undertook some dredging work, supported by their close relationship with land owners/rate payers and local residents in the area. So, that's a very good example. Because of the success of the work they have done, the EA had the confidence to open up discussions about demaining some of the smaller network of watercourses, not the Forty Foot River itself, but the smaller watercourses which are connected with it. They have also gone through rationalisation of the river catchment in that area through the PSA work with the EA. The EA had reposed confidence in the IDB such that they had de-mained some rivers and entrusted them under the management of the drainage boards. By demaining they became part of the network of watercourses which the IDBs manage. That was completed for Black Sluice by Nov/December of 2018. There are other examples around the country, down in Kent, the River Stour. Then you have other boards work through a consortia of IDBs. You have boards who work as Water Management Alliance, their lead board, Kings Lynn IDB. These large boards have demonstrated experience of Natural Flood Management in their area. They have also done work on designated sites in the area. They have been working very closely with Natural England and EA to facilitate the transport of freshwater marsh, which was critical to support the bird population and the ecology of the area. The drainage boards in Somerset, have led on a lot of that. The coastal estuaries in that area, typified by grazing marsh. The boards have been instrumental in finding funding to repair the coastal erosion and repair the marsh in those areas, facilitating the enhancement of the defence, but also looking at things they can do at the salt marsh and mud flat side of things as well. The boards have been looking at ways of improving that sort of things.

There are a number of PSCA in place, the ones that are working well are from the large group of boards, but on the smaller boards, eg, down in Devon, they are very much in isolation, and would struggle to undertake such large schemes. There are also smaller boards such as in south of the Humber. These would require further amalgamation to become more effective and efficient. There are also examples of smaller boards in South Cambridgeshire who have

come together into a consortium. There are some if they were to come together would realise greater efficiencies as well.

[58.05]

Interviewer: Let's turn our attention to funding. I sense from speaking to some of the IDBs that the FDGiA process is still very challenging. What have you heard from the IDBs?

Respondent: The process is certainly challenging for the RMAs, especially those with a legacy of rural assets that need to be maintained. The IDBs sit at the apex of those RMAs. They have a legacy of drainage assets from the war, for instance a lot pumping stations. There are questions about what they should do with those assets, and whether they should refurbish them or replace them. The funding calculator is such that the benefits derivable from such works should make it viable for the funding to go ahead. Due to the fact that there are other RMAs who are drawing from the benefits of the same say tidal works or river improvement works, it becomes difficult to find the benefits. For example the Boston Barrier area. There would always be an emphasis placed on protecting people and their homes, but, there is still insufficient weighting placed on the value of agricultural land in terms of benefits. It is not quite a binary argument about either being self-sufficient or not, but, it is about ensuring that we have that weight of domestic agriculture to support the next stage of packaging and industries, i.e. sugar industry in the UK, with knock on consequences to employment and other sectors. So, in terms of how these impacts derive from the FDGiA, I think they have raised that.

Unlike the EA, drainage boards have had to bear the burden of capital projects they have to move ahead with, prior to partnership funding that used to be 45% of the capital scheme, but with the Partnership Funding (PF) that has changed slightly. So, the boards are all familiar with getting their own money through their local levies. They are also able to seek funding through other sources like the Local Enterprise Partnerships (LEP), you also have the Humber drainage boards, who have been successful in getting funding from LEP for the improvement of drainage issues connecting up more of the catchments together. However, there is an

uncertainty about how those such funding can be used for local drainage works in the future.

[50.14]

In terms of managing the cost side of that equation, managing the legacy of pumping stations, there have been some good examples of IDBs working with Environment Agency and Local Councils to look at flood risk across the catchment area and look at how they can manage it together. A good example of that is in the Isle of Axholme , the Isle of Axholme Strategy, which is looking at those benefit to make sure they are well recognised within the appraisal. They have an awful lot of pumping stations in the area due to mining subsidence in the area. These pumping stations are maintained by the drainage board. However a project part funded by the Coal Authority and other local partners is being undertaken in the area to replace the smaller pumping stations with a much larger one. There are other examples in the area of the south of Kent where a similar rationalising project is going on. By looking at this in a strategic way, more RMAs are able to pull funding together to deliver partnership schemes which are largely managed by the drainage boards.

