swan
Sustainable Water ActioN

CAPACITIES

Seventh Framework Program

FP7 Grant Agreement

INCO-20011-7.6

Deliverable 2.2

"Stakeholders Handbook"

Authors: UWE, Bristol Team

Project Title	Sustainable Water Action Network - SWAN	
Grant Agreement	294947	
Deliverable title	Stakeholders' Handbook	
Deliverable name	Deliverable 2.2	
Authors		
Reviewers		
Due date of deliverable	February, 2015	
Actual submission date	February, 2016	
Dissemination level		
X	PU	Public
	PP	Restricted to other program participants (including the Commission Services)
	RE	Restricted to a group specified by the consortium (including the Commission Services)
	CO	Confidential, only for members of the consortium (including the Commission Services)
Deliverable status version control		

Contents

Chapter 1: Introduction (C. Staddon & L. De Souza) 1

Chapter 2: Theoretical and conceptual framework (O. King & C. Staddon) 2

2.1 Introduction 2
2.2 Deliberative Democracy 3
2.3 Post-politics 4
2.4 Concluding Comments 9

Chapter 3: Reimagining a context sensitive approach to water management (Richard Newman) 11

3.1 Introduction 11
3.2 Re-imagining context centric urban flood risk management (FRM): 12
3.3 Introducing a historical case study to allow analysis of context based decision making 14
3.4 Case study analysis with respect to context sensitivity 16
3.5 Discussion - toward a context sensitive approaches 17
3.6 Conclusions 18

Chapter 4: Stakeholder Engagement Process Developed by the Watsum Programme (REC Team) 21

4.1 Introduction 21
4.2 Why analyse stakeholders? 21
4.3 A methodology for stakeholder analysis 23

Chapter 5: Water, Stakeholders and the Rosemont Mine Proposal (O. King) 32

5.1 20th March 2008, Patagonia High School, Santa Cruz County, Arizona, United States. 32
5.2 Water, climate change and politics 35
5.4 Questioning institutionalised participation 39
5.5 'Participatory' impact assessment: toward a 'draft' decision 42
5.6 Stakeholder mapping 55
5.7 The NEPA public scoping and comment period 55

Chapter 6 Water Governance and Participation in the UK: Disaster Management and Decision Making: a case study of the Somerset Levels Flooding 2013 (K. Burton and R. Newman) 75

6.1 Introduction 75
6.2 Case study: Somerset Levels 79
6.3 Learning from the Levels 81
6.4 Concluding comments 82

Chapter 7: UK Water Governance and Participation: Virtual Participation: a social media analysis of Balcombe anti-fracking protests (K. Burton) 84

7.1 Introduction 84
7.2 Toxic energy: new terrains of resistance 85
7.3 Balcombe case study 88

Chapter 8: Report on July 2015 Seminar "Re-imagining Urban Waters" 92
8.1 Introduction 92
8.2 Emerging themes 93
8.3 Workshop insights 94
8.4 Re-imagining urban water: concluding reflections 96
Chapter 9: Public Consultation around the Water Act 2014 (C. Staddon, L. De Souza) 99
9.1 The Water Act 2014: contributions of the public to drafting the Act 99
9.2 Regulatory Structure for the Water Sector in the UK and Europe 99
9.3 The Original Water Bill, as introduced to Parliament in June 2013 104
9.4 The Water Bill's Passage Through Parliament: June 2013 – April 2014 107
9.5 Concluding Comments on the Role of Stakeholders in Drafting Major Water Legislation in the UK 115

Chapter 1: Introduction (C. Staddon & L. De Souza)

Sustainable and secure water management is essential for the future of our societies, for ecosystem functioning and for the quality of our lives. Sustainable water involves multiple disciplinary sensitivities including the impact of climate change, urban water management, risk conditions and security, water quality, governance approaches (participation), water supply alternatives (storm, reclaimed), to the role of water in food provision and agriculture, renewable energy sources and participation by multiple stakeholders. The "big idea" underlying the SWAN project is that "an interdisciplinary approach that combines physical and social sciences is the first step toward globally and comprehensively addressing water and sustainability" is critical to achieving sustainable and secure water.

A key element of sustainable and secure water is "participation". As Owen King (whose PhD was funded through SWAN) points out, participation has since at least the 1992 Dublin Principles been placed at the centre of the desired governance approaches. But what is "participation", how can it be achieved and what happens when it goes wrong? These are questions addressed by the 8 chapters in this Handbook. Each of the chapters approaches "participation" in a different way: sometimes theoretically (e.g. Chapters 2 and 3), sometimes formally (e.g. Chapter 4, 5 and 9) and sometimes in terms what happens when things go wrong (e.g. Chapter 7).

Chapter 8 is somewhat different, presenting summary results from a workshop held in Bristol in July 2015 on the subject of "Reimagining Urban Water". Here invited stakeholders affirmed the critical important of participation as crucial for creating such social innovations at the local level. They acknowledged that a barrier to making change at local level is the ability to engage people in debates and action about water management. The perception was that most people don't think about urban water management until there is a problem – scarcity or excess – at which point the participation of people is likely to become focussed upon quick fix solutions to the immediate issues.

This is precisely the challenge of stakeholder engagement – how can we theorise, organise and implement stakeholder engagement in water management decision-making so that our engagement becomes about celebrating and disseminating success rather than merely replicating the weary round of "learning the lessons" when things go wrong. The chapters in this handbook begin to show the way forward.

Chapter 2: Theoretical and conceptual framework (O. King & C. Staddon)

2.1 Introduction

In order to understand the political implications of public engagement in NEPA this Thesis is situated within recent debates in human geography and beyond related to understandings of the 'democratic' and 'the political' (Barnett, 2012; Braun and Whatmore, 2010; Dikeç, 2005, 2012; Marres, 2012; Staheli, 2009; Stokke, 2005; Swyngedouw, 2010). Prominent among these debates are understandings of an established 'post-political condition' where politics proper has been foreclosed through a consensual order replacing antagonism and ideological struggle (Swyngedouw, 2007). Such configurations, it is argued, represent an anti-democratic or 'post-democratic' technocracy (Swyngedouw, 2010). There is an implicit assumption in such accounts that the 'opening up' of more issues to democratic accountability has failed to consider ways in which issues can be 'closed down'.

The notion of consensus in policy and decision-making is associated with the implicitly normative concept of 'deliberative democracy' which has emerged within democratic theory since the 1990s. This describes an external context for this political 'will formation' which is "egalitarian, open, encouraging, and challenging […] in which individuals are free to rationally consider, knowing and pondering the points of view of others (with whom they may end up agreeing or disagreeing), which beliefs and preferences they choose to form and adopt, and why" (Offe 2011). The adoption of deliberative approaches has been attributed largely to the insights of Jurgen Habermas, for whom the 'ideal speech situation' is central to his 'theory of communicative action.'

Consensual framings have met with critical assessment in terms of the potential exclusion of oppositional voices and a turn towards radical ideas of the political and the democratic has centred around a group of post-structural philosophers. For the likes of Slavoj Žižek and Jacques Rancière, (among others), "the essence of politics is dissensus" (Rancière 2010: 38). Drawing on Rancière, Chantal Mouffe reasons that this forced blindness to antagonism is informed by an idealised belief in the "original innocence" (ibid: 2) of human beings, with violence and hostility seen as archaic and to be eliminated. She argues that total freedom and full democracy are not an achievable end state, and that the denial of conflict is a denial of politics itself. Mouffe envisages the creation of a "vibrant public sphere of contestation" between plural collective identities; in which antagonism is sublimated by 'agonism' and political opponents regarded as legitimate adversaries, with whom "conflictual consensus[es]" can be achieved, rather than enemies to be destroyed (Mouffe 1999, Mouffe 2005).

Elsewhere, the field of planning has sought to reflect on the implications of the post-political condition and the possibilities for 'agonistic' approaches to democratising decisions (Tewdwr-Jones and Allmendinger 1998, Haughton *et al.* 2013). Such empirically grounded

approaches have focussed on the extent to which post-politics is achieved in particular policy settings (Allmendinger and Haughton, 2012). Here, the focus is on how specific policies foreclose upon political space in certain settings. This places an emphasis on the *where* of politics in relation to particular policy landscapes and policy reforms. Allmendinger and Haughton (2012) use the notion of the 'displacement' of politics to focus on how the locations and political methods utilised by different groups relate to particular planning policy approaches. Similarly, Cowell and Owens (2006) focus on the 'political opportunities' for activist groups in relation to public enquiries.

Cox (1998) highlighted how a major advance in political geography has been to consider the question of scale from a social constructivist standpoint. For him, understanding the politics of scale is helped by drawing a distinction between spaces of dependence and spaces of engagement. The former, he argues, are defined by

> those more-or-less localized social relations upon which we depend for the realization of essential interests and for which there are no substitutes elsewhere; they define place-specific conditions for our material well-being and our sense of significance. These spaces are inserted in broader sets of relationships of a more global character and these constantly threaten to undermine or dissolve them (Cox 1998: 2).

People, firms, state agencies, etc., organise in order to secure the conditions for the continued existence of their spaces of dependence. However, to achieve this they have to engage with other centres of social power: local government, non-governmental organisations, the press, for example. In so doing they construct a different form of space which Cox calls a space of engagement: "the space in which the politics of securing a space of dependence unfolds" (ibid: 2).

2.2 Deliberative Democracy

Public participation has received considerable critical attention in relation to its function as either democratising or legitimising governance. Indeed, engagement with democratic theory in human geography and related spatial disciplines such as urban planning can be situated in terms of a contrast between theories of deliberative democracy on the one hand, and post-structuralist theories of radical democracy and agonistic pluralism on the other. Herein, the consensual orientations of deliberative democrats, for whom the work of Jürgen Habermas is foundational, are confronted by the perspectives of those for whom 'power', 'difference' and 'violence' (personified in turn by Michel Foucault, Jacques Derrida and Giorgio Agamben) are ineradicable aspects of social life (Barnett 2012). It is this juxtaposition, which the following literature review will expand upon, and the quest for more just approaches to environmental decision-making that this research seeks to engage with.

Habermas' (Habermas 1996) theory of 'communicative action' emerged from a critique of the instrumentalization he and a number of other Marxist scholars saw as arising from the enlightenment period. This new age had given birth to the intellectual inheritance now

labelled ‘modernity’, within which a new emphasis was given to the idea of the individual as autonomous of religious and governing structures, with capacities for self-reflection, and with rights which should be defended. Meanwhile, the new materialist, objective, positivist focus of scientific enquiry, combined with economic organisation, began to release innovative forces of technological invention which would lead to the industrial revolution (Healey 1997). But behind these new liberal structures lay an instrumental reasoning, a linking of ends to means and evidence to conclusions, and the notion that all agents reason according to some abstract standard of rationality. In the construction of “a ‘free market’ and a ‘civil society’ in which a plurality of groups, organisations and individuals interact in liberty” (Rose and Miller 1992), what emerged for many was the translation of these ideas into governance institutions which have produced new vanguards of power and new ways to make people more unequal (Healey 1997).

For Habermas, the rules of rationality are shaped by participation in a community and as such may change if context-altering events come about (Sultana and Loftus 2012a). Habermas’s communicative approach takes speech – and specifically conversation – as a model of a social activity which is intrinsically meaningful to those who take part in it (Habermas 1981). For him, the task of politics is to create the conditions in which no party to the social dialogue can exploit or silence the other, since each person has equal access to the conversation. This ‘deliberative democracy’ gives voice to each citizen in what Habermas describes as an “ideal speech situation” (Habermas 1981, Habermas 1996) designed to guarantee discursive equality, freedom and fair play. In this formulation, no decisions are made without all voices having been heard. Thus, democratic legitimacy is achieved by the collective and critical evaluation of the institutions and the norms of society through discursive practice (White 1995).

Over the course of the 1990’s, the terms 'communicative planning' (Forester 1989), 'argumentative planning' (Forester 1993), 'planning through debate' , 'inclusionary discourse' (Healey 1992), and 'collaborative planning' (Healey 1997) were employed to describe and transform the concepts of Habermas into planning philosophy. In the latter, Healey argues that the giving of rights to be heard through inclusive procedures which foster mutual learning about the concerns of others must be met with responsibility on the part of the participants to listen, give respect and learn. She argues for an approach that maps, organises and builds on the fine detail of the diversity of social relationships, networks and nodes that make up complex local economies and which respect the totality of interests in a given issue. Strategy is developed through an iterative process of stakeholder mapping, assembling like-minded stakeholders into fora within which understandings about an issue can be developed, debating substantive issues in open arenas of discussion, and giving good, clear, open reasons for taking one course of action rather than another (Healey 1997).

2.3 Post-politics

For an increasing number of commentators, the need to engage the public more directly in policy development and decision-making and planning has become an "increasingly hegemonic" (Bickerstaff and Walker 2005) discourse, a "pervasive rhetoric" (ibid: 2123), and even "an act of faith" (Cleaver 1999). In this view, the concepts underlying participatory approaches to development should be subject to greater critical analysis. More specifically, such arguments have focused on examples from the developing world to contend that it is vital to pay closer attention to who is participating, in what, and for whose benefit (Cornwall 2008). In relating the experience of those tasked with implementing these approaches, Bill Cooke and Uma Kothari go so far as to state the case for participation as a "new tyranny" which facilitates the illegitimate and unjust exercise of power (Cooke and Kothari 2001).

More recently, Goldin (Goldin 2013) summarises the criticisms of participation into 'four fatal flaws'. Firstly, participation is enshrined in the theory of decentralisation and devolution through shifting the power from the state to the people. However, in many cases the state fails to commit the required resources (Goldin 2003, Goldin 2010). Secondly, participation is increasingly being driven by supply rather than demand, as policymakers require policies to be generated from the people. Additionally, participatory processes may be used as a method of coercion to legitimise a predetermined agenda (Cooke and Kothari 2001). Thirdly, more often than not participation is left as a vague term, resulting in those creating and involved in participatory research drawing different meanings as to what the process and outcomes should be (Goldin 2003, Goldin 2010). Finally, participatory processes tend to focus on the form rather than the substance due to the current dominant discourses of participation, which regularly are slow to adapt to suitable forms for use in other projects. Harris *et al*. (Harris *et al.* 2013) describe this as a 'checklist' approach that participatory projects are expected to conform to, resulting in an overemphasis on the execution of the participatory techniques, making participatory processes feel like 'managerial exercises' (Cleaver 2001).

There are many examples in which genuine participation has not been achieved (Cooke and Kothari 2001). For example, Kadirbeyoğlu and Kurtiç (Kadirbeyoğlu and Kurtiç 2013) studied participation in water governance in Turkey, and identified that in the case of irrigation schemes and water management, genuine participation was not being achieved. Instead, the participatory processes were helping the commoditisation and privatisation of irrigation structures in Turkey. Broad *et al*. (Broad *et al.* 2007) highlighted how the Brazilian government undermined the participatory decision-making process in water governance by giving the Government's Water Council the power to overrule decisions. This resulted in the credibility of the whole process coming into question, as well as declining engagement by stakeholders.

A common theme in these discussions is a critique of the rationalist model of decision-making similar to that behind the Habermasian development of collaborative planning theory. In EIA circles, there has been the suggestion that mainstream impact assessment has not progressed from its inception in NEPA. NEPA's strong technical emphasis, involving planners and other professionals acting as neutral processors of information, producing independent evaluations of the alternatives to be provided to decision-makers (Lawrence

2000). According to this perspective, what is required is the development of models that embrace new thinking about planning and decision-making processes in their wider social, cultural, political and economic contexts (Bartlett and Kurian 1999). In this regard, it is interesting to note that in 2007 the Council on Environmental Quality, which oversees the NEPA process in the United States, released a report on collaboration in NEPA processes and a document entitled 'A Citizen's Guide to the NEPA: Having Your Voice Heard' (CEQ 2007a, CEQ 2007b).

A good deal of critical analysis has centred on the Habermasian principles that underpin much of the upsurge of participatory effort. Critiques have increasingly turned to Michel Foucault's perspective on how social categories are normalised and temporarily defined with certain meanings through the effects of power (Del Casino Jr 2009). Strategies of 'normalisation' were of abiding interest to Foucault. He extended them beyond his study of prisons in Discipline and Punish, to the broader study of systems of 'societal government' – that is the 'normalization' of behaviour at the social scale (Foucault 1977). Foucault saw discourses as diffuse, anonymous, and constitutive of the phenomena they have often been purported to represent. Power is thus not something that is wielded by institutions such as those of the state. Rather, it "emanates through them in a 'capillary' fashion as multiple discourses do their work on people's minds and bodies" (Castree 2005). For Foucault, power is thus 'productive' in that it 'normalizes' the kinds of conforming identities and modes of behaviour that are commensurate with dominant discourses (ibid).

On this view, deliberate democratic framings pay insufficient attention to the notion that participation (or discourse) is constrained by, hides and at the same time perpetuates certain sets of power relations. Developing his perspective on 'normalization', Foucault (Foucault 1979) used the term "governmentality" to draw attention to the nature of modern, liberal governments in producing certain types of citizen behaviours. This is apparent not in the form of direct coercion or repression, but in ensuring the "conduct of conduct" through a plurality of entities including the media, education, expert institutions and political authorities in arrangements of governance 'beyond-the-state' at sub-national, national and supranational scales. Within these structures of institutional policy-making, administration and implementation the roles of science, technology and private economic actors are predominant (Murdoch 2005).

Foucault (Foucault 1979) used the term "governmentality" to draw attention to the ways of thinking and acting embodied in certain attempts to know and govern the wealth, health and happiness of populations. This, he argued, is manifested by the emergence of a plurality of entities in arrangements of governance 'beyond-the-state' at sub-national, national and supranational scales. As well as NEPA and its administrative body, the CEQ, active examples include urban development bodies, public-private partnerships, the European Union, and the World Trade Organization or G-20 meetings. Within these arrangements of institutional policy-making, administration and implementation the roles of science, technology and private economic actors are predominant. This process is further accompanied by the extension of the regulatory and interventionist powers of authorities through the through the

inclusion of what Beck (Beck 1997) called "unauthorized actors" in arrangements of participatory governance. Implicit here is a critique of the equal political right of all 'citizens' to participate in their government as a cornerstone and fundamental function of democratic theory (Kaika 2003).

A number of authors have stressed how 'deliberative' democratic approaches, which are characteristic of the dominant neo-liberal ideology, are overwhelmingly consensual, fail to recognise the plurality and incommensurability of basic values, and foreclose upon all space for oppositional critique (Waterstone 2010). This radical view frames deliberative democracy as maintaining the universalising, rationalist and idealist precepts of modernism that it seeks to depart from. It adopts the post-structural argument in maintaining that it is the pervasiveness of simplified models of human behaviour, and the impossibility of watertight scientific prediction ('positivism') in the face of high levels of 'real-world' uncertainty and complexity, to which we can attribute the deficit of adequate action on environmental issues such as climate change. Such a perspective opens up the question of whether this inaction occurs despite, or is symptomatic of the deliberative democratic mode of governance (Machin 2013).

This idea of a 'post-political' condition, and the related concept of post-democracy, was first discussed by Ranciére (Rancière 1995, Rancière 2004). It emerged in the context of geographical studies and spatial theory by Dikec (2002, 2005), spatial planning (Allmendinger and Haughton 2012), urban politics (Dikec¸ 2002, Paddison 2009, Swyngedouw 2009, Oosterlynck and Swyngedouw 2010) and was applied to global climate change by Eric Swyngedouw (2007, 2010, 2011). For Swyngedouw, deliberative processes represent a short-circuiting of the political. Declarations of permanent states of emergency and impending environmental catastrophe, and legitimised by science which is presumed impartial. Consequently the agonistic confrontations of democratic politics are marginalised, the political vacuum filled by "para-political inclusion of different opinions on anything imaginable (as long as it does not question fundamentally the existing state of the neoliberal political economic configuration) in arrangements of impotent participation and consensual 'good' techno-managerial governance" (Swyngedouw 2011, Swyngedouw 2005, Rosanvallon 2008, Brown 2005). Thus while using the language of decentralised, democratic decision-making, participation can conversely be seen as allowing the neo-liberal capitalist consensus to continue.

However, with this perspective appearing to point toward political 'exodus', insurrection and disruption of the socio-spatial order (Mouffe 2013), the question arises of how to institute decision-making within formal systems whilst accepting that the satisfaction of all needs is impossible. Like Swyngedouw, Chantal Mouffe (Mouffe 1999, Mouffe 2005) contends that the ineradicable dimension of antagonism has been foreclosed by discursive framings of 'deliberative consensus-building'. For Mouffe this forced blindness to antagonism is informed by an idealised belief in the 'original innocence' of human beings, with violence and hostility seen as archaic and to be eliminated. She argues that total freedom and full democracy are not an achievable 'end state', and that the denying of conflict is a denial of

politics itself. Mouffe envisages the creation of a "vibrant public sphere of contestation" between plural collective identities; in which antagonism is sublimated by 'agonism' and in which political opponents are regarded as legitimate adversaries with whom 'conflictual consensus[es]' can be achieved, rather than enemies to be destroyed. Such a perspective can be situated alongside that of Foucault in the way he viewed human affairs as being shaped by 'power'. In turn, Jacques Derrida (Derrida 1982) and Giorgio Agemben (Agamben 2005) have also argued that 'difference' and 'violence' are ineradicable dimensions of social life.

Following in the same vein as the post-structuralist critique, work in the field of critical planning theory has challenged the idealism of communicative rationality and questioned the emancipatory achievements and potential of participatory approaches. McGuirk (McGuirk 2001) situates such an analysis in a case study of planning practice in Newcastle, New South Wales, Australia, where planners sought to democratise practice in line with the normative dimensions that have informed the discipline following Habermas. McGuirk explores two lines of critique. Firstly, communicative theoretical approaches underestimate the challenges abstracting institutional actors "from their positioning in a nexus of power knowledge and rationality which validates expert forms of knowing/reasoning/valuing" (ibid: 195), and placing them into a form of alternative rationality. Secondly, "[a]ctors [engaged in the planning process] did not cease to exercise power on entering deliberative forums; rather the political context in which communicative planning was carried into the argumentation process" (ibid: 204). This context included a prior history of antagonistic engagement between the interests involved; and the strategic and economic element of power in the form of the state development agency. Such a situation resonates strongly with the NEPA case study used for this research.

Aligning her conclusions towards the possibilities of a 'Mouffian' agonistic re-conception of communicative rationality, McGuirk proposes replacing the core concept of rational consensus with the permanence of conflict, inequality, and domination. By resisting the disavowal of the influence of power and its outcomes, space may be created to engage more productively with the political context within which democratising processes take place . As advocated by Mouffe, embracing the conflictual dimension of decision-making suggests a radical move away from the normative focus of Habermas and towards a more political framing (McGuirk 2001). This would involve recognition that collective decision-making "necessarily involves partiality, compromise, and some forms of exclusion in its attention to power relations and its treatment of difference. The key task thus becomes one of identifying where relations of domination are working through planning, and to imagine institutional conditions […] which might limit those relations in politically legitimate ways" (ibid: 214).

Nevertheless, while McGuirk and many other authors question whether the goal of consensus is possible or even desirable in a world of increasing difference (Flyvbjerg 1998, Tewdwr-Jones and Allmendinger 1998, Huxley 2000, Rydin 2003), few have investigated the form an agonistic politics might take. Indeed for many, such 'grand' theorisations of the political, including abstract-declarative condemnations of political practice as manifestations of the post-political consensus, risk adopting intellectual positions which are no less at odds with

those building a politics at the quotidian grassroots (Sultana and Loftus 2012a). In other words, there has been growing contention that there is a lack of engagement between these theories and the nuanced empirical realities of actually existing geographies. More specifically, there is a need to confront the theorists with situated accounts of the experience of politics in different contexts (Barnett 2012).

Responding to this call, Spencer (Spencer 2012) discovered that the body of theory on antagonism helped in the illumination of some very specific processes in one very particular location: post 1980's Sri Lanka. Looking at the way in which religion is presented as a privileged space for expressions of community, set apart from the agonistic consequences of the political, he found that people did not "differentiate between 'desirable' (agonistic) and 'undesirable' (antagonistic) registers of the political, as Mouffe tries to do". Spencer's conclusion is a warning not to forget or ignore ''what we might call local normative theory [i.e. that] politics was a source of moral dismay, at once inescapable and undesirable'' (ibid: 730).

There is also the contention that bifurcating and reducing the political to either consensual or antagonistic downplays the generative character of political activity (Barnett 2012, Dikeç 2012, Meyer *et al.* 2012). Some post-structural theorists have insisted that thinking spatially is a productive way of challenging this dualism. Doreen Massey's (Massey 2005) conceptualisation of space as a "dimension of multiplicity" allows for both the consensual and the antagonistic to be co-emergent through the activity of political movements. In this way the political, rather than being primarily either consensual or antagonistic, can be a space in which the views of multiple identifications are legitimised and can shape political action in diverse ways (Featherstone and Korf 2012). Such a spatial approach feeds into the political ecological perspectives discussed in the following section.

2.4 Concluding Comments

A significant part of the challenge in critically thinking about "public participation" involves getting past the institutional drivers and high level statements (e.g. the Dublin Declaration). There is a clear need for critical consideration of not just the normative claims made for greater public participation (nobody ever seems to ask for less!), but also the ways in which certain modalities of participation can be said to enact different ways of thinking about democracy itself. As we have shown, there is a large body of scholarship showing that participation is sometimes used to mask not just its "other" (i.e. non-participation – I will ask your opinion so I can be seen asking it, but then pay no heed to what you tell me) but as part of a different sort of democratic politics. Swyngedouw for example suggests that the post-political problematique follows from the fact that political systems have evolved to become wholly self-referential. In such post-political systems participation serves at best a legitimating function. This is a depressingly dystopian viewpoint; one that suggests that there can be no meaningful public engagement that does not involved deconstructing the system itself.

We take the view that we have not yet arrived at Swyngedouw's Orwellian future, so that there are still opportunities for public participation processes to lead to both different end-resolutions and possibly also alterations of the decision process in ways that are more open, more participatory and more democratic. Many of the other chapters in this Handbook explore examples of democratisation through participation in different empirical contexts.

Chapter 3: Reimagining a context sensitive approach to water management (Richard Newman)

3.1 Introduction

Policy makers acknowledge the need to re-think urban flood risk management. The *Living with Water* Report into flood resilience of the future states that 5.2 million homes are at risk of flooding, with a water infrastructure (supply and drainage) that cannot cope with environmental demands (House of Commons 2015). Echoing the findings of the Pitt report (2008), it places an emphasis on increased public understanding of flooding, increased public participation in responding to vulnerability, and the need for localised solutions.

Water management practitioners also responded to the floods of 2013/14, with fifteen of the nation's leading landscape, water, and environmental management bodies calling for 'urgent action' on urban water management; to 'rethink and plan both the natural environment and the built environment of our towns and cities…This must be coherent and adaptable to local circumstances, to allow it to be rolled out countrywide.' (Illman et al, 2014). Within academic research, critical thinking at the intersection of engineering and social science has established the need to address water management as a socio-technical arena; highlighting a necessity for capacity building through social learning and non-structural solutions which incorporate behaviour change across both public and professional spheres (Newman 2011, Ashley et al 2011).

Critically, within this transition is the need to re-consider the concepts of participation, public engagement and stakeholder. Formal public participation within water management is driven by international regulatory frameworks (EU Water Framework Directive 2000) and overseen by the Environment Agency (in England) and local government actors. Current forms of participation have been critiqued as offering a 'panacea' for environmental problems with little meaningful impact on the ground due to embeddedness within the political-economic rationalities of neoliberalism (Swyngedouw 2010). Integrated approaches to Water Management (IWM) and Integrated Flood Management, hailed as offering holistic socio-ecological approaches, have also failed to garner necessary levels of transformation or increased public involvement (Pahl-Wostl 2014). Further barriers exist in the techno-managerial ontological bounding of water management, making both public involvement and interconnected approaches difficult (O'Riordan et al 2011). This bounding is symptomatic of wider techno-managerial entrapment, which acts as a barrier to meaningful participation, impacting on the ability of people and institutions to engage in innovative responses that fall outside of the prevailing rationale.

Technological entrapment is an important but overlooked arena in urban water and FRM, but central to understanding and re-thinking how publics participate in planning urban and sub-urban spaces. Modern urban FRM in the UK has privileged techno-managerial systems, predominantly civil engineering solutions to excess water. Entrapment is the symptom of

socio-technological systems becoming embedded within developmental pathways, which subsequently become difficult to modify, even when deficiencies are recognised. Centralised approaches to water management that were initiated through the Land Drainage Act (LDA) of 1930 are characteristic of 'entrapment', as outlined by Walker (2000). Whilst the LDA was a response to national issues (land-use change), the contemporary urgency to re-imagine human-water relationships within cities requires modes of engagement that cultivate locally informed, socio-ecological solutions.

Entrapment can also refer to concepts in a similar way to technologies. Conceptual entrapment is a variation on technological entrapment where a shared and collective notion risks becoming an essentialism. The shared notion here is the wider outcome of collective scientific knowledge which points toward anthropogenic climate change and its widest sense, a need to do rectify this. Concepts such as sustainability, 'Green', ecological, resilient are all terms that have been adopted to allude to rectification of ACC. The heart of the difficulty is that logically, these concepts cannot be defined, since they rely on a prediction of future socio-ecological states. Undefinability is therefore open to subjectivity, meaning that if convenient to do so, a Government can embed a policy in a concept such as sustainability knowing that ultimately it cannot be challenged.

We argue that the urgency initiates in part at least from the societal separation incurred by concept driven approaches (e.g., sustainability or resilience) which are now becoming understood as being the drivers for maintain the current unsatisfactory status quo in water management.

3.2 Re-imagining context centric urban flood risk management (FRM):

We look to context at the scale of the biosphere as the 'box' in which any decision making process should be regarded. Since human beings can now affect biosphere processes it is necessary to incorporate the conceptualisation of human 'affect' within this box. We look at this affect as a temporal continuum since the events in our past influence our present, which in turn will influence the future. As such the context 'box' comprises any element which effects, or is affected by biospherical process. To assist in the process of acknowledging the elements of context, we propose categories of place, space and histories. For this article we focus on the UK for purposes of analysis, but acknowledge that the focus must eventually be upscaled to global.

Place incorporates the physical, natural and built environment including everything that is physical within the biosphere both man-made and natural, and including all environmental process such as the water cycle etc. space describes the existing fixed and contingent cultural processes. A fixed cultural processes describe (for example) laws, regulations etc and while they are embedded within human activity they are described here as a non-human cultural process. Contingent cultural processes describe the remaining human processes relating directly and specifically to human nature itself such as those relating to emotional intelligence (family, friendships society etc). histories describe the influence of the legacy of

past human activities on today's places and spaces, such as legislation, infrastructure, cultural and religious considerations.

As such a CS approach to water management is one which ultimately aims to balance the capabilities of the biosphere and the local (the needs of the people) i.e., it is specific to the unique characteristics of and the bonds between the planet we inhabit and our collective activities. In gaining a better understanding of the role of human values, concerns, and relationships as shaping responses to vulnerability, more context sensitive flood risk and water management strategies can be adopted. Context sensitivity that takes account of social, ecological and technological complexities can better counter the entrapment within prevailing normative flood management frames that have failed to adapt to changing conditions and, in turn be more responsive to change; more context-centric.

In addressing the need for context sensitive planning and management, we see the need to take both material and non-material considerations of context into account, acknowledging the urban environment as the 'product of distinct place-based relationships; specific geographies, social milieus and inhabitants' (Greenfield 2013). Crucially, this includes a need to investigate the under-acknowledged barriers (psychological and/or systemic) that prevent communities and individuals from fully engaging with localised vulnerability and change. Emotional, affective, and embodied responses, such as place attachment, can be powerful in shaping reactions to vulnerability, sometimes challenging prevailing techno-managerial and economic rationalities and mobilising 'counter-support' through high profile media and social media attention (see Sandover 2014) or shaping transformative material responses.

This was illustrated during the flooding on the Somerset levels in 2014 and in the north of England in January 2016. In 2014 the widespread support from the grass-roots campaign group FLAG (Flooding on the Levels Action Group), whose calls for dredging, prompted an additional £10M government funding to Defra's flood defence budget for the region despite contestation by hydrologists. As New Civil Engineer (2015) explains, "it was a very interesting time…we basically watched as the Prime Minister tore up 20 years of flood risk management (FRM) policy for the Somerset Levels in an instant". This occurred in a well-established context of uncertainty over the technical and ecological efficacy of dredging (Scrase and Sheate 2005). In 2016, events were repeated and now "Even…the Sunday supplements have printed graphics explaining…catchment flood management" (New Civil Engineer February 2016).

The case of FLAG illustrates the importance of 'knowledge controversies' (Whatmore 2009), where uncertainty and a lack of understanding can lead people to uncritically attach themselves to a narrow piece of technical or scientific knowledge, which then circulates as the overarching truth of the situation. Knowledge controversies can skew debates, create fear and disproportionate reactions, but illustrate a high level of public interest in times of crisis. Affective and emotional responses, such as those in the aftermath of the Somerset flooding, are influenced by the psychological 'wellness' of a given community (Butler et al., 2007, Norris et al., 2008) meaning that inappropriate and often destructive responses driven by fear and anger (see Tapsell et al., 2002) can become framed by the general public as appropriate

(see Kimhi & Shamai 2004 and NCDR 2006). As Gibson-Graham (2006) illustrated, emotional and affective registers can also be powerful in promoting public participation which works toward visualising new and more equitable and sustainable relationships between people and place.

More progressive urban water/flood management schemes outside of the UK have involved a higher level of public participation and community ownership. A number of successful urban water management projects in the USA have adopted principles of 'common management'(Grant 2012), where communities are given more control over decision-making and ongoing management of schemes. Public participation is viewed as offering the promise of more sustainable and equitable management and reducing the vulnerability of communities to environmental uncertainties, but present processes fall short of offering the levels of meaningful engagement and social learning (O'Riordan et al 2011). In the UK, processes of public participation have been critiqued as failing to fully engage communities beyond the immediacy of flood events.

Currently, the dominant philosophy of participation is criticised as being a top-down process where experts inform dwellers of a problem and allow them to have a say, but with little actual power to influence outcomes (Cooke and Khotari 2003). From the perspective of the validity of contribution to the participatory approach we adopt here, participants are viewed as having invaluable information [emphasise this – they may have more valuable information than 'experts'] regarding the way in which these spaces are used and how they respond to rainfall including, but not limited to, high water levels, water flow paths and ways in which important structures like drains and overflows behave in flood conditions (see Newman 2011; Defra 2008). This 'lay knowledge' is accumulated through lived, place specific experience, and is comparable, and will often exceed professional expertise and understanding, and as such will clearly manifest as an appropriate voice in urban FRM [and wider water] planning. From the perspective of dwellers in those communities any challenge to inclusion or ignoring of lay knowledge can risk encountering consequences similar to the FLAG example above. This perspective challenges traditional notions of expertise as attributes attached to the professional sphere.

3.3 Introducing a historical case study to allow analysis of context based decision making

The 1930 Land Drainage Act abolished the 'no benefit, no rate' system of funding flood defences which had existed since the Sewers Act 1532, removing the guarantee of protection and replacing it with funding mechanisms capable of supporting large-scale engineering works. The LDA was implemented primarily due to difficulties importing food between World War I and II, making food production a high national priority and providing the momentum for the changes that allowed a return to national food production. This momentum also had a number of unforeseen affects (reported in depth by Scrase and Sheate 2007, and expanded upon by Newman et al.., 2011), including a propensity for technological

and conceptual entrapment, disciplinary and sectoral bounding within conceptualisations of water management (potable, foul, drought, flood etc) including conceptualisations of expertise and participation.