Interviewer: There are good examples there. That's really helpful. With regards to how ADA is adding value to the work of the IDBs, what has been your involvement with resolving boundary issues, which I understand is still outstanding with Defra?

Respondent: That relates to the Rivers Authority and Land Drainage Bill, which is a private member's bill with the House of Commons (HOCs) at the moment. Clearly the current delays within the HOCs due to Brexit has affected the progress of that Bill. The rationale to this is the initiative to demain some of watercourses to bring them under the management of the IDBs. This is thinking behind the Bill. With that comes a view that you may need to invest a little bit in order to save. So, you may have to put these watercourses in a condition such that they can then be handed over to the IDBs. Obviously, doing that isn't cost neutral to the IDBs, it might be that a drainage board looks at it the stretches of watercourse the board maintains, and feels that some may be handed over to the landowner to maintain. The cost savings from that they could then invest in the new watercourses that have been handed over to them.

The other area which you were touching on was expanding the area of the IDBs. With changes to the water management regime, it is right that the board is looking at the whole catchment approach and it could lend them to doing work on a more Natural Flood Management in upstream areas. Across Lincolnshire area, there is an aspiration amongst those there to move to a whole catchment IDB across the whole county. It does mean that those living further upstream will pay a greater rate than those downstream. Across the catchment in Lincs and up in Cumbria, where they are looking to re-establish drainage boards, they are now looking at how to calculate the drainage rates. Historically, these methodologies used in the past are no longer appropriate due to various changes. The Council taxes have also changed. The IDBs valuation also relate to the old system of valuation. So, there is an issue with using these values to calculate current drainage rates. This has implications for existing drainage boards because if you imagine the use and ownership of land has changed over time. With that there is a methodology within the LDA which allows the drainage boards to take the average value per hectare of developed land within the drainage district used to multiply the average land to be developed which is a way of moving it from accruing charges to rates. So, we presented all of this valuation variations to Defra on behalf of the drainage boards and we looked at with our drainage boards, a new method of calculating the value of non-agricultural land; and moving to the same banding system as the council tax band today. It does mean a new methodology there because the two have to be in phase. So, that's where we worked through with Defra. We then involved a whole range of stakeholders within local governments to check that they were broadly in line with what we were doing. So, if you look at the Bill, contrary to appearances, it says that it has been presented with the support of the government. So, this is a government backed bill, even though it is a private members Bill.

On the issue of creating more drainage boards where there are none, contrary to expectations, there have been cases where our recommendation for the creation of boards have not been in favour of creating more boards. There has been other ways of working with landowners, which we would rather encourage. So, that has explained a bit about the legislation and how we are involved in that. There have been other work we have done in encouraging boards to talk to one another, and this has been very valuable.

Interviewer: With regards to the impacts of work done by the IDBs and the visibility of the role of the IDBs, it does seem that outside the IDB areas, they are not really known that much. This includes areas like the schools. A lot of the IDBs are finding recruitment difficult. So, what is ADA's view regards to this?

Respondent: This is a good question. You are quite right that they are well regarded by the boards they serve. They do have an image problem: Two-fold: one that people don't know what they are, and where they are known, they are typecast by their historical image, in terms of what they used to be with regards to lack of environmental credentials. That I don't think that is right. We no longer have the NRA, we have the EA, so, there is a brand image problem. Also, there is an almost ubiquitous problem across the board that boards do not promote their work. They do not invest in promoting the work they do. That's to the detriment of the governance side of things as well as to improving their work. This is something we have pushed quite hard on within the last few years, and we still have an awful lot to do. But some boards are getting better at promoting what they do. You talked about schools and you talked about recruitment. A lot of IDB recruitment comes from other RMAs. In terms of communicating with communities, this is something we are now engaged in. A few boards want to engage with schools, but, they may not really know how to engage. There are also schools who may want to visit the IDBs and do not know which part of the curriculum the visit would relate to. Teachers being what they do not really want to invest their energy in needless exercises. The farming groups have funded an activity where we have contracted some people to investigate how to inculcate some of the work we are doing in secondary school curriculum. So in the future, we would like to meet up with the drainage boards or if the drainage boards want to visit a school, we can pick up the paper developed on this as show them a range of tasks and activities which may be useful to them. The main issue is linking the activities to the school curriculum. That way we hope they will learn more about what the drainage authorities do. The reason we have gone for that is that I remember doing a lot in school about water cycles, there may be a bit about flooding but there is a lot that goes into managing water flooding, and the different interphases such as agriculture, environmental issues, and conservation and so on. Through ADA we have got a branch

structure as well, I think there are about 8 of those. These are parts of community outreaches which are used to promote the work of drainage boards.

Interviewer: what about students being seconded into the IDB offices to work?

Respondent: We have introduced the foundation degrees to the IDBs but the take up has been too low. We have invited the foundation degree from the Brunel University to attend our conferences to learn more about what we do. I think one of our members have spoken about giving a lecture about what we do with students. We also have an apprenticeship training scheme. It is EA backed for Water Environment Services. The Somerset Consortium have been leading on that and working out the consultation through the department of education. We probably need to do a bit more work in promoting areas where we have had success in this regard.

Interviewer: That's really encouraging.

Respondent: Yes the stress you highlighted is one that is felt across the whole of the drainage boards and at different levels, they have tried different means of dealing with it.

Interviewer: What improvements in your view have the IDBs made with regards to working to improve environmental issues. I learnt from one of the IDBs that they despite being encouraged to improve their environmental credentials, they were unsuccessful in bidding for funding for an environmental scheme. Do you know anything about that?

Respondent: Oh, I know the IDB you are talking about. There have been funding opportunities particularly around SSSIs and designated areas, SACs and a drive from government to improve the condition of those designated sites. Looking more broadly, IDBs are managing a network of corridors through a landscape that provide that connectivity of habitat corridors for sustaining ecological improvements. ADA has done a lot over the last 20 years in terms of guidance to boards in promoting support for environmental improvements. Under the knowledge and environmental section of our website, we have provided a document providing guidance on how the IDBs can combine environmental and ecological

improvements in their work of maintaining the watercourses. We have updated and added to that recently from the work we did with the EA. You will be familiar with the WFD from Europe and the drivers from within that. There is good ecological status that we should be striving to achieve on the ecology side of things under the WFD for our natural water bodies. But then there is also a somewhat overlooked part of the directive which is 'good ecological potential' for the artificial or heavily modified water bodies we have in the UK. These are artificial watercourses that have been mucked around with over many generations, many centuries. They may have been built to perform a particular type of function, whatever that might be; but, we do recognise that we should try to enhance them to achieve ecological potential whilst performing the function for which they were built. Whereas that was well understood within the EA, very often the guidance that came out only focused on the good ecological status-side of things. And trying to force that guidance into the type of watercourse we have in the Fens wasn't particularly a good mix. In 2017 we published a document 'management strategies and mitigation measures for achieving good ecological potential for Fenland water bodies'. This was particularly focused on the Fenland and other parts of England as well. So, that's trying to take that knowledge forward, because previously it was becoming a bit of a binary situation. Either we said that the WFD applied to these water bodies, and we had to make them perfect, as in good ecological status, or effectively trying to find ways of saying they do not apply and decide to ignore them. But neither of those two scenarios is acceptable, so, this is trying to find that middle ground, so, we can support the ecological improvement of these water bodies.