This has led to (see Newman et al., 2016 for full details) a wide and disparate set of actors in water management in England, decision making tends to be based only upon scientific data and repeatable case studies only, there is difficulty acknowledging the efficacy of multiple uses, amenity, liveability, reversibility and benefits of 'solutions' due to the dominant cost: benefit approach. Further, commercial advantage influences water management decisions since infrastructure is a good investment, pipe based solutions and big infrastructure projects look good on balance sheets. The perception of developers that stormwater utility will result in loss of revenue is also allowed to permeate decision making. Interest in 'innovations' among professionals and authorities is often contingent on the 'enlightened-ness' of individual(s).

While this illustrates the importance of understanding the effects of centralisation of infrastructure on the appropriateness of the response paradigm (please see forthcoming Newman and Burton 2016 which focuses on this), this article is concerned with the magnitude of the momentum that the LDA 1930 caused. We propose conceptualising this momentum in terms of balance with respect to anthropogenic activities with respect to the limits of earth's biosphere. As such we introduce the concept of entropy to describe the state of balance between context and paradigm, where low entropy represents activities which do not reflect the context in which those activities are taking place. Figure 1 illustrates conceptually, the change in entropy that occurred due to the inception of the LDA 1930 where 'x' illustrates the magnitude of this imbalance.

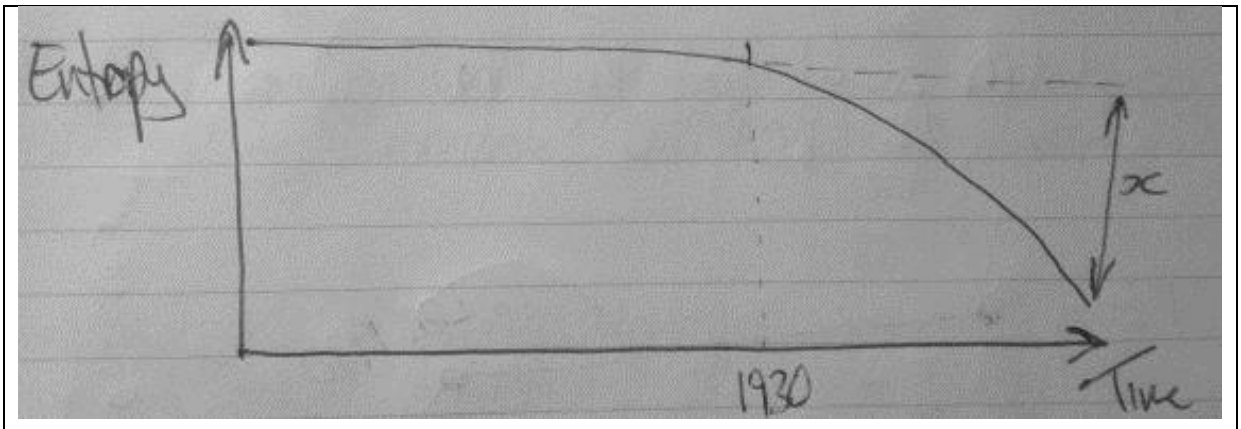


Figure 1 Conceptualisation of entropy representing the imbalance of the water management paradigm from today's context

3.4 Case study analysis with respect to context sensitivity

The LDA 1930 was implemented due to the 1930 context (Table 1, row 1) and as outlined above, the low entropy state of UK water management has been largely dictated by the 1930 LDA. This section explores the decision making process in 1930 to see if it could have been done differently, and hence avoid reducing the entropy of today's water management. The purpose of this is to illuminate how context relates to decision making in light of the effect on the overall state of entropy to gather learning for current and future decisions.

Table 1 maps the 1930 context to outline the pertinent aspects of that snapshot in time with respect to formulation of the LDA 1930. Row 1 Table 1 illustrates the elements of context which would have been known to the actors in 1930. Since this is a historical event it is also possible to map the future influences on context that the LDA 1930 had. It is necessary to split the future elements into known unknowns (Table 1 row 2) since some actors at the time would have had some awareness of potential future frictions (see Sheil 2002). The remainder of the context elements are designated unknown unknowns (Table 1 row 3) since it is highly unlikely that the actors could have predicted these elements.

1. Known Knowns (KK)
    - Influence of World War I on national food production (Scrase and Sheate 2007)
    - Stationary climate (Milly et al., 2008)
    - Global ecological stability
    - Social stability
    - Situation with respect to technology/ industrialisation etc
2. Known (or suspected) Unknowns (KU) (see Sheil 2002)
    - Influences of large scale drainage works
    - Future trade/ economic circumstances
    - Micro support for drainage difficult
    - Those upstream do not benefit
    - Exchequer money seen as gift to landowners
3. Unknown Unknowns (UU)
    - Climate change
    - Urbanisation
    - Digital revolution
    - Impacts of centralised, or exchequer funded infrastructure systems

Table 1 outlining the context around the implementation of the LDA 1930, from today's perspective

It is clear from Table 1 that the influence of WW1 on national food production is conceptually straightforward enough to establish a need to alter the existing funding mechanisms for land drainage infrastructure in attempt to rectify the problem: it was a national response to a national issue, in addition it also relieved unemployment.

In addition, it is conceivable that the other characteristics of context (KK) would not present themselves as barriers to that. Awareness of the possible detrimental influences of Known Unknowns existed at the time but apparently did not gain enough traction to manifest as barriers to the LDA 1930 (see Sheil 2002).

What is clear from the Table 1 is that the most significant influence on today's context are the UU and UKs respectively. This is significant since the implications are that (in this instance at least) it is the aspects that the players at the time could not possibly have been aware of that ended up being most detrimental on the status quo today. For example; it is highly improbable that the actors in 1930 would have been able to predict that the intensive drainage activities would cause such significant damage to the ecological balance of rivers (RSPB 1970), hence drawing in the RSPB as stakeholders.

3.5 Discussion - toward a context sensitive approaches

This article has explored the consequences of contemporary water management decision making that fails to acknowledge context using a historical case study, concluding that while the LDA 1930 was appropriate based on the available knowledge in 1930, (Table 1, row 1), it was less appropriate based on what we know today (Table 1 rows 2 and 3), and that it is the unknowns (from the 1930s perspective) that are responsible for our low entropy water management paradigm today. This presents difficulties for contemporary water management since it is likely we face the same situation now under climate change conditions. The following discussion explores ways in which this learning could help inform, and therefore improve future decision making.

The analysis of the case study in this article indicates that it would be problematic, but advantageous to incorporate uncertainty (UUs & KUs) into decision making. What can be learned from this analysis? The presence, and potential effects of the Known Unknowns (Table 1 row 2) were being contemplated by some of the actors at the time as reported by Sheil (2002). Had there existed a different culture of engagement then it is possible that this information could have been accessed and then formed part of the wider dialogue.

Outlined at the beginning of this article was the notion that participation and engagement has become meaningless and is simply a 'neoliberal veneer' which has little influence on the dialogue. Alternatively, focus on the nature and role of participation from a problem focused as opposed to a political perspective reveals that the ability to access as wide a variety of information as possible will allow the most informed decisions. There are clearly implications for the complexity of the process under these arrangements.

This perspective provides a challenge to our current conceptualisation of participation and engagement since under the proposed arrangement, the process becomes biased toward information exchanges (a 'horizontal' process) rather than experts distributing knowledge ('top down' process). The implications here are that there is advantage in reconceptualising the current scarcity-dominated understanding of knowledge-expertise and its mode of

dissemination which is protected by academics and practitioners which subsequently allow that understanding to underpin financial exchanges.

There are also implications for the notion of stakeholder; the current conceptualisation of stakeholder has a contemporary temporal association, i.e., we tend to look to groups that have a contemporary stake, rather than who might have a stake during the design life of the 'solution'.

There are also implications for social research methods; if the notion of stakeholder needs to be loosened then it is appropriate for the ethics and methodologies around social engagements to follow suit, i.e., it becomes less appropriate to predefine groups of individuals to engage defined by their demographic or ethnographic since we cannot be certain who it in we need to engage.

3.6 Conclusions

An implication here is that flood management is not only about 'solutions', but about why it is so difficult to get people engaged in the problem, presenting a different take on what flood management problems actually are, i.e, it may be that main problem are the barriers to people acknowledging our reality and adapting to it, rather the existence of adaptation modes (solutions) themselves.

Indeed, it is arguable that it is only recently that it has become appropriate to do this since only recently have historical weather patterns become unreliable predictors of future weather events (see Milly et al 2008) and that we have concluded that this results from anthropogenic activities.

Uncertainty does not tell you what to do, but it can help you know what not to do. For example, decision making under uncertainty might have impact on resources commitment and reversibility.

To facilitate this, we argue that what is perceived as radical think must become normal. The implications here may be that we need to loosen our grip on the need to define concepts so rigorously as that itself may not be context appropriate.

This paper has demonstrated that contemporary urban stormwater management is not wholly compatible with today's challenges, opportunities and hence, context; i.e. it lacks clarity regarding what is the best or more sustainable practice. By better acknowledging the contexts and developing framing and discourses based on the appropriate contexts (physical, locational context and framing and discourse context) there can be a more effective consensual framing of the opportunities arising from new ways of managing stormwater.

From the perspective of the actors in the 1930's context of flood management in England, it is clear that there was no possibility that they could have predicted the changes in context that have occurred since that time (e.g. climate change, ecological instability). As such it would

not have been apparent that the entrapment and philosophical compartmentalisation that arose partly because of the decisions made in 1930 (the implementation of the Land Drainage Act) would contribute to difficulties for the contemporary actors involved in stormwater management in being able to adapt to the new context to incorporate the required changes into the procedures for stormwater management. Similarly, the 1930s actors could not know that the decisions made in then would contribute to the current exclusion (or de-legitimisation) of other important actors with different discourses from contemporary stormwater practice.

The current difficulty facing urban stormwater management practices is that there are varied and often incompatible discourses vying for space within the overall urban stormwater design dialogue. Traditional urban stormwater management actors, i.e. those with the responsibility for delivering urban stormwater designs, are constrained to delivering solutions based on empirical evidence, compounded by political imperatives to deliver reliable solutions at known costs (Brown et al, 2011). 'New' actors with their accompanying discourses present problems because on the one hand their discourses are appropriate for the contemporary urban stormwater design dialogue (i.e., based on climate change and ecological instability etc.), but on the other, there is very little evidence to suggest that 'softer' approaches (SuDS) based on these dialogues are any more sustainable than the existing approaches.

Today's discourses tend toward reliance on 'known' approaches. While there is clearly efficacy in this 'known' approach for aspects of the problems (e.g., managing flooding problems may always involve some element of engineering solution) problems (or opportunities) of amenity in this context are relatively new and are unlikely to be solved using a predominantly technocratic approach.

In addition, this shift in context has brought into the discourse a new group of actors who see themselves as appropriate within the urban stormwater design dialogue; i.e., those who frame their discourses based on acknowledgment of the shift in context (climate change, ecological instability etc.) and whose discourses are based on delivery of opportunity, sustainability, multi-value and amenity etc. Difficulties incorporating these various actors, both traditional and newly arrived, and their seemingly incompatible discourses helps explain why the transition to 'more sustainable' urban stormwater design is problematic.

An 'active learning' approach (Ashley et al, 2011) in which a 'try it and see' philosophy is adopted may provide a middle path on which to address this dilemma. This type of approach encourages implementation of a variety of (often) smaller measures based upon an active learning environment in which actor expertise is integrated using the learning alliance platform. A variety of measures should be developed and tested in a variety of situations; those that 'work' will be kept and experience gained will inform subsequent dialogues, those that don't will be discarded. Over the long term costs will be reduced based on the likelihood of increased probability of 'successes', and experienced gained from real attempts at adaptation may help dissolve the current tendency toward maintaining the status quo. Whilst scientific evidence, via pilot schemes and research is needed, just as pressing is the need to address the resistance expressed in professional discourse. This can be tackled by recognising

the differing contexts in which the participants act and form their views and seeking ways to harmonise the discourse into a shared vision for action. Learning alliances offer an opportunity for all of the stakeholders to develop shared learning together and find new ways of innovating for more sustainable stormwater management.

What is important for effecting the transition in stormwater practice are: stakeholder analysis and a practical platform such as learning alliances (e.g. Ashley et al, 2012a) upon which contextual aspects and a shared, or legitimised discourse can be incorporated into the design process. Stakeholder analysis, based on stakeholder theory (e.g. Freeman 1984, Boutilier 2009, Steurer 2006, Donaldson and Preston 1995) can be used to help to balance stakeholder interaction in decision making by accounting for and making adjustments based on stakeholder typology. A practical platform for incorporation of the aspects is a learning alliance, defined in the Switch project as 'a group of individuals or organisations with a shared interest in innovation and the scaling-up of innovation, in a topic of mutual interest' (Butterworth et al, 2011). In principle, a LA creates a safe environment for stakeholder learning within a context which helps to dissolve context inappropriate power imbalances between stakeholders and giving respect and legitimacy to all opinions (Chaitin, 2003). The aim therefore of a learning alliance is to arrive at consensus based on good reasoning and rational criticism (Habermas 1987).

Acknowledgments

- This was submitted as evidence to the House of Lords National Policy for the Built Environment Committee on 6th October 2010.
- This forms part of the ESRC flood ecologies bid (submitted December 2015)

References

Ashley, R. M., Cettner, A., Viklander, M., Walker, L., Sharp, L., Westling, E., 2011. Overcoming barriers in the transition from piped to alternative drainage systems. Sustainability transitions conference. Lund. June.

Chapter 4: Stakeholder Engagement Process Developed by the Watsum Programme (REC Team)

4.1 Introduction

The LWSAP process requires a systematic initial assessment of stakeholders in each beneficiary country in order to identify and prioritise stakeholders for inclusion in the action planning process. In order to do this, project teams within each country need to carry out a stakeholder analysis, and this chapter of the training manual provides a detailed methodology for doing so.

After giving a clear definition of stakeholders and stakeholder analysis, and providing illustrative examples of stakeholders, the present chapter continues with a detailed and replicable method for conducting a stakeholder analysis in each beneficiary country, including templates that can be used to systematically collect and organise information about relevant stakeholders.

4.2 Why analyse stakeholders?

It may seem self-evident that all the relevant stakeholders should be identified prior to any attempt to engage. However, it is surprising how often this step is omitted in projects that need to work with stakeholders. In many cases this omission can significantly compromise the success of a project. For example, the project may miss crucial information that could have been provided, had the project team engaged with the right people. In cases where very few stakeholders are identified or engaged with, there is a lack of ownership of the project goals, which can sometimes turn into opposition. In cases where a single important stakeholder has been omitted from the process, that organisation may challenge the legitimacy of the work and undermine the credibility of

A **stakeholder** is any person, organisation or group that is affected by or who can affect a decision, action or issue — for example water management. Rather than just identifying "beneficiaries", a stakeholder analysis seeks to identify people, organisations or groups that may be either positively or negatively affected by water security action planning. In addition to identifying those affected by the planning process, stakeholder analysis seeks also to identify those who might affect the outcome of the planning process, either positively or negatively. These stakeholders might not directly benefit from or be negatively affected by water management, but they may have the power to enable or block the planning process and/or the desired outcomes of that process.

the wider project.

Stakeholder analysis helps solve these problems by:

- identifying who has a stake in the work you are doing;
- categorising and prioritising stakeholders with whom you need to invest the most time; and
- identifying (and preparing you for) relationships between stakeholders (whether conflicts or alliances).

A successful stakeholder analysis will help you:

- **Start talking early to the right people**. This will help you to identify any major barriers to your work and to identify the people who can help you overcome those barriers. There is evidence that projects that engage with stakeholders early engender a greater sense of ownership among stakeholders, who are then more likely to engage throughout the lifetime of the project and implement the recommendations of the work you have done together.
- **Know who you need to talk to.** Don't just open your address book or talk to the "usual suspects". Find out who might lose out, as well as who will benefit. Find out who is typically marginalised and left out, as well as the people and organisations that everyone knows and trusts. Those who are left out are usually the first to question and criticise work over which they feel no sense of ownership.
- **Know what they are interested in.** You need to have a clear idea of the decision or issue at stake before you can effectively identify stakeholders. However, that does not mean that the decision or issue should be set in stone. As you begin to identify stakeholders, you will find out more about the nature of their stake in the decision or issue, and you may need to broaden your view of what is included in your work if everyone is to feel that their interests are included.
- **Find out who has the most influence to help or hinder your work.** Some people, organisations or groups are more powerful than others. If there are highly influential stakeholders who are opposed to your project, then you need to know who they are so that you can develop an influencing strategy to win their support. If there are those who support your work, then it is also important to know who these stakeholders are, so you can join forces with them to work more effectively. There will be some influential stakeholders who have relatively little interest in your work. They may, for example, have a broad remit that includes many issues that are more important and urgent to them than the specific remit of your work. Influential individuals are often busy and inaccessible, and you may need to spend significant time and energy getting their attention before you are able to access their help.
- **Find out who is disempowered and marginalised.** Stakeholder analysis is often used to prioritise more influential stakeholders for engagement. Although time and resources may be limited, it is important not to use stakeholder analysis as a tool to further marginalise groups that are already disempowered and ignored. Many of these

groups may have a significant interest in water resources management, but very little influence over those resources.

- **Identify key relationships.** This will help you to avoid exacerbating conflicts and can create alliances that empower marginalised groups. It can be incredibly valuable to know in advance about conflicts between individuals, organisations or groups, so that you can avoid inflaming conflict and, where possible, resolve disputes. Through stakeholder analysis it can sometimes become possible to create alliances between disempowered groups and those with more power who share similar interests and goals, thereby empowering previously marginalised groups.

4.3 A methodology for stakeholder analysis

The following methodology has been developed for application by project teams across each of the municipalities and delegations involved in the WATER SUM project. The following steps are designed to be straightforward and replicable, but this does not mean that they should be applied inflexibly. Local circumstances may require that the steps be adapted in order to ensure that the stakeholder analysis is a tool that brings stakeholders together and facilitates action planning.

1. **Initial planning team identifies two to four cross-cutting stakeholders in each municipality/delegation.** The key criterion for selection is the stakeholder's breadth of interest in the issue. They should be familiar with the widest possible range of organisations that might have a stake in the issue (e.g. an NGO with an interest in water availability linked to health, livelihoods and environment across the municipality, rather than one that works specifically with women or young people in a small number of villages). Aim to include organisations that represent a range of different perspectives on the issue, so that you can facilitate debate about the relative interests and influence of the different stakeholders (e.g. someone from a government department or agency and someone from an NGO, not just people from different government departments).
2. **Invite cross-cutting stakeholders to a half-day workshop.** Only two to four stakeholders plus the project team should be present at the workshop, as the aim is not to represent all stakeholders (this is not possible as we have yet to systematically identify them). The workshop should last approximately four hours, although if there is time it is more relaxed to have a day-long event:
    a. **Clearly establish the focus of the project or issue that organisations might have a stake in.** It is important to be as specific as possible about your focus, so that you can clearly identify who has a stake and who does not. You might want to consider the geographical or sectoral scope of the project (e.g. are you interested only in stakeholders at municipality level, or is this a national issue that may involve national stakeholders? Are you looking primarily at the domestic or industrial use of water?). A discussion about this at the start of the

workshop should clarify any differing perceptions among the group, in order to avoid confusion later (approximately 15 minutes).

b. **Choose a well-known stakeholder organisation and run through the stakeholder analysis for this organisation as an example.** Draw copies of the extendable matrix (Table 2) on flipchart paper and stick it to the wall so that everyone can see what is being done. Explain that interest and influence can be both positive and negative (e.g. a group's interests might be negatively affected and they may have sufficient influence to block as well as to facilitate) (approximately10 minutes).
c. **Ask participants to identify organisations, groups or individuals that are particularly interested and/or influential**. List them in the first column of the matrix. Tables 2 and 3 provide a blank table and a worked example in order to illustrate how the process works. Use the questions in the box as prompts to help you identify as many stakeholders as possible (approximately 15 minutes).
d. **As a group work through each of the columns in the matrix**. Focus on one stakeholder at a time, discussing the nature of their interest and reasons for their influence and capturing the discussion as well as possible in the matrix (get participants to record points on post-it notes where necessary to avoid taking too long) (one to two hours).
e. Take a break, and then **invite participants to use the remaining time working individually to complete the columns for all the remaining stakeholders**. Participants can add rows for less interested and influential stakeholders as they go. Remind people to try and identify groups that might typically be marginalised or disadvantaged, but that still have a strong interest (one hour).
f. **Ask participants to check the work done by other participants.** Participants can add their own comments using post-it notes where they disagree or do not understand (15 minutes).
g. **Facilitate a discussion of the key points about stakeholders that people feel should be discussed as a group.** Focus on points where there is particular disagreement or confusion and resolve these issues where possible (accepting the differing views where it is not possible to overcome differences) (30 minutes).
h. **Identify key individuals with whom to triangulate findings after the workshop.** Up to five individuals from particularly influential organisations should be selected, trying to get as wide a spread of different interests as possible. (To do this, it may be necessary to start with a longer list and then identify people who are likely to provide similar views in order to reduce the length of the list.) Finally, consider if there are any particularly important stakeholders who have high levels of interest but low influence, whom you do not want to marginalise, and go through the same process in order to arrive at

a list of around seven or eight individuals with whom you can check the findings of the workshop .

3. **Interview key individuals to check that no important stakeholders have been missed.** Depending on the sensitivity of the material collected, you may only want to share the list of stakeholder organisations and their interests (rather than their level of interest or anything else). In the case of some individuals, it may be possible to check all columns in the matrix, but beware that some organisations may be upset that workshop participants perceive them to have a low level of interest and/or influence. If the list of stakeholders from the workshop is sent in advance, these interviews should take no longer than 30 minutes each and can be done by telephone.

Prompts to help identify stakeholders

A number of questions may be asked to help identify stakeholders, for example:

- Who will be affected by the work?
- Will the impacts be local, national or international?
- Who has the power to influence the outcomes of the work?
- Who are potential allies and opponents?
- What coalitions might build around the issues being tackled?
- Are there people whose voices or interests in the issue may not be heard?
- Who will be responsible for managing the outcome?
- Who can facilitate or impede the outcome through their participation, non-participation or opposition?
- Who can contribute financial or technical resources towards the work?

Alternatively, consider examples of stakeholder categories, and ask if there are stakeholders from these categories that you should include:

- Government departments and politicians
- Government agencies
- Industry/producer representative bodies/associations
- Media
- Trading partners
- Land owners and managers
- Special interest/lobby groups
- National representative and advisory groups
- Research organisations
- Professional groups and their representative bodies
- Representative groups e.g. for consumers or patients
- NGOs
- Community groups

4. Depending on how much the analysis changes after the workshop, **you may want to check the amended version with workshop participants** and make final tweaks.
5. **Write-up.** Some of the columns can easily be converted into graphs where there are numerical data or categories involved. Consider carefully whether you want all qualitative data to be made publicly available in a form that is linked to specific named organisations and individuals, especially where this concerns conflicts between organisations. For a publicly available version of the report, types of conflict may be summarised and the nature of stakes and types of influence may also be summarised for different types of stakeholder, accompanied by graphs of numerical data/categories. Farming organisations, for example, are most likely to be interested in certain aspects and have most influence over certain policy areas. The full stakeholder analysis matrix should be retained for use by the project team.

Name of organisation/ group	Interest (H/M/L)	What are their current levels of involvement in water management planning, and what aspects of the LWSAP process are they (likely to be) most interested in?	If involvement and/or interest is L/M, how might we motivate their engagement with LWSAP? What benefits might they derive from being more involved in LWSAP?	Level of knowledge about water-related issues (H/M/L)	Access to high-quality information about water-related issues (H/M/L)	Influence on water management (H/M/L)	Comments on influence (e.g. attitudes to water management planning, times or contexts in which they have more/less influence)	Any important relationships with other stakeholders? (e.g. conflicts/alliances)

Table 2 REC's "green sheet" table on stakeholder analysis

Name of organisation/ group	Interest (H/M/L)	What are their current levels of involvement in water management planning, and what aspects of the LWSAP process are they (likely to be) most interested in?	If involvement and/or interest is L/M, how might we motivate their engagement with LWSAP? What benefits might they derive from being more involved in LWSAP?	Level of knowledge about water-related issues (H/M/L)	Access to high-quality information about water-related issues (H/M/L)	Influence on water management (H/M/L)	Comments on influence (e.g. attitudes to water management planning, times or contexts in which they have more/less influence)	Any important relationships with other stakeholders? (e.g. conflicts/alliances)
Households	H	Involvement in water management planning varies significantly between households, but all households are water users and thus significantly affected by water management	N/A	L	L	L	None	Many households in the area rely on agriculture for at least part of their income, hence strong links with both types of farming stakeholder below
Farmers using irrigated land	H	Farmers with land close to water sources growing crops that depend on irrigation water are heavy water users and are significantly affected by water quality and quantity issues	N/A	M	L	M	Those within the farming union and cooperatives have a more organised and stronger voice	Strong relationships with the wider farming community, including upland rain-fed farmers
Upland rain-fed farmers	L	Interested indirectly as householders, or where they also own irrigated	Given low interest and influence, it is not a priority to engage	L	L	L	None	Strong relationships with community of farmers using irrigation, often

		lowland fields, but otherwise not directly affected by changes in water flow or quality	with this group					through family ties
Union of Farmers	H	The Union of Farmers has been putting pressure on the government for some time not to restrict access to irrigation water, and to invest in schemes to pipe water from other regions to this area	N/A	H	M	M	Despite having strong relationships with some politicians, the Union of Farmers has failed to achieve the objectives for which it has been campaigning	Farmers using irrigation water are well represented in the Union of Farmers, but upland farmers feel under-represented and membership from this group is far lower
Local small businesses that depend on regular flows of clean water (e.g. food and drink sector)	H	Without adequate alternative supplies, water quality and quantity concerns can be a major problem for some businesses in the area	N/A	L	L	L	None	Few small business have strong links with the government, the farming community or the NGO community, which reduces their influence
Multinational businesses	L	The local steel works is water intensive but is located upstream from most other water users, thus has preferential access to low flows. It has little interest in the problems this creates downstream, especially	Explore how more efficient water use might reduce costs and hence increase profits for the company. Look for evidence of failures to meet regulatory requirements to see if	L	H	H	Water use by this company is one of the key causes of low flows and increased pollution levels	The CEO has married into a wealthy local family who have farming interests

		during drought years.	legal action could be taken. Explore potential for public campaigns (including via print and social media) to exert pressure on the company.					
Government public health agencies	M	High interest in specific areas where pollution is leading to health problems, and during drought years, but otherwise less directly interested in water management	N/A	L	M	L	There is a lack of communication between government departments and agencies	Generally disconnected from other stakeholders affected by these issues
Government Environmental Protection Agency	H	Statutory obligation to monitor and manage water resources	N/A	H	H	M	Due to limited resources, the agency hashistorically not been able to bring about significant changes in water resources management	There is a conflict between the Environmental Protection Agency and the environmental NGOs that have been putting pressure on it to improve water management
IUCN water management project	H	High interest within the project team that is focusing on water management	N/A	H	H	M	At this point, the project is not sufficiently well known for its influence to be estimated. However, if the project achieves its goals, it will have	Strong relationships with environmental NGOs and government (one of the only environmental organisations to have positive relationships with the Environmental

							been highly influential. Of course, if it does not achieve its goals then its influence will have been low.	Protection Agency)
Other environmental NGOs	M	Other environmental NGOs are focusing on a wide range of topics and do not have specific programmes related to water management. However, they are indirectly interested when water management problems compromise species and habitats on which they are working	N/A	M	M	L	Do not tend to work specifically in the field of water management, so have relatively little influence over water management issues	Involved in a number of long-standing conflicts with the government over nature conservation and natural resources management
Local university	H	There is a strong research group focusing on integrated water management that is collaborating with the IUCN project	N/A	H	H	L	The group has not been greatly engaged with stakeholders in the past	Although links with other stakeholders are weak, the group is widely trusted by others

Table 3 REC's "green sheet" table on stakeholder analysis: A worked example

Chapter 5: Water, Stakeholders and the Rosemont Mine Proposal (O. King)

5.1 20th March 2008, Patagonia High School, Santa Cruz County, Arizona, United States[1].

An unannounced voice booms over the din in the fluorescent-lit hall, "would everybody in here please come forward, we're going to have a vote with a show of hands". The Coronado National Forest's (CNF) Interdisciplinary (ID) Team are holding their third 'open house' meeting in three days and at three locations. The subject is the Rosemont Copper project, a proposed open cast copper mine on National Forest land, 35 kilometres to the north of Patagonia, on an eastern slope of the Santa Rita Mountains.

Patagonia is an old mining town in Santa Cruz County, nestled among the hills in an upland region to the south-west of the city of Tucson. The country up there is all sweeping desert grasslands, studded with dwarf oaks. Shallow canyons cut through the rolling foothills, with staggered perennial reaches harbouring oases of tall green cottonwoods. It's a patchwork of cattle ranches, small towns and public land. Like many old mining towns in the region, Patagonia now sustains itself through a mixture of arts and tourism. It's a colourful and lively place.

In Patagonia High School's assembly hall, a vote is not on the CNF's meeting agenda. But their 200-plus 'houseguests' have decided otherwise. "Would everyone who would like to have a *real* meeting…", the speaker continues. The attendees, stood around the instigator in the middle of the hall, cheer loudly and raise their hands in the affirmative. In the background, a stern armed Forest Service Ranger turns his head and starts talking into his radio.

The CNF staff observe silently from the periphery. They are stood beside their 'discussion stations' with display boards on easels, captioned pictures, maps and diagrams, flyers and comment forms for the attendees to fill in. Under the 1969 National Environmental Policy Act (NEPA), the CNF Forest Supervisor and his ID Team are charged with administering the impact assessment for the Rosemont Copper Project, a process which entails an unspecified level of 'public engagement'. But their interpretation of this requirement is about to be roundly rejected by the participants.

Those present look similar to many I met during my time in Arizona, and there are some faces I recognise. Khaki trousers, check shirts, waistcoats, Stetsons or baseball caps, curly-haired women and goatee-bearded men, all grey at least around the edges. Some of them

[1] Drawn from first-person accounts, media reports (Miller 2008), and video footage (Anon 2008) of events at the third open house meeting on the Rosemont Copper Project Environmental Impact Assessment conducted by the United States Forest Service (Coronado National Forest) at Patagonia High School, Patagonia, Arizona on 20th March 2008.

carry placards displaying pictures of a buff-coloured, mountainous landscape, accompanied by the words ‘Stop the Rosemont Mine’, or ‘Save the Scenic Santa Ritas.’ There are residents of the Cienega Valley, directly downstream of the proposed mine site, and from the neighbouring communities of Sonoita, Elgin and Tucson.

“Well, I would say that the ayes have it”, says the ringleader, his bearded jaw tucked tensely into his flushed neck. “Now whoever is here from the Forest Service or Rosemont, I hope that you are taking this into account, and that you will hold a *real* meeting with public input, with proper notice. Otherwise, ah, I don’t know, this is, this is just ‘chart-looking’.

Greg Shinsky – a Cienega Valley resident who, seven years later, in a lay-by overlooking the proposed Rosemont mine site, would recount the event to me – is the next to speak up. “Yeah, I didn’t come here for a first-grade meeting to look at charts!” Greg’s pleas are met with more cheers. His right arm is in the air, his pointed finger jabbing over the shoulders of those in front of him, insisting. “I came here to [voice] my opinions on what’s goin’ on here, and I want some people up there on the stage so I can ask them questions!” In the background, however, with a nod from the Forest Supervisor, the CNF staff begin packing up their displays into cardboard boxes and make their way towards the exits, speaking only among themselves.

With the ID team gone, those remaining arrange chairs in rows to face the stage, and proceed to conduct their ‘real meeting’ among themselves. A new speaker steps up to address the group, but moments later the Forest Service ranger – dressed in beige, gun holstered at the hip, green cap and the agency badge on each arm – invites him in no uncertain terms to leave the stage. The gathering is no longer ‘official’ and is broken up.

Outside, the attendees spill out into the school car park in the evening light. As CNF officials get in to their white four-wheel-drive trucks, three departments of the local law enforcement arrive on the scene. All are armed – which is not unusual itself, but some are also wearing body armour. They include the Santa Cruz County Sheriffs Department, a K-9 unit from Tucson, and officers from the United States Border Patrol on quad bikes. They are accompanied for good measure by the Patagonia Fire Department. The departing participants, largely retirees, are incredulous at the level of law enforcement deemed appropriate for what had occurred. “Better go save those Forest Service employees!” jokes one onlooker.

In the aftermath, the presiding Forest Supervisor for the CNF, Jeanine Derby, claimed "[i]t was very orderly, but then some people wanted to run it their way, so we closed the meeting." Another CNF representative stated “people who don't understand the process will not be able to make an informed comment".

Seven years after the event, the Rosemont Copper Project had yet to be approved. Greg Shinsky and his wife, Carol, had since dedicated much of their time to campaigning to ‘Save the Scenic Santa Ritas.’ We lean against the barrier beside Highway 83 and look across the grassy foothills to the mountains rising behind the Rosemont site. For Greg, it all started that day in the school hall. He is just as animated, still incredulous. “They called it the *Patagonia Riot*”, he tells me, not quite laughing.

Plate 1.1 – USFS Rangers close down the open house meeting at Patagonia High School. Photograph courtesy of Nogales International (Miller 2008b).

I roamed and rambled and followed my footsteps
To the sparkling sands of her diamond deserts,
And all around me, a voice was sounding:
This land was made for you and me.

Woody Guthrie 1940

That I will not take from a thread even to a shoelatchet, and that I will not take anything that is thine, lest thou shouldest say, I have made Abraham rich"

Genesis 14:23

This chapter, and my PhD thesis, are about the contested spaces of public engagement and decision making created as a result of the environmental and social impact assessment processes mandated by the United States National Environmental Policy Act of 1969 (NEPA). More specifically, it explores the political and democratic implications of participatory environmental governance and practice for competing water uses in the south-western United States. The research is inspired by a concern for the resultant emergence of conflicts across scales, from the individual to the state and between domains of the public and private, which must be mediated by governments through institutions whose purpose is to

secure the consent of the populace. Building on recent debates within geography surrounding 'the political', this thesis will contribute to perspectives on the consensual or coercive means by which antagonistic interests are reconciled toward policy decisions.

5.2 Water, climate change and politics

While there is much debate about the precise nature of climate change (for example, the respective roles of the Atlantic thermohaline circulation, El Nino, polar ice mass balance changes, etc.), there is no longer any doubt that we live in an era of global warming. With global mean temperatures (sea and air) increasing more quickly than at any time in the documented past, the impact of climate change upon human wellbeing has become increasingly apparent during the past half-century (IPCC 2013). Recently the United States' National Oceanic and Atmospheric Administration announced that summer 2015 was the hottest on record (NOAA 2015). Even comparatively minor temperature fluctuations around the inexorable rise in global means have brought about catastrophic crop failures, with drought in east Africa responsible for repeated famines, and natural disasters such as "Superstorm Sandy" in the United States (Trenberth *et al.* 2015). Even in historically temperate regions such as Western Europe, heatwaves such as that experienced in 2003 have led to unprecedented losses in domestic agricultural production and pressure upon health provision due to increases in cases of heat-related illnesses (Staddon 2010).

Set in this context, the structures through which projects are appraised based on environmental, cultural and economic criteria are an empirical object of this thesis. In this regard, the following section introduces the United States 1969 National Environmental Policy Act as foundational to the practice of environmental and social impact assessment across the USA.

5.3 The 'Magna Carta' of the environmental movement: the 1969 National Environmental Policy Act

NEPA emerged at a time when the United States Congress heard testimony from many quarters of society warning of environmental degradation and even disaster (Ashby 1976, Sullivan 2014). It's enactment was politically catalysed by a number of significant and well publicised environmental accidents, prominent among which were the Santa Barbara oil spill in January 1969 (NOAA 1992) and the Cuyahoga River fire in Cleveland the following June (Adler 2002) Bridge et al 2015). These events were taken up by the burgeoning environmental movement as symbols of the disastrous consequences of industrial development unchecked. Indeed, the weight of popular opinion compelled members of congress to compete for the political leadership of this new movement. Over the course of 1969, more than 2,000 legislative proposals relating to environmental issues were introduced to Congress. The NEPA bill, introduced to the Senate by Henry Jackson in February 1969,

passed both houses of Congress by the following September. On 1st January 1970, NEPA was signed into law by President Richard Nixon (Spensley 2014).