On the other point of the missed bid, we encourage the drainage boards to apply for competitive funding wherever that becomes available, either from Diff Award, which is from Landfill, Heritage Lottery Funding, or Natural England or others, but, I have forgotten the one which you alluded to. What we encourage the drainage boards to do is in writing their Biodiversity Action Plan (BAP), to build in a lot of the forward plan in their BAP. So, if they were to get any funding, to state what they will use the funding to achieve. Look at the things they need to do, and they look ahead and include some aspirations in their plan as well. By earmarking the future spend, when the spending opportunity comes along, the work is half-

done. But obviously for these competitive bids, you are up against groups like the Wildlife Trust, RSPB and other groups who have dedicated national team of bid writers for these kinds of bids. That's how charities like that work. A smaller drainage board wouldn't necessarily have the skills needed to develop the bids in as much detail as these other groups. So, there will be challenges, but, they have been successful. The Ely group of drainage boards were successful in getting a Heritage Lottery Funding Scheme for environmental enhancements to the Old West River and the watercourses within that catchment. As well as works along with local communities which is led by Acre in Cambridgeshire, which is a rural community that does a lot with parish councils in that area, trying to build on the community side of things as well as the environment. What the board is keen to look at here is recognising the limitation of the pumping station they have within the catchment and even though they are still in a good nick, they are in the top end of their capacity, and especially recognising climate change; so exploring whether they can build more storage capacity within the catchment to provide more relief and flexibility to the catchment by building berms. We sort of term that kind of approach as 'giving nature an edge'. So you have the sort of typical trapezoidal channel that is common in that area, the edges of which is used to introduce reed beds and vegetation fringes. We are supporting the drainage boards in the review of their BAPs in the New Year.

Interviewer: What would you say have been the contribution of the IDBs to the agricultural sector and food security, would you say the IDBs still have an active role to play given the transition from land drainage to flood risk management?

Respondent: I think they still have a very active role to play in a lot of areas. There are still a lot of drainage boards that are very much led by elected members from the agricultural community, that directness of relationship with the farmers in the area, I think that still holds. That function was very much a land drainage function in the past, you have that of the equation, and on the other hand, you have their role for flood risk management. I think we too often, from the FRM sector, look at it as a very binary function, in the sense that a bit of work is either delivery flood defence or it is delivering land drainage. I think drainage boards blur those boundaries. We very much use the terminology of Water Level Management as

their function. They are there to manage water levels in their system for people and properties that live there. For people and the environment that depends on those channels, land areas and water levels, paying attention to designated sites but also not least, agriculture that depends upon those water levels as well. It is a better term than land drainage anyway. We've not really touched a lot upon climate change, but, CC, water resources, a lot of the work of drainage boards now is planning and controlling water levels, maintaining the freshness of that water through the summer and effectively through drought conditions in the Fens. To support the irrigations in that area, and also the water abstractors in that area. But also that freshwater input into the wetness of the area. The EA often worry about the freshness of the main rivers, but the smaller channels that feed into main rivers are areas where the fishes spawn before the adult fish makes it into the main river. That's sort of an overlooked side of their function, but, will become a growing part of their function in the next decade or so.

Interviewer: Thank you very much. I hope I can come back to you at some point in the future if I have other questions.

Respondent: Absolutely. I would be delighted.

Interviewer: Thank you.

End of Interview 1

Transcripts of interview number 2 with the Association of Drainage Boards

INTERVIEW 2

Interviewer: Thanks for having me again. What would you say is the drainage boards' preparedness for managing increasing flood risks and climate change?

Respondent: There are a range of risks really. Funding remains a challenge for capital work and we previously talked a bit about that. I guess one of the biggest challenges is making sure that boards stay relevant and competent in delivery their works, and whether they can keep pace with changes in terms of regulation. I think the key risk is remaining relevant. I think it is because the IDBs are an aging demographic. They obviously bring a great deal of experience, but given the average age, they are not able to get involved in active work as much as possible. And so, there is a challenge of renewing those skills. And it comes back to this question of amalgamation or consortia, consolidating into a group of drainage boards in an area. If the drainage boards, particularly the smaller ones continue to operate as they are, there may come a point when they cease to become relevant particularly if there are large group of drainage boards around them.