In the words of its own administrative council (the President's Council on Environmental Quality, the CEQ), NEPA is the "Magna Carta" of the United States' environmental movement[2] (CEQ 2007a). The Act's policies are broad and general, and its goals are ambitious. Indeed, sections of it are written as if to inspire rather than regulate (Spensley 2014). It emphasises the need to recognise the "profound impact of man's activity on […] the natural environment" and that "each person should enjoy a healthy environment." It seeks to balance the consideration of environmental factors with economic factors in decision making by promoting the use of "all practicable means and measures […to] fulfil the social, economic and other requirements of present and future generations of Americans" (42 USC § 4331 1969, CEQ 2007a). It goes on to identify six specific goals as a guide to the federal government to implement the policy:

1. Fulfil the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;
5. achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

(42 USC § 4331 1969)

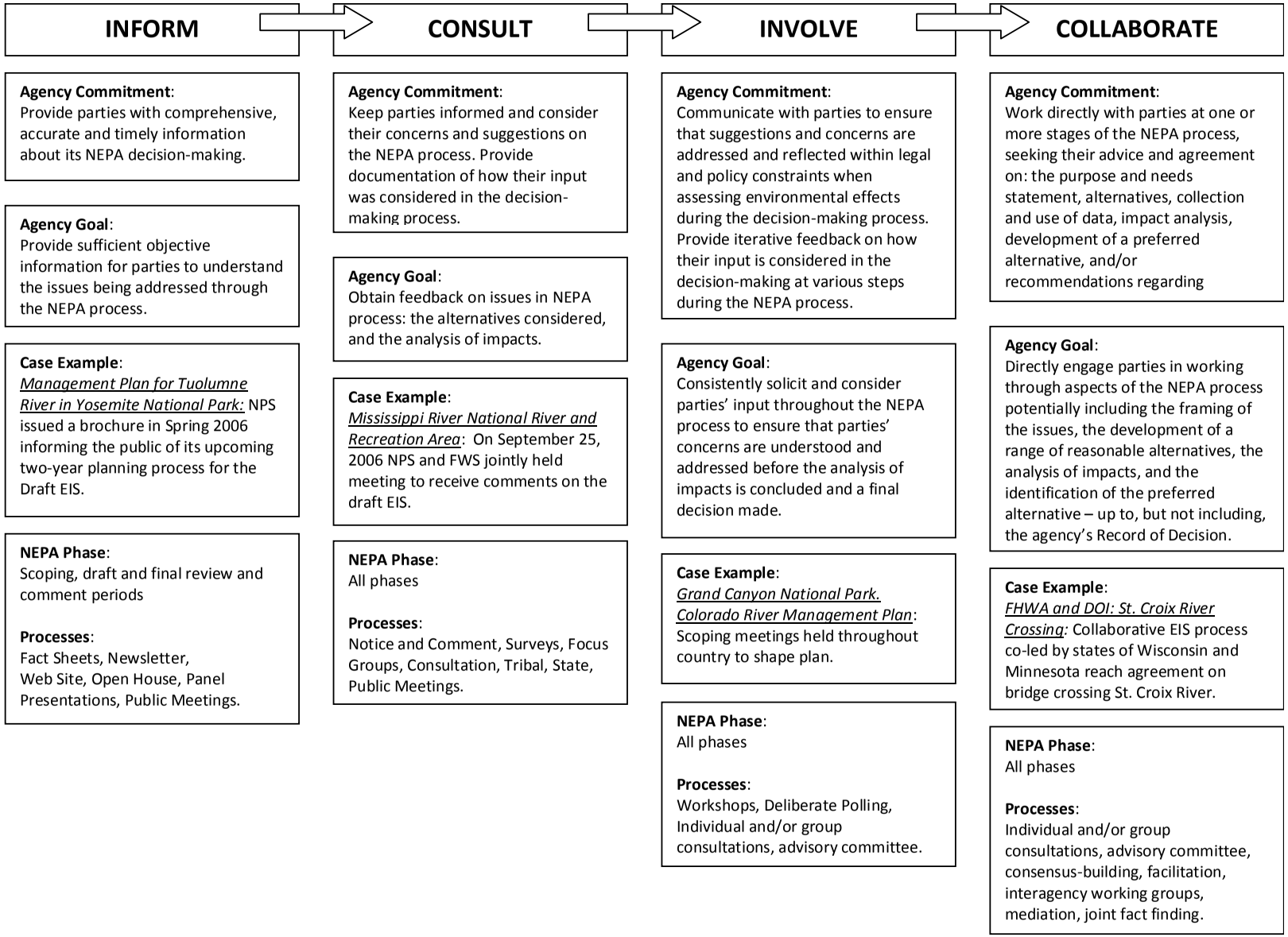
NEPA represented the first formal incorporation of the concepts of environmental impact assessment (EIA) and social impact assessment (SIA) in national law (O'Riordan and Sewell 1981). Since its enactment, many other countries have incorporated some form of impact assessment process into formal procedures or legislation relating to planning or to other areas of environmental decision-making. Forty-five years after NEPA was passed in the United States, EIA and EIS are now universally recognized as key instruments for environmental decision-making, firmly embedded in domestic and international environmental law (Pope *et al.* 2013, Morgan 2012, Esteves *et al.* 2012).

[2] This alignment with the environmental 'movement' is something which has, at least to some extent, become manifest in the position of caution the EPA typically adopts in relation to development on federal land.

The NEPA regulations require that federal agencies must consider the environmental effects of, and any alternatives to, all proposals for major federal actions that significantly affect the quality of the human environment (Spensley 2014). Federal actions which may have significant environmental effects include: federally funded or executed projects or programs; and non-federal activities financed, permitted, or otherwise approved by a federal agency. Significantly, NEPA also requires that, at appropriate points in the process, the public must be invited to comment on the proposal, and that these comments must be addressed and taken into account prior to any decision being made (Sullivan 2014). Guidance on the approaches which should be used by the lead agency to engage the public at each stage of the NEPA process is provided by the CEQ in their handbook 'Collaboration in NEPA' (CEQ 2007b). While aiming to promote in the effective use of collaboration, and pointing to the opportunities in the NEPA process where this can be achieved, the handbook is not intended to be prescriptive. Reasoning that the methods employed should be appropriate to the specific context of the proposed action, the CEQ provide guidance and recommendations on possible approaches across a "Spectrum of Engagement". Adapted from the International Association for Public Participation's *Public Participation Spectrum*, four 'levels' of engagement, are set out (see figure XX). Beginning with the level of least shared influence with parties, these levels are to: inform, consult, involve, and collaborate. At each level, a number of approaches are named as appropriate to particular stages of the NEPA process. The CEQ's handbook seeks to characterise the extent of participation at each level, stating that

At the Inform level, the agency informs interested parties of its activities. At the Consult level, the agency keeps interested parties informed, solicits their input, and considers their concerns and suggestions during the NEPA process. Here the agency consults with parties without necessarily intending to reach agreement with them. At the Involve level, the agency works more closely with interested parties and tries to address their concerns to the extent possible give the agency's legal and policy constraints. At the Collaborate level, parties exchange information and work together towards agreement on one or more issues at one or more steps in the NEPA process (CEQ 2007b): 11).

The collaborative, participatory aspects of NEPA (which are implemented at stage numbers 10, 11, 12 and 14 of figure XX) are a particular focus for this Thesis. Other chapters of my thesis describe this process in greater detail, providing a chronological account of the implementation of NEPA in the specific instance of the Rosemont Copper Project. Meanwhile, however, the following section sets out a particular perspective on participatory environmental governance which has informed the development of this research.


INFORM
CONSULT
INVOLVE
COLLABORATE
Agency Commitment:
Provide parties with comprehensive, accurate and timely information about its NEPA decision-making.
Agency Goal:
Provide sufficient objective information for parties to understand the issues being addressed through the NEPA process.
Case Example:
Management Plan for Tuolumne River in Yosemite National Park: NPS issued a brochure in Spring 2006 informing the public of its upcoming two-year planning process for the Draft EIS.
NEPA Phase:
Scoping, draft and final review and comment periods
Processes:
Fact Sheets, Newsletter, Web Site, Open House, Panel Presentations, Public Meetings.
Agency Commitment:
Keep parties informed and consider their concerns and suggestions on the NEPA process. Provide documentation of how their input was considered in the decision-making process.
Agency Goal:
Obtain feedback on issues in NEPA process: the alternatives considered, and the analysis of impacts.
Case Example:
Mississippi River National River and Recreation Area: On September 25, 2006 NPS and FWS jointly held meeting to receive comments on the draft EIS.
NEPA Phase:
All phases
Processes:
Notice and Comment, Surveys, Focus Groups, Consultation, Tribal, State, Public Meetings.
Agency Commitment:
Communicate with parties to ensure that suggestions and concerns are addressed and reflected within legal and policy constraints when assessing environmental effects during the decision-making process. Provide iterative feedback on how their input is considered in the decision-making at various steps during the NEPA process.
Agency Goal:
Consistently solicit and consider parties' input throughout the NEPA process to ensure that parties' concerns are understood and addressed before the analysis of impacts is concluded and a final decision made.
Case Example:
Grand Canyon National Park, Colorado River Management Plan: Scoping meetings held throughout country to shape plan.
NEPA Phase:
All phases
Processes:
Workshops, Deliberate Polling, Individual and/or group consultations, advisory committee.
Agency Commitment:
Work directly with parties at one or more stages of the NEPA process, seeking their advice and agreement on: the purpose and needs statement, alternatives, collection and use of data, impact analysis, development of a preferred alternative, and/or recommendations regarding
Agency Goal:
Directly engage parties in working through aspects of the NEPA process potentially including the framing of the issues, the development of a range of reasonable alternatives, the analysis of impacts, and the identification of the preferred alternative – up to, but not including, the agency's Record of Decision.
Case Example:
FHWA and DOI: St. Croix River Crossing: Collaborative EIS process co-led by states of Wisconsin and Minnesota reach agreement on bridge crossing St. Croix River.
NEPA Phase:
All phases
Processes:
Individual and/or group consultations, advisory committee, consensus-building, facilitation, interagency working groups, mediation, joint fact finding.

5.4 Questioning institutionalised participation

The publication of CEQ's report on collaboration in NEPA (CEQ 2007b) reflected a wider trend towards the institutionalisation of the 'participatory principle' since the 1992 Rio Declaration on Environment and Development (). Having first emerged alongside the environmental awakening and the growing radical critique of 'modern society' at the end of the 1960s, public participation developed through the 1970s as an approach specifically intended to reconfigure the relationship between state and citizens by incorporating local views and knowledge into all phases of the development planning process (Pretty 1995). The principle has since become a cornerstone and fundamental function of democratic environmental governance. For example, in its recommendations to reduce water scarcity, The Dublin Statement on Water and Sustainable Development[3] (ICWE 1992) asserted that "[w]ater development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels." Public participation became further enshrined with the UNECE's 1998 Aarhus Convention, which created an obligation on states to promote access to information and public participation in environmental matters (Staddon 2010).

Public participation has since been implemented within planning approaches such as Integrated Water Resource Management (IWRM), and transnational policy frameworks such as the EU's Water Framework Directive (WFD). It has become a mainstream approach across a range of disciplines (Hickey and Mohan, 2004), implemented through processes operating from local community to international scale (Harris *et al.* 2013). Institutions view public participation as a key factor in better decision-making and also legitimising decisions that are increasingly contentious given the pressures of climate change, population growth and concern for environmental degradation (Staddon 2014). It has been claimed that public participation has normative benefits, in terms of achieving democratic ideals, and pragmatic benefits, in terms of improving the quality and durability of policy decisions (Reed 2008). Normative claims include those of inclusivity, fostering public trust, knowledge co-production and social learning. The latter two also factor in the pragmatic register, added to which is the importance of situated knowledges and establishing long-term public support. Literature in relation to these normative and pragmatic claims, which Reed (Reed 2008) suggests delineates arguments often used to describe the benefits of participatory approaches, are summarised in Table XX.

Nevertheless, despite the valiant claims made for benefits of public participation, its theoretical foundations have been the subject of considerable attention in recent years. Participation has been seen as arising from growing instrumental concern of policy-makers for the public perception of

Table **Error! No text of specified style in document.**.1 - Summary of the suggested benefits of adopting a participatory approach divided into normative and pragmatic claims (references cited in Reed 2008).

[3] Also known as 'the Dublin Principles.'

Normative claims (Benefit for democracy)	Pragmatic claims (Quality and durability of decisions)
Increase the likelihood that stakeholders on the margins of society are included in decision-making processes (Martin and Sherington, 1997)	Deliver higher quality interventions and technologies that are suitable for the socio-cultural and environmental conditions, meeting the needs of the people (Reed, 2007, Reed and Dougill, 2010)
Increases public trust in decisions – participatory processes should be transparent, considering different viewpoints (Richards et al., 2004)	Increase the rigour of research by providing high quality input data (Hansen, 1994, Reed et al., 2006, 2008)
Empower stakeholders through increasing their ability to understand and use co-generated knowledge (Okali et al., 1994)	Incorporating local views into the design early can increase the success in achieving the needs and priorities of participants (Dougill et al., 2006)
Promote social learning, whereby the participants learn from each other through the participatory process, as well as raising the importance of recognising each participants viewpoints (Blackstock et al., 2007, Fritsch and Newig, 2009)	Building trust between participants and establishing a common ground can build a sense of ownership of the project resulting in long-term support, and subsequently increasing the likelihood of the implementation of outputs of decision-making processes (Richards et al., 2004, Stringer et al., 2006)
Reduce the probability that environmental decisions are seen as unfair, as participatory processes include a diverse range of views (Richards et al., 2004)	Deliver high quality decisions by preventing the occurrence of negative outcomes through the increased completeness of data and knowledge created on an issue (Fischer, 2000, Beierle, 2002, Koontz and Thomas, 2006, Fritsch and Newig, 2009).

science-led decision-making and the capacity of these measures to legitimise policies and ease tensions (Irwin 1995). The methods by which participation has been formally instituted are complex and ambiguous (Cornwall 2008). Numerous attempts have been made to 'typologize' the various approaches employed to incorporate public perspective into institutional decision-making processes. These have typically taken the form of a continuum, similar to that which the CEQ's guidance on collaboration in NEPA seeks to promote among Federal agencies.

Sherry Arnstein's (Arnstein 1969) seminal article, 'A Ladder of Citizen Participation', was one of the first attempts to classify forms of citizen engagement. With a foot on the bottom rung of her 'ladder' (Figure XX), Arnstein begins with forms of 'non-participation', in which the state acts to legitimise its actions through coercive forms of 'education'. Looking farther up, despite concessions made to give 'voice' to participants, she sees acts of information provision and 'consultation' as ineffectual 'tokenism'. Meanwhile, at the top of the ladder – and, by implication, the ultimate goal of democratic decision-making – are arrangements in which at least a portion of the power is delegated to those with an interest in the issue at hand. Thus 'partnership' and even 'citizen control', at the very summit of the ladder, are examples of the most egalitarian forms of relationship between the state and civil society (Arnstein 1969).

Public participation and its methods have repeatedly been mapped onto such normative axes of 'good' to 'bad' (Cornwall 2008). Jules Pretty (Pretty 1995) similarly describes a spectrum defined by a shift from control by authorities to control by the people or citizens. While Sarah White (White 1996), distinguishes between the conflicting aims of participation between practitioners and participants, such as *legitimation*, *leverage*, and *empowerment*. It is worth noting that the activities Arnstein *et al*. associate with 'tokenism' can often been identified in the institutional discourses and legislation which claim to promote participation. The World Bank, for example, includes both giving information and consultation as forms of participation, and goes on to equate the provision of information with 'empowerment' World Bank (Cornwall 2008). Indeed, the language used by the CEQ to identify lower levels of their 'spectrum of engagement' – to 'inform' and 'consult' – correspond to what Arnstein would characterise as tokenism, whereby:

citizens may indeed hear and be heard. But under these conditions they lack the power to insure that their voices will be *heeded*. When participation is restricted to these levels, there is no followthrough, no 'muscle,' hence no assurance of changing the status quo (Arnstein 1969): 217.

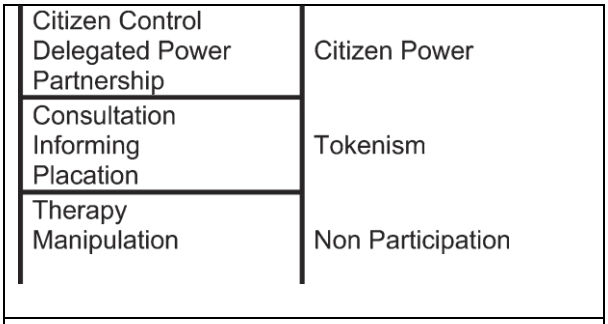


Figure 5.1 - Arnstein's 'Ladder of Citizen Participation' (adapted from Cornwall 2008).

Notably, the NEPA regulations stop short of prescribing the specific processes by which its requirements for public involvement should be met. Reflecting the aspirational tone of language used by the CEQ to describe the purpose of NEPA, the collaboration handbook emphasises the benefits and challenges of engaging multiple, "interested parties", from members of the public to "cooperating agencies" at federal, state, and local levels. It points to the opportunities for collaboration in NEPA, and highlights the requirements to identify interested parties and inform them of the process (CEQ 2007b). While providing examples of the methods which could be constitutive of each level of engagement, and stages of the NEPA process at which they might be appropriate, CEQ emphasises that "[the] regulations allow agencies to determine the details of each public involvement process" (ibid: 3), which it suggests should reflect specific context of each case. As this Thesis will explore, however, this ambiguity also leaves the process vulnerable to uneven relations of power which influence locally embedded decision-makers.

Deliberative and collaborative approaches have been criticised by those influenced by Michel Foucault for not sufficiently recognising the relations of power between participants, which affect the ability of different groups or individuals to enter social negotiations in an equitable way (Flyvbjerg 2000, Cooke and Kothari 2001, Richardson 2005). Much debate surrounds the dominance of the technocratic model of impact assessment and the rise of alternative views that recognize the political realities of decision-making (Morgan 2012). The dominant, consensus-oriented model, which draws on the work of theorists such as Jurgen Habermas, has also met with critical Marxist analyses (e.g. (Weston 2010). These suggest that state-led processes of development management serve the interests of capitalism by trying to provide a rationalist justification for the outcomes of impact assessments.

The theoretical and conceptual framework for this Thesis – introduced in section 1.6 – builds upon these radical perspectives on the nature and role of public participation in impact assessment. As outlined in the following section, the aim of this research is offer empirically-grounded, critical realist, qualitatively informed perspective on the political and democratic underpinnings of NEPA. In particular, it engages with 'post-political' and 'post-democratic' theories which – as developed by figures such as Jacques Ranciere and Chantal Mouffe – contend that this 'deliberative' model fails to acknowledge the antagonistic nature of human interests. In so doing, participatory approaches such as those instituted by NEPA exclude those for whom the implications of a decision may be most severe.

5.5 'Participatory' impact assessment: toward a 'draft' decision

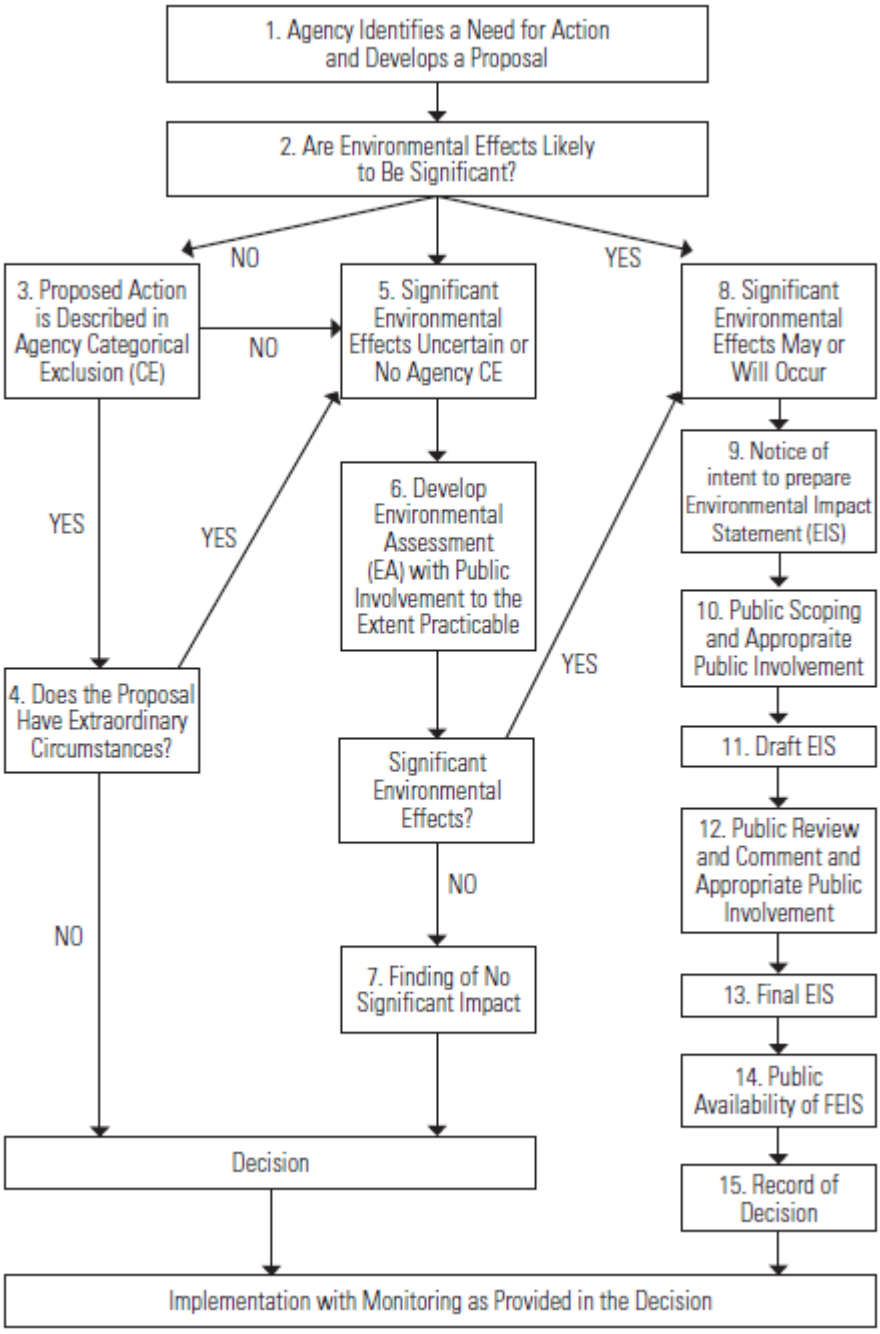
The NEPA process begins when an agency receives a proposal for an action which implicates federal lands under its remit. That agency is automatically designated as the 'lead agency', although responsibility for the management of the NEPA process may be shared with other federal, state, tribal or local government agencies with a major role in the proposed action. Meanwhile, 'cooperating agencies' are those which have a lesser role but may have a permitting decision or special expertise in respect to the proposal (CEQ 2007a). Once a proposed action is developed[4], an environmental assessment (EA) is used by the lead agency to conduct a threshold analysis on whether a full environmental impact statement (EIS) is necessary (see figure XX). An EIS must be prepared if the agency is proposing a *major* federal action which, considering both the context and the intensity of the specific circumstances, has the potential to *significantly* affect the quality of the human environment (Spensley 2014).

The purpose of an EIS is to guide decisions based on necessary environmental analyses and an understanding of the consequences of a proposed action and the reasonable alternatives. Section 102(2)(C) requires an EIS to describe:

[4] Assuming the lead agency determines that the proposed action does not meet the requirements for 'categorical exclusion' (CE). A CE action is one which the lead agency has determined does not individually or cumulatively have a significant effect on the human environment (e.g. path maintenance) (CEQ 2007 Cit Guide)

- the environmental impacts of the proposed action;
- any adverse environmental impacts which cannot be avoided should the proposal be implemented;
- the reasonable alternatives to the proposed action;
- the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and
- any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Once a *major* and *significant* impact determination has been made, the process proceeds with a public notification from the lead agency of their intention to prepare an EIS (no. 9, figure XX). This is the first stage at which, under the NEPA regulations, the public must be invited to comment on the proposal. The 'public scoping' stage (no. 10, figure XX) is the first of three forums in which these comments are solicited and used to inform the development of the Draft Environmental Impact Assessment (DEIS). The second comment period follows the production of the DEIS (no. 12, figure XX); and a final 'objection' period follows the publication of the Final Environmental Impact Assessment (FEIS). All comments must be addressed, responded to, and taken into account prior to any decision being made (Spensley 2014).



As well as public input (which includes NGO's and business interests), USFS is required by NEPA to conduct "early and frequent" (CNF 2009a): 11) coordination with specific agencies and entities with jurisdictional responsibilities or specific expertise related to aspects of the proposal. These 'cooperating agencies' include tribal governments (where tribal interests are affected by the proposed action), and federal and state-level agencies. Of 33 organisations contacted by the CNF, sixteen signed *memorandums of understanding* as cooperating agencies (CNF 2009a). This level of interest was generally held to be unusually high by a number of those interviewed for this research, and was frequently cited by Rosemont's proponents as a factor which has contributed to the extensive period of time taken to carry out the NEPA process. As this thesis will discuss, such arguments about the level of bureaucracy

involved in the NEPA process would commonly be invoked to defend and generate support for the mine.

As required by the USFS NEPA Handbook (USFS 2012), following on from the scoping period, the CNF appointed an 'interdisciplinary team' (ID team) to assist with the impact assessment for the mine. The role of ID 'Team Leader' was given to one Beverley Everson, a Geologist for the CNF[5]. While the handbook states that cooperating agencies should be considered for inclusion in ID teams, minutes from the early meetings suggest that it was largely composed of CNF employees from various disciplines and appointed consultants (SWCA and their subcontractors)[6]. Importantly, the Forest Service handbook emphasises that participation by any non-official organisations must be consistent with the 1972 Federal Advisory Committee Act (FACA). In light of this legislation, the CNF was later forced to defend itself against an injunction motion filed by SSSR; national environmental group Center for Biological Diversity (CBD); and local agriculturalists Farmers Investment Company (FICO). The plaintiffs asserted that, contravening FACA, the CNF illegally allowed Augusta and its representatives to participate in the ID team meetings (thus functionally creating a Federal Advisory Committee in which objectivity may be compromised) without facilitating wider public participation or "fairly balanced" representation. While the injunction was denied, the Judge nevertheless stated that "the Court does find, at best, that the USFS was less than prudent in inviting Rosemont and its consultants as the primary and only regularly invited non-governmental agency and that such actions, at a minimum, presents an appearance of impropriety on the part of the USFS as well as Rosemont" (Save the Scenic Santa Ritas *et al*. vs. United States Forest Service 2011).

Nevertheless, the next step in the EIS process – of organising and analysing the content of the submittals received during the scoping process – commenced, with the ID team employing a procedure called content analysis. This is described as "a systematic method of compiling and categorizing the full range of public viewpoints and concerns regarding a plan or project" (CNF 2009b): 5). Fundamentally, the content analysis procedure entails the identification of "pertinent individual comments" (ibid: 6) (referred to as *discreet* comments, of which 16,000 were identified from the scoping process) from all of the submittals, and coding each discreet comment alpha-numerically into *resource categories* such as *climate change*, *cultural resources*, and *water resources*. In their summary report of this process, the CNF emphasise that

it is important to understand that this process makes no attempt to treat comments as votes. In no way does content analysis attempt to sway decision makers toward the will of any majority. Rather, content analysis ensures that every comment is considered in the decision process and that pertinent issues receive an appropriate level of scrutiny throughout the EIS process (CNF 2009b): 6).

---

[5] Considering her profession and links to the mining industry, Beverley Everson's objectivity would be the subject of some discussion among mine opponents.
[6] See: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5293365.pdf and http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5293362.pdf

Using the content analysis, the ID team identified 'significant issues' that were used as reference points to develop 'action alternatives', 'mitigation measures' and analyse environmental effects. These elements became the focus of the Draft Environmental Impact Statement (DEIS).

Eleven significant issues were thus identified as arising from the scoping process. These were:

1. Impact on Land Stability and Soil Productivity
2. Impact on Air Quality
3. Impact on Water Resources
4. Impact on Springs, Seeps, and Riparian Habitats
5. Impact on Plants and Animals
6. Impact on Cultural Resources
7. Impact on Visual Resources
8. Impact on Dark Skies and Astronomy
9. Impact on Recreation
10. Impact on Public Safety
11. Socioeconomic Impacts

Jointly agreed upon by the lead agencies, the action alternatives are intended to represent a range of possible actions that respond to the significant issues, purpose and need, and Federal and State laws and regulations. The options, which must include the 'no action alternative' must be 'reasonable' in that they are "practical or feasible from technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant" (CEQ 2007a): 16). All reasonable alternatives must also fulfil the project's purpose and need, as well as address significant issues. The ID team met on several occasions to review potentially affected resources and identify preliminary alternatives. These alternatives were submitted to Augusta to verify their feasibility from a construction perspective. Augusta confirmed that, with minor modifications to address safety concerns, all alternatives could technically be constructed. The CNF also invited the cooperating agencies to review the preliminary alternatives during the ID Team meetings. Several of the agencies submitted comments and proposed additional alternatives for consideration. As a result of these comments, the CNF invited the agencies to develop an alternative as a collaborative effort (CNF 2011).

Two years after the scoping period, on 10th May 2010, the CNF identified five action alternatives in addition to the proposed action in Augusta's MPO (and including the no-action alternative) for detailed analysis in the DEIS. The alternatives differed primarily in relation to locations and shapes for the tailings and waste rock facilities, locations for the access roads, and modification to process facility locations as required by the different tailings facility sites (see table XX). In addition, the alternatives also included variations to other elements of the plan such as timing of the tailings placement, storm events used to design storm-water control facilities, and layout of storm-water diversion channels (CNF 2011).

In terms of mitigation, a range of measures were proposed that are designed to avoid, reduce, rectify, eliminate, or compensate for environmental impacts in the event of any one of the action alternatives being selected. The CEQ regulations (Code of Federal Regulations 1508.20) defines mitigation measures as follows:

- Avoiding an impact by not taking a certain action or parts of an action;
- Minimizing an impact by limiting the degree or magnitude of the action and its implementation;
- Rectifying an impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating an impact over time, through preservation and maintenance operations during the life of the action; and
- Compensating for an impact by replacing or providing substitute resources or environments.

Action Alternative	Summary
1. No Action	No mine development. Reclamation of preliminary exploration works. Project area to "grow and develop in accordance with generally accepted social and environmental trends."
2. Proposed Action	As proposed in the Rosemont Copper Project MPO (see appendix XX)
3. Phased Tailings Alternative	Developed to respond to significant issues regarding potential negative effects of the proposed action on water and visual resources. Modifications include reversing the phased placement of mine waste to leave the McCleary Canyon drainage open for approximately 10 years longer (see appendix XX for further details).
4. Barrel Alternative	Developed to respond to significant issues regarding potential impacts on biological resources, cultural resources, and surface waters. Incorporates 'geomorphic reclamation'; eliminates heap leach facility; redesign of stormwater provisions; and relocation of the Arizona National Scenic Trail (see appendix XX for further details).
5. Barrel Trail Alternative	Developed to respond to significant issues regarding potential impacts on visual resources and surface waters. Incorporates gentler and more varied slopes (see appendix XX for further details).
6. Scholefield McCleary Alternative	Developed to respond to significant issues regarding potential impacts on cultural resources, riparian habitat resources, and surface waters that would arise from placing mine waste in the McCleary and/or Barrel Canyon drainages. Incorporates the relocation of mine waste to Scholefield Canyon (see appendix XX for further details).

Table XX summarises some of the key mitigation measures proposed, focussing on those which emerge as particularly contentious in the empirical discussions later in this Thesis. For example, undertakings to revegetate and re-landscape the site were met with considerable scepticism. This was for two reasons: firstly, historical instances of mining companies actually carrying out reclamation are rare, and speculation about Augusta's intentions for future mine development cast doubt on their promise to carry out 'concurrent' reclamation; secondly, the slow rate of succession in semi-arid ecosystems means that attempts to revegetate within a reasonable period of time (a human lifespan, for example) is unlikely.

With respect to water resources, moreover, the high likelihood of immanent shortages on the Colorado River cast a shadow on Augusta's commitment to use CAP water to replenish the water that would be abstracted from the upper Santa Cruz aquifer for mine processing (CNF 2011).

On 19th October 2011, Jim Upchurch, who had replaced Jeanine Derby as CNF Forest Supervisor following her retirement the previous year, published the completed DEIS in the Federal Register. This DEIS included: the analyses of the action alternatives; the proposed mitigations; and the direct, indirect, and cumulative impacts of the proposed action and its alternatives upon the significant elements of "physical environment", "biological resources", and the "social environment" identified as a result of the scoping process. Alongside the document,

Cultural Resources

- As required by 1966 National Historic Preservation Act, develop a historic properties treatment plan to specify the measures to be taken to mitigate the project's adverse effects on historic properties eligible for listing in the National Register of Historic Places.
- Rosemont Copper to mitigate potential adverse effects on plants of critical traditional importance to tribes with interest.
- Rosemont Copper would work with the Coronado staff and consulting tribes to develop recommendations on the selection of plant species that would be used for reclamation purposes.
- In addition, Rosemont Copper would provide notification of access to tribal interests to facilitate harvesting of traditional food, medicinal, and basketry plants and traditionally used clays and pigments before project disturbance.
- Through consultations with tribal experts, the Coronado and Rosemont Copper would identify whether plants in the project area can be feasibly and practicably transplanted to tribal lands.

Plants and Animals

- Rosemont Copper to revegetate disturbed areas with native vegetation, excluding the pit area.
- Process water ponds would be enclosed, covered, or otherwise managed to protect wildlife, livestock, and public safety.

Reclamation

- The Rosemont Copper Project Reclamation and Closure Plan's approach to reclamation is to exceed regulatory requirements by employing reclamation activities concurrent with mining operations.
- Rosemont Copper would revegetate tailings and waste rock piles with the intent to

reduce visual impacts, reduce potential erosion, and recover vegetation for wildlife habitat and livestock grazing.
- Rosemont Copper would consider inclusion of those species important to traditional Native American cultural uses in the area and traditional and heritage livestock and wildlife uses of local plant species

Visual Quality

- Rosemont Copper would construct a perimeter berm to provide a visual barrier to the mine operations, which would block the view of much of the final pit configuration from State Route 83.
- A perimeter buttress would be constructed with intermediate slopes of 3:1 (horizontal: vertical). Further contouring of slopes to facilitate early revegetation would result in revegetation earlier in the life of the project and would help control erosion and stabilize surface soils.

Water Resources

- In order to conserve water, Rosemont Copper has committed to filter the tailings and maximize water conservation. The filtered tailings would reduce Rosemont Copper's consumption of water by 50 to 60 percent over traditional industry designs. In addition to filtering the tailings, Rosemont Copper has also included in their facility designs a number of ways in which they would maximize the reuse of process water and stormwater.
- Use available Central Arizona Project water as a source to conduct recharge within the Tucson Active Management Area. Note that this compensatory mitigation is dependent on Central Arizona Water Project water's being available to Rosemont Copper.
- Recharge as close as possible within the Tucson Active Management Area to the Rosemont Copper supply well field.
- Balance Central Arizona Project storage credits with water to be pumped from mine supply well field, with the intent to maintain a surplus inventory of storage credits prior to pumping groundwater for mineral extraction use.

which runs to 1,062 pages, Upchurch also included a letter in which he signalled the start of a 90-day period public comment period. During this period, the CNF were to facilitate the submission of comments via a number of means. In addition to mail, facsimile, email and telephone submissions, electronic comments were also to be accepted on a dedicated project

website[7]. Furthermore, both oral and written comments were to be solicited at six scheduled "DEIS meetings" to take place at various venues between October 2011 and January 2012.