Climate change, how they can adapt to that and how they make use of information from the environment agency is important. Working in partnership is great part of managing these risks. Gone are the days when RMAs worked alone. Those that continue to do so will come up against risks and challenges in the future.

Interviewer: With regards to efficiencies of scale, what would you say to those who argue that the IDBs are more efficient because they are lean? Will amalgamation not erode these efficiencies?

Respondent: There's always that balance. I would say that where a board is struggling to employ a member of staff on a full time or even a part time basis, then clearly they are below a threshold that in itself brings with it, a lot of issues. The larger boards may share

administrative costs for an office and other staff resources. Tiny drainage boards have come together to form consortium groups, and then, within the consortium they have formed a single board or a couple of boards within the consortia. In the late 1998 to 2000, 3 drainage boards came together and amalgamated together, and that covers a lot of the Lincolnshire coasts. For the very small boards, they really need to look at amalgamation more closely. In terms of losing that local knowledge, there are ways in which we can work around that. A lot of drainage boards, even though they haven't amalgamated to a larger side, they often have sub committees, there will be a good spread of board members on those committees. The Black Sluice, they are split into a north side committee and a south side committee. But also these committees are made up of younger farmers or younger representatives from the council, they maybe staff members or others who may want to get involved in the work of the drainage boards in the future may use that as a launching pad. Also that allows you to retain a localised focus as well on a sub-district scale. There's ways in which boards can do it. It comes down to this sort of broader existential threat about attitudes on a board where boards people would say we've always done it like this, we've always done it this way. We are small and perfect as we are, we don't need change. If they don't have that broadness of mind to look at how others have done it, and manage that transition and willingness to change, then, that's a threat. But it is not necessarily an age thing, look at the chair of a small board in Nottingham, they had a lot that they wanted to achieve but they didn't have the expertise. They would have had to wait years in order to achieve what they wanted but through amalgamation, they were able to achieve a lot. They can also rationalise pumping stations in a meaningful way, so, there are those with a broader mindset. But you obviously wouldn't want a board covering the whole of Anglian region. We've always stuck to a catchment boundary as a guide with regards to board groups. [13.58]

Interviewer: What are you hearing from the boards and other RMAs with regards to potential impacts of Brexit on their operations?

Respondent: I mean I think we looked at this at an early stage in terms of are we gonna be tearing up the rule book in terms of the WFD, or the Floods Directive Eels Directive or

regulations that have come from that. But that's not the case. We will broadly be maintaining a similar set of environmental regulations as we have done in the UK into the 2020 and probably beyond that. We will be largely consistent with Europe. And then you look at the funding side of things. Flood defence funding is broadly somewhat isolated from Brexit in terms of FDGiA. But Brexit will have a shock on the economy. We have talked about LEP funding and other funding with which the boards have had some success in the past, those would probably continue. Those European funding would probably be replicated with domestic funding streams in the future, but they may be more targeted at environmental NGOs or more targeted are rural business. IDBS see themselves in a very strange situation in so far as they are government, or local government, that means that they are at the lowest perking order of other funding. With the European funding, as competitive as it is to apply for European funding, it does create somewhat of a level playing field. The reason I say that is that recently, we have been looking at a small side of ADA, to see if there is any no deal impact. The only impact we see is if they are involved in capital projects which their supply parts are based in Europe, obviously there are implications there in terms of delivering that project on time and to budget. Access from oil or derivatives or synthetics, we look at that side of things. And then there are staff considerations, because we do employ quite a number of Europeans, if some of those move back to their country of origin, there could be a brain drain. Obviously we are not saying it will happen, but those are the kind of things we have considered within ADA.

Overall, we don't think there would be a huge impact for the sector. It is already indirect mixed in with the economy affecting the finance from government more broadly.

Interviewer: It has been a pleasure talking to you. I hope your door continues to be open for me.

Respondent: No problem. If you have any more questions, I would be glad to help.

End of interview 2.