Directly addressing potential commenters on the proposal, Upchurch emphasised in his letter accompanying the DEIS that:

> [t]o be most useful in preparing a Final Environmental Impact Statement and rendering decisions about the project, […] comments should relate to specific environmental issues. General comments and subjective expressions of advocacy or opposition to a project or alternative usually are not helpful unless they are substantiated by a link to a relevant issue (CNF 2011).

The reference to the importance of non-subjectivity and substantiation reflects the CEQ's guidance on how agencies should use the comments received during the NEPA public involvement process. In their guidance documents, the USFS requires that comments which meet the 'substantive' standard are not based on 'opinion' nor are they 'conjectural'. Therefore, to receive the agency's full consideration, comments must be scientifically-based or be expressed in terms of effects (Predmore *et al.* 2011). Although it does not specify what is meant by the term 'substantive' as it relates to public input, the USFS Handbook on NEPA suggests that this should serve as the standard for determining what types of comments should be responded to by the agency (USFS 2012).

On 19th January, 2012, the Forest Supervisor extended the formal comment period for the DEIS to 31st January, 2012. This extension was necessary because a technical problem with the electronic mail inbox for public comments, which resulted in the rejection of some comments for a brief period of time on 18th January, 2012. Meanwhile, in addition to the first six public meetings, which consisted of both an informational and an oral comment session, a seventh meeting was scheduled, which was an oral comment session. To answer questions and provide information pertinent to the DEIS, the informational sessions were staffed by CNF ID Team resource specialists. Oral comment sessions allowed the public to provide oral comments on the DEIS, which were audio-recorded and documented by a court reporter.

The CNF estimated that over 4,000 people attended one or more of the seven public meetings held in the affected region regarding the project. Over the course of the DEIS comment period, more than 25,000 submissions from individuals, tribal governments, government agencies, organized interest groups, and businesses were received. By 21st June, 2012, the CNF had identified, coded, and organized all of the 'substantive' comments received. In light of the high volume of submissions, the process of analysing the content of the comments necessitated a process of rationalisation. This entailed taking each submission and breaking the content down into discrete comments. These discrete comments were collated into 316 thematic groups. 'Public Concern Statements' (PCS) were then formulated which summarise the comments in each group. As mandated by NEPA, having reviewed the comments classified under each PCS, responses were prepared by CNF which summarily addressed the

[7] www.RosemontEIS.us

points raised. For individual comments which required more specific attention, additional responses were also prepared.

Thus, 316 PCS documents were generated, each containing four elements: (1) the public concern statement itself; (2) the CNF's summary response; (3) all of the discreet comments which the CNF had determined were relevant to that area of interest, attributed to individual respondent names; and (4) additional responses addressing more specific concerns. These PCS files were entered onto a comment database and made publically available online when the FEIS was published, enabling members of the public to search for their comments and the CNF's responses to them. This substantial comment database forms the basis of the empirical investigation described in chapter XX.

On 16th November 2012, the CNF posted an announcement on the Rosemont EIS website that the release date for the FEIS, originally planned for December 2012, was not going to be met. In part, this was due to a request from CNF that Augusta reconsider various aspects of their operations following a number of comments. In particular, concerns had been raised with respect to impacts on groundwater quality concerns and storm water management for the benefit of downstream resources (CNF 2012). This corresponds to the apparent focus on water-related issues which emerges from the analysis of the DEIS comments in chapter XX, and is an indication of the extent of concern and effectiveness of engagement in the Rosemont issue. The sheer volume of comments and demands upon the CNF to address issues had rendered the EIS process so complex that the completion of the FEIS would ultimately take a further twelve months.

On 13th December 2013, a Notice of Availability for the Rosemont Copper Project FEIS was published in the Federal Register (Federal Register 2013). Following the lengthy analysis process, this document was essentially an updated DEIS with a number of changes made. In the introduction to the FEIS document, the CNF made particular reference to the many comments on the DEIS which "expressed disagreement with its discussion of the responsible official's decision space". Specifically, this refers to the claim in the DEIS that:

the forest supervisor's decision space is limited by the regulations governing locatable mineral activities on National Forest System lands (36 Code of Federal Regulations 228 Subpart A) and other applicable laws and regulations […]

The Forest Service may reasonably regulate mining activities to protect surface resources, but there are statutory and constitutional limits to its discretion when reviewing and approving an MPO. The Forest Service may reject an unreasonable MPO but cannot categorically prohibit mining or deny reasonable and legal mineral operations under the mining laws. (CNF 2011): 7).

This particular disavowal has been prominent in the discourse emanating from the CNF since the beginning of the NEPA process in 2008. Indeed, as explored in chapter XX, the CNF employ similar language to that used in the latter paragraph in their responses to many comments submitted during the public involvement process. In the FEIS, moreover, the CNF dismissed concerns regarding their interpretation of these mining laws.

Following review, the CNF made a further determination, that despite several comments expressing concern about the necessity and appropriateness of amending the 'Coronado National Forest Land and Resource Management Plan' (Forest Plan) (U.S. Forest Service 1986) to accommodate the Rosemont mine, no substantial changes to the analysis were needed in this respect. This issue was one which had become prominent in debates among the project's proponents and opponents. In essence, it concerns diverging perceptions about the function of various government agencies as guardians of public lands. These perceptions reflect the different values of those with an interest in the land at issue, posing different questions for governance. Specifically, is the economic maximisation of the resources of the Coronado National Forest more or less important than its preservation as a material public good? Should the CNF adopt a precautionary stance similar to that of the EPA, and protect the Forest Plan at all costs, or are its hands tied by 1872 mining law?

As discussed elsewhere in my complete thesis, individual actions relative to the above questions are contingent upon the articulation of power relations across scales. Such relations exist between institutional actors at different levels of government which often have contradictory ideological and legal underpinnings. In the case of Rosemont, such tensions surfaced with the interventions of the EPA shortly after the publication of the DEIS. In a letter addressed to Jim Upchurch, District 9 Regional Administrator Jared Blumenfeld cited particular concerns relating to the water quality impacts of the mine. Blumenfeld stated that the DEIS failed to assess and mitigate for impacts to the 'Outstanding Arizona Waters" status for Davidson Canyon and Cienega Creek and that it underestimated potential pollution impacts on *Waters of the United States* protected by the 1972 Clean Water Act (CWA). Accordingly, the EPA assigned its lowest possible rating to the document[8], and recommended that a revised or supplemental DEIS should be completed to address "significant inadequacies" (Blumenfeld 2012a): 2).

While the EPA's letter also addressed concerns over air quality, cultural resources and site reclamation, it is relation to CWA that the agency carries real weight of influence. The EPA is the federal agency responsible for implementing the CWA, with permits under Section 404 of the act (for 'dredge and fill' activities such as those implied by the construction of a mine) delegated to the USACE. For their part, the CNF would argue that the concerns of the EPA would be procedurally addressed by the ID team in the FEIS. But the position of the EPA on the CWA was emphasised in a further letter from Blumenfeld to the USACE, in which he stated that the EPA would move to preserve the option to seek higher level review of the Corps' pending permit decision. This was on the basis of the EPA's opinion that an approval would "have substantial and unacceptable impacts to 'aquatic resources of national importance' (ARNI), including Cienega Creek and Davidson Canyon" (Blumenfeld 2012b) :1). The EPA Administrator retains the power of *veto* over the permit decision if it is found to

[8] The rating assigned was 'EU-3', which signifies 'Environmentally Unsatisfactory', 'Inadequate.' This rating indicates EPA's belief that the DEIS does not meet the requirements of environmental legislation. See: http://www2.epa.gov/sites/production/files/2014-08/documents/policy_and_procedures_for_the_review_of_federal_actions_impacting_the_environment.pdf (accessed 29th November 2015).

be unreasonable. With the Section 404 permit one of a number required in order for the project to be approved under NEPA (the following section addresses the permitting process for Rosemont in more detail), Blumenfeld thus holds a position of considerable influence over the ultimate determination of the Rosemont Copper proposal.

Nevertheless, incorporated into the text of the FEIS was a swathe of responses and modifications following submittals received during the comment period. In addition to the EPA's input, comments from the remainder of the agencies, public participants and interest groups were addressed in the revised document. While the CNF did not accept all of the criticisms, it used significant space in the document to expand upon its reasoning. Moreover, the lead agency did agree to remedy a number of what were seen to be significant problems across most aspects of the project, including the analysis of impacts and the proposed mitigation measures. Some of the most significant alterations were made in order to address concerns relating to impacts upon water, such as those highlighted by the EPA in relation to the CWA. For example, the design of CNF's preferred action alternative[9] for the mine's operation was modified so as to eliminate a 'leaching' facility [10] which had the potential to release toxic solution into surrounding watercourses.

However, the CNF defended the groundwater modelling conducted by Rosemont's consultants, Montgomery & Associates and Tetra Tech. Particular concerns had been made as to the veracity of the models employed which treat the entire analysis area as possessing a uniformly porous media, and the uncertainty in the range of possible impacts upon ARNI-designated Cienega Creek and Davidson Canyon. In response, CNF argued in the FEIS that

[o]verall, the Forest Service specialists, their contracted experts, and the Forest Service decision maker found that the models used in the FEIS are valid, reasonable, and acceptable for predicting impacts related to this project. However, a common opinion among experts is that the site-specific groundwater models—or any groundwater models—do not have the ability to predict impacts on distant waters such as Cienega Creek, Davidson Canyon, and Gardner Canyon, where these impacts are the result of small groundwater changes (in some cases, less than 1 foot of drawdown) at remote periods in the future (hundreds or even thousands of years from now) (CNF 2013): 290).

Chapter XX discusses the emergence of this issue in respect to contemporary theorisations about the relationship between power, money, science and its object. Augusta pays consultants to conduct an analysis at a certain level of abstraction. The CNF, without the resources to conduct their own modelling, accept the results of these investigations as representative of the 'best available science' as is loosely specified in the NEPA guidance. Thus the imperatives of a corporation are overtly tied to the 'science' being used to legitimise the Rosemont Copper Project.

---

[9] Of the five action alternatives put forward by the CNF's ID team, one was selected as the 'preferred alternative' in the agency's 'Draft Record of Decision' issued alongside the FEIS.

[10] Leaching is the process to extract metals from their ore by placing them on a pad (a base) in a heap and sprinkling a leaching solvent, such as sulphuric acid, over the heap. This process dissolves the metals and they collect at the bottom of the pad to be further processed.

Alongside the FEIS, the CNF released a document entitled 'Draft Record of Decision and Finding of Nonsignificant Forest Plan Amendment for the Rosemont Copper Project' (Draft ROD). The Draft ROD documents the Forest Supervisor's decision and rationale in respect to the selection of one of the six action alternatives (including the 'no action alternative') analysed in the FEIS. In it, the Supervisor Upchurch identifies the 'Barrel Alternative' as the CNF's preferred alternative; confirms approval for the development of the Rosemont mineral deposit in a manner consistent with this selected action; and determines that the necessary amendments to the CNF's Forest Plan are not significant. In his rationale for the decision, Upchurch stated that

the selected action is the best balance of minimizing impacts to NFS resources as well as other environmental and social values. This alternative will allow Rosemont Copper to meet applicable laws and regulations and has reduced impacts, compared with other alternatives, while allowing Rosemont Copper to develop its mineral resources in a manner that is consistent with applicable laws and regulations .

Offering a more conciliatory tone, Upchurch notably makes no reference to the 'no action alternative' when he continues

There is no one action alternative that completely mitigates or eliminates effects on important resource values when the proposal results in the placement of 1.3 billion tons of waste rock and tailings on the landscape. The challenge is selecting an alternative that represents the best balance of mitigating effects and avoiding significant impacts to cultural, social, and resource values while allowing mining activities authorized in Federal law. It is my determination that the selected action best meets these goals.

The reference to federal law is picked up on again in the rationale for the non-selection of the 'No Action Alternative', in which reference is again made to the "statutory and constitutional limits" which restrict the CNF's discretion in adjudicating on the Rosemont Copper Project. Chapter XX discusses how the use of such language could be said to be an attempt to reach out to those who contend that the Forest Service should do more to protect public lands. In other words, the CNF might do more, but their hands are tied by the 1872 mining law. As will be shown, the legal premise of this justification is nevertheless contended by many of the mine's opponents.

A peculiarity of the 'Draft' ROD is that some of the language contained within it might have given the false impression that a final decision has been made. Indeed, the day after the ROD and FEIS were published, the CNF were forced into issuing a statement refuting reports that the mine had received final approval. The Draft ROD does make it clear that the ultimate approval of the Rosemont Copper project in the form of a 'Final Record of Decision' is subject to Augusta's submittal of a final MPO which reflects the preferred action alternative. Simultaneous to the impact analysis conducted by the CNF, however, the process of evaluating the project in terms of its compliance with a number of environmental laws was being conducted by their administering agencies. The following section summarises the progression of these parallel permitting processes, focussing specifically on the legal

challenges from various actors and groups which emerged following the issuance of a number of permits.

5.6 Stakeholder mapping

In the case of the proposed Rosemont mine, hydro-social relationships relate to both quantitative water inputs (where the water supply comes from) and the impacts upon water outputs in terms of both quantity (upon the groundwater and surface water downslope and downstream of the mine) and quality. Figure 5.1 spatializes the various public and private entities and actors in relation to the water inputs and outputs of the proposed Rosemont mine. As the narrative develops in the final thesis, this diagram will be used to contextualise the case study and as a point of reference when elaborating on the complex relationships which emerge. The following section focusses on the interaction between one specific entity mapped here, the Coronado National Forest (as the agency responsible for the management of the land upon which the Rosemont mine is proposed to be built), and the members of the public whose interests in the various natural, cultural and economic spaces and places led to their engagement in the public scoping and comment period for the Rosemont proposal.

5.7 The NEPA public scoping and comment period

Of the total 316 PCS's, 22 categories of discrete comment (totalling 8,400 comments) were explicitly characterised as being in support of the mine, while 7,418 discreet comments (categorised under 55 separate PCS's) were in opposition. The remaining 239 PCS's suggested that there was no bias either way in the 7,845 discreet comments attributed to them. Rather than suggesting endorsement or objection, the latter of these three types of PCS were typically along the lines that the comments suggest that CNF should undertake further investigations or revisions to the EIS. Table 5.1 shows that of the 20 most-commented public concern statements, 10 suggest that the comments categorised by them are in opposition to the mine, while 4 imply supportive comments, and 6 suggest other comments which have no explicit bias. The top 7,699 comments (i.e. those within the top 20 PCS's) which argue in favour of the mine proposal comprise 33 percent of the total discreet comments in the data set; while the 4,384 comments in opposition make up 19 percent of the total. The remaining 1,655 comments in the top 20 PCS's classed as non-partisan constitute 7 percent of the total discreet comments (as delineated by CNF) made by the public in the DEIS comment period.

Table 5.2 shows the number of discreet comments submitted which correspond to each category at each level. The table is ranked according to the number of discreet comments at the first two levels of coding. Thus, economic concerns constitute around half of the discreet comments submitted, the majority of which (85%) are in support of the Rosemont Copper mine. For these respondents the economic benefits of the mine are predominantly (81% of discreet comments) related to employment; while the remainder cite Copper mining's contribution to the national and global copper market. The minority of comments in

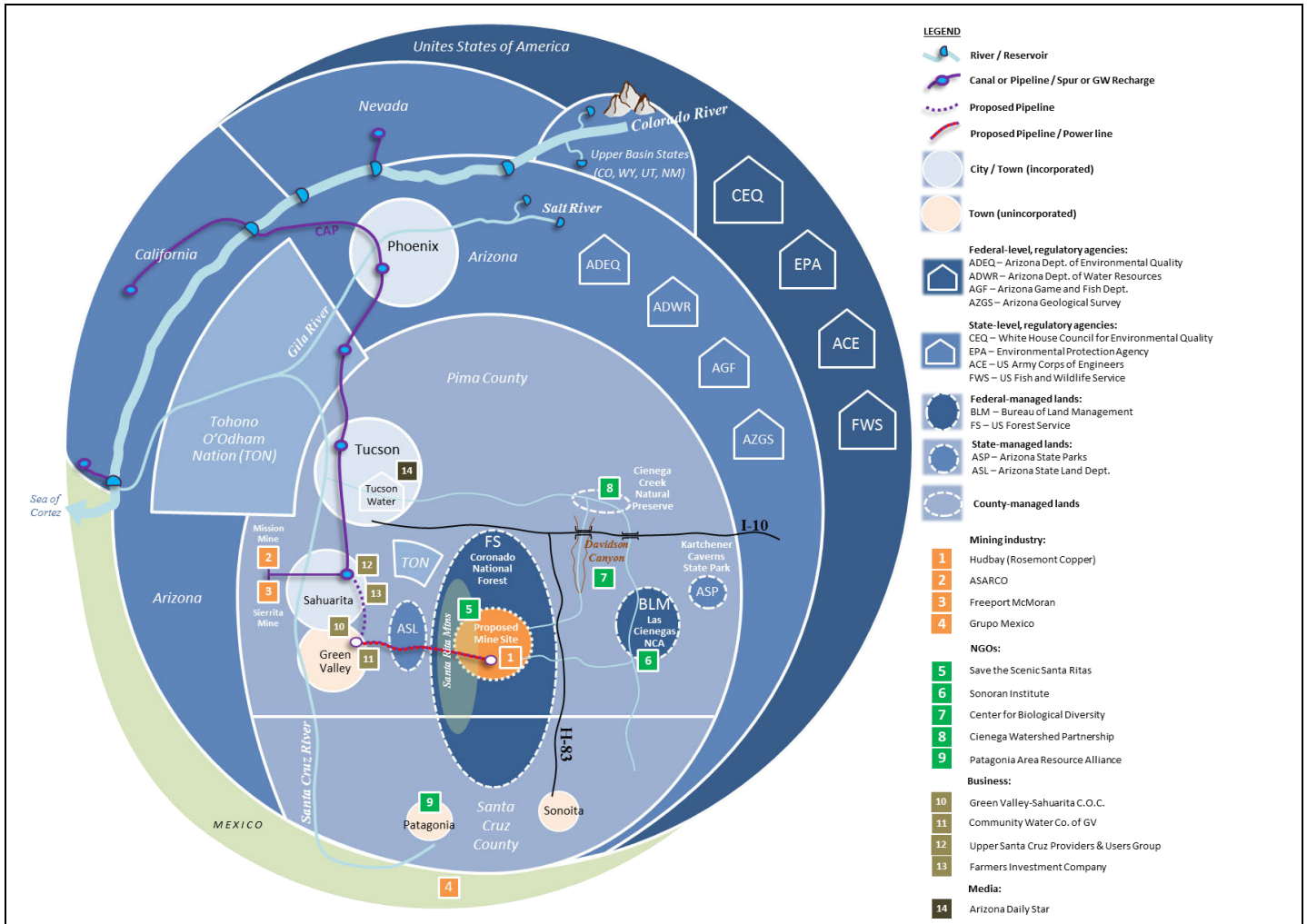


Figure **Error! No text of specified style in document.**.2 - The Hydro-social Landscape of the south-western United States, centred on the Rosemont Copper mine proposal, Arizona.

opposition to the project on economic grounds suggest a lack of trust in the industry and the company's history of operations, and express a concern for the company's foreign status. A secondary economic concern is for the potentially negative impacts upon the tourist industry in the area. A total of 210 comments expressed a concern for the veracity of the methods used to assess the socio-economic impacts of the mine, and in particular the model employed.

The second most referred to area of concern was that of the environment, making up 26% of discreet comments as categorised by CNF. More than half of the comments of this type were in favour of the mine on environmental grounds, suggesting that the impacts of the mine would be reduced by the use of technology. The majority of comments in opposition to the mine cited the long-term impacts upon the environment, suggesting that these would outweigh the short-term economic benefits. Ecological impacts, to general wildlife populations, movement, and habitat were of similar significance to the public engaged in the issue (34% of discreet comments) .Meanwhile, 25% of oppositional comments relating to the environment referred to the aesthetic implications for those for whom the Santa Rita Mountains hold considerable importance.

Concerns relating to water constitute 15% of the discreet comments, with oppositional statements making up the near-majority of these (47%). A considerable majority of those for whom the mine should not be permitted due to water impacts cited the scarcity of available water from groundwater supplies and from the Central Arizona Project. In 75% of the comments offered by these respondents, the lack of limitations on water use for mining, and the water intensive nature of the mining process is unacceptable. The remaining 25% allude to the "water quality impacts from toxic metals leaching into the groundwater and surface water". Pollution is also a concern in 291 other comments relating to water, for these the CNF analysis does not suggest a preference for or against the mine, but does imply that the EIS should be revised. In particular for the respondents, a revised document should revisit the underlying geologic conditions in relation to the groundwater models, and should incorporate an analysis of groundwater "drawdown impacts on local watersheds and wells, as well as mitigation or compensation measures with regard to owners". Meanwhile, 11% of the comments relating water were in support of Rosemont Copper. In these comments, the respondents argue that the mine will regulate and protect water resource use.

In the 'general' category, 729 further discreet comments opposed the mine on the grounds of the impacts to "multiple (environmental, social, and/or cultural) resources", and the remaining comments analysed by CNF call for a revised EIS for multiple reasons.

Having identified the prevalent themes emerging in the public comments, the following sections analyse in more depth the content of the comments submitted under each theme. NVivo software was used to carry out a word frequency analysis on textual content, and used as a basis to discuss the emerging opinions and themes. Each section addresses separately – and in reverse sequence – the themes coded at level 3 as shown in table 2. It should be noted that the use of double

quotation marks is intended to emphasise those words which are most used terms in the comments classified under each public concern statement.

	Public Concern Statement (with CNF prefix code)	No. of Discreet Comments			% of Total Discreet Comments
		Support	Opposition	Other	
1	224 - The Coronado National Forest should allow the Rosemont Copper Company project to move forward.Because the project will generate jobs and economic revenue.	4526	-	-	19.1
2	219 - The Coronado National Forest should approve the Rosemont Copper Project. Rosemont plans to use the best technology available to reduce potential environmental impacts, and the proposed mine would be environmentally responsible.	1861	-	-	7.9
3	221 - The Coronado National Forest should allow the Rosemont Copper EIS project to move forward because the project will contribute resources to the national and global copper market that ultimately supports the ever expanding need for technology.	1096	-	-	4.6
4	231 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward.Because of adverse impacts to multiple (environmental, social, and/or cultural) resources.	-	729	-	3.1
5	314 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward. Because of the high level and lack of limits of proposed water usage; the scarcity of water (both groundwater and Central Arizona Project water); and the impacts of water depletion on people as well as the natural environment (including impacts to water sources and wildlife, as well as subsidence resulting from the use of groundwater).	-	699	-	3.0
6	230 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward.Because long-term environmental impacts will outweigh any short-term economic benefits.	-	627	-	2.6
7	246 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward.Due to lack of trust over Rosemont intentions, lack of follow-through, company or employee performance history, and foreign company status.	-	488	-	2.1
8	258 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward.Because of increases in road deterioration, maintenance costs, traffic volume, commuting times and public safety concerns, as well as impacts to the scenic road designation of State Route 83.	-	461	-	1.9
9	227 - The Coronado National Forest should not allow the Rosemont Copper Company project to go forward. Because of impacts to scenic quality of the Santa Rita mountains, and resulting visual impacts to residents, tourists, and nature lovers.	-	372	-	1.6
10	896 - The Coronado National Forest should revise the transportation analysis to include a wider analysis area, and incorporate updated baseline data, including a more accurate highway classification for State Route 83 and a re-evaluation of peak and nonpeak data, to remodel traffic and provide a full disclosure of transportation costs and impacts, including the effect of impacts to volume and level of service, road condition, potential for fatalities and accidents, and impacts to scenic designation.	-	-	319	1.3
11	797 - The Coronado National Forest should address issues related to groundwater modeling, including a re-analysis of underlying geologic conditions, and revise the EIS accordingly.	-	-	313	1.3
12	875 - The Coronado National Forest should revise the water quality analysis to include a more rigorous examination of the potential for seepage or leaching from waste rock, heap leach, and pit lake facilities, or from blasting, disclosing the full chemistry of the seepage, the potential for acid mine drainage, and the relationship of water quality to water quality standards, and should discuss appropriate measures to prevent impacts to surface and ground waters, including a long-term monitoring plan.	-	-	291	1.2
13	551 - The Coronado National Forest should issue and make available for public comment a supplemental EIS.Because the information contained in the EIS is insufficient to satisfactorily analyze potential impacts.	-	-	286	1.2
14	256 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward.Because of negative impacts to tourism.	-	267	-	1.1
15	316 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward because of impacts to general wildlife populations, movement, and habitat.	-	257	-	1.1
16	790 - The Coronado National Forest should not allow the Rosemont Copper Company project to go forward.Because of general ecological or environmental impacts.	-	251	-	1.1
17	364 - The Coronado National Forest should provide an analysis of project drawdown impacts on local watersheds and wells, as well as mitigation or compensation measures with regard to owners.	-	-	236	1.0
18	313 - The Coronado National Forest should not allow the Rosemont Copper project to move forward.Because of water quality impacts from toxic metals leaching into the groundwater and surface water.	-	233	-	1.0
19	220 - The Coronado National Forest should allow the Rosemont Copper Company project to move forward.Because it will protect water resources, and their water use will be regulated.	216	-	-	0.9
20	703 - The Coronado National Forest should perform a new, unbiased socioeconomic study of the project over a wider analysis area, disclose both short-term and long-term economic impacts, and provide all data inputs, model assumptions, calibrations, etc. in the EIS.	-	-	210	0.9
	TOTAL	7699	4384	1655	58.1

Table **Error! No text of specified style in document.**.2 - DEIS Public Commenting Process: Areas of Concern, ranked by number of discreet comments

Coding Level 1		Coding Level 2		Coding Level 3		
Description	# Discreet Comments (% of total)	Description	# Discreet Comments (% of level 1)	Description*	Public Concern Statement (with CNF prefix code)	# Discreet Comments (% of level 2)
Economy	6587 (51%)	Support	5622 (85%)	EC+224 Jobs	224 - The Coronado National Forest should allow the Rosemont Copper Company project to move forward. Because the project will generate jobs and economic revenue.	4526 (81%)
				EC+221 Copper	221 - The Coronado National Forest should allow the Rosemont Copper EIS project to move forward because the project will contribute resources to the national and global copper market that ultimately supports the ever expanding need for technology.	1096 (19%)
		Opposition	755 (11%)	EC-246 Trust	246 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward. Due to lack of trust over Rosemont intentions, lack of follow-through, company or employee performance history, and foreign company status.	488 (65%)
				EC-256 Tourism	256 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward. Because of negative impacts to tourism.	267 (35%)
		Other	210 (3%)	EC-703 Modelling	703 - The Coronado National Forest should perform a new, unbiased socioeconomic study of the project over a wider analysis area, disclose both short-term and long-term economic impacts, and provide all data inputs, model assumptions, calibrations, etc. in the EIS.	210 (100%)
Environment	3368 (26%)	Support	1861 (55%)	EC+219 Technology	219 - The Coronado National Forest should approve the Rosemont Copper Project. Rosemont plans to use the best technology available to reduce potential environmental impacts, and the proposed mine would be environmentally responsible.	1861 (100%)
		Opposition	1507 (45%)	EV-230 Long-term	230 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward. Because long-term environmental impacts will outweigh any short-term economic benefits.	627 (42%)
				EV-316790 Wildlife	316 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward because of impacts to general wildlife populations, movement, and habitat.	508 (34%)
					790 - The Coronado National Forest should not allow the Rosemont Copper Company project to go forward. Because of general ecological or environmental impacts.	
				EV-227 Aesthetics	227 - The Coronado National Forest should not allow the Rosemont Copper Company project to go forward. Because of impacts to scenic quality of the Santa Rita mountains, and resulting visual impacts to residents, tourists, and nature lovers.	372 (25%)
Water	1988 (15%)	Opposition	932 (47%)	WA-314 Use	314 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward. Because of the high level and lack of limits of proposed water usage; the scarcity of water (both groundwater and Central Arizona Project water); and the impacts of water depletion on people as well as the natural environment (including impacts to water sources and wildlife, as well as subsidence resulting from the use of groundwater).	699 (75%)
				WA-313 Pollution	313 - The Coronado National Forest should not allow the Rosemont Copper project to move forward. Because of water quality impacts from toxic metals leaching into the groundwater and surface water.	233 (25%)
		Other	840 (42%)	WAo797364 Drawdown	797 - The Coronado National Forest should address issues related to groundwater modeling, including a re-analysis of underlying geologic conditions, and revise the EIS accordingly.	549 (65%)
					364 - The Coronado National Forest should provide an analysis of project drawdown impacts on local watersheds and wells, as well as mitigation or compensation measures with regard to owners.	
				WAo875 Pollution	875 - The Coronado National Forest should revise the water quality analysis to include a more rigorous examination of the potential for seepage or leaching from waste rock, heap leach, and pit lake facilities, or from blasting, disclosing the full chemistry of the seepage, the potential for acid mine drainage, and the relationship of water quality to water quality standards, and should discuss appropriate measures to prevent impacts to surface and ground waters, including a long-term monitoring plan.	291 (35%)
		Support	216 (11%)	WA+220 Use	220 - The Coronado National Forest should allow the Rosemont Copper Company project to move forward. Because it will protect water resources, and their water use will be regulated.	216 (100%)
General	1225 (8%)	Opposition	729 (72%)	GE-231 Resources	231 - The Coronado National Forest should not allow the Rosemont Copper Company project to move forward. Because of adverse impacts to multiple (environmental, social, and/or cultural) resources.	729 (100%)
		Other	496 (28%)	GEo551 EIS	551 - The Coronado National Forest should issue and make available for public comment a supplemental EIS. Because the information contained in the EIS is insufficient to satisfactorily analyze potential impacts.	496 (100%)

Table **Error! No text of specified style in document.**.3 - DEIS public comments: Key issues - coded by theme and ranked according to incidence of discreet comments

References

42 USC § 4331 1969 The National Environmental Policy Act of 1969 - Section 101 [online].

AAP. 2015 Brazil to sue mining companies BHP and Vale for $5bn over dam disaster. The Guardian / Australian Associated Press. 28 November 2015.

Adelle, C. and Weiland, S. 2012 *Policy assessment: the state of the art.* Impact Assessment and Project Appraisal 30 (1), pp.25-33.

Adler, J.H. 2002 Fables of the Cuyahoga: Reconstructing a history of environmental protection. Fordham Environmental Law Journal 14 pp.89-146.

ADWR, 2015 *Colorado River Shortage: Impacts on Arizona*. Arizona Department of Water Resources.

Agamben, G. 2005 *State of Exception* The University of Chicago Press.

Allan, T. 2011 Virtual Water: Tackling the Threat to our most Precious Resource I.B. Tauris.

Allan, T. 1993 Fortunately there are substitutes for water: otherwise our hydropolitical futures would be impossible. In: Overseas Development Administration, ed. **Priorities for Water Resources Allocation and Management** Overseas Development Administration. pp.13-26.

Andrews, E. and McCarthy, J. 2014 Scale, shale, and the state: political ecologies and legal geographies of shale gas development in Pennsylvania. Journal of Environmental Studies and Sciences 4 (1), pp.7-16.

Anon 2011 *Rosemont Copper Owned the Save the Scenic Santa Rita's URL.* Available from: https://www.youtube.com/watch?v=-dWB2crujjo [Accessed 07/11/2015].

Anon 2008a *AZ Border Patrol Rescues the Forest Prop.Rosemont Open House.* Available from: https://www.youtube.com/watch?v=5EUIQYqocYM [Accessed 14 December 2015].

Anon 2008b *Chart Lookin' Session on the Proposed Rosemont Copper Mine.* Available from: https://www.youtube.com/watch?v=o4BTnICYmbs [Accessed 14 December 2015].

Anon 2008c *Out the Back Door -Proposed Rosemont Copper Open House.* Available from: https://www.youtube.com/watch?v=qdIbaObVQvE [Accessed 14 December 2015].

Arizona State Legislature 2015 *Arizona Constitution: Article 22, Section 20.* Available from: http://www.azleg.gov/FormatDocument.asp?inDoc=/const/22/20.htm [Accessed 20/09/2015].

Arnstein, S.R. 1969 *A ladder of citizen participation.* Journal of the American Institute of Planners 35 (4), pp.216-224.

Ascarza, W. 2013 Native Americans mined variety of minerals early on. Arizona Daily Star. 20 May 2013.

Ashby, E. 1976 Background to environmental impact assessment. In: O'Riordan, T. and Hey, R. (eds.) Environmental Impact Assessment Saxon House. pp.3-15.

Augusta Resource Corporation, 2008 *Press Release: Rosemont Copper Reacts to Public Comments*. Augusta Resource Corporations.

Barnett, C. 2012 Situating the geographies of injustice in democratic theory. Geoforum 43 (4), pp.677-686.

Bartlett, R.V. and Kurian, P.A. 1999 The theory of environmental impact assessment: implicit models of policy making. Policy & Politics 27 (4), pp.415-433.

Bartley, B., Hubbard, P. and Kitchin, R. 2004 *Thinking Geographically* A&C Black.

Bebbington, A. 2012 Underground political ecologies: the second annual lecture of the Cultural and Political Ecology Specialty Group of the Association of American Geographers. Geoforum 43 (6), pp.1152-1162.

Bebbington, A. 2009 *The new extraction: rewriting the political ecology of the Andes.* NACLA Report on the Americas 42 (5), pp.12-20.

Bebbington, A., Hinojosa, L., Bebbington, D.H., Burneo, M.L. and Warnaars, X. 2008 *Contention and ambiguity: Mining and the possibilities of development.* Development and Change 39 (6), pp.887-914.

Beck, U. 1997 The Reinvention of Politics: Rethinking Modernity in the Global Social Order Polity Press Cambridge.

Bickerstaff, K. and Walker, G. 2005 Shared visions, unholy alliances: power, governance and deliberative processes in local transport planning. Urban Studies 42 (12), pp.2123-2144.

Blaikie, P. and Brookfield, H. 1987 *Land Degradation and Society.* Methuen.

Blumenfeld, J. 2012a Subject: Draft Environmental Impact Statement for the Rosemont Copper Project, Coronado National Forest, Pima County, Arizona [CEQ# 20110350], 21 February 2012.

Blumenfeld, J. 2012b Subject: Permit Application No. 2008-00816-MB for the proposed Rosemont Copper Mine Project, Rosemont Copper Company, Pima County, Arizona, 13 February 2012.

Braun, V. and Clarke, V. 2006 *Using thematic analysis in psychology.* Qualitative Research in Psychology 3 (2), pp.77-101.

Bridge, G. 2000 The social regulation of resource access and environmental impact: production, nature and contradiction in the US copper industry. Geoforum 31 (2), pp.237-256.

Briggs, D.F., 2014 *History of Helvetia-Rosemont Mining District, Pima County, Arizona* [online]. Arizona Geological Survey Contributed Report. [Accessed 28 November 2014].

Broad, K., Pfaff, A., Taddei, R., Sankarasubramanian, A., Lall, U. and de Souza Filho, Franciso de Assis 2007 *Climate, stream flow prediction and water management in northeast Brazil: societal trends and forecast value.* Climatic Change 84 (2), pp.217-239.

Brown, W. 2005 Edgework: Critical Essays on Knowledge and Politics Princeton University Press.

Burton, I. 1968 The Quantitative Revolution and Theoretical Geography. In: Berry, B.J.L. and Marble, D.F. (eds.) Spatial Analysis: A Reader in Statistical Geography Wiley Online Library. pp.13-23.

Burton, L. 1991 American Indian Water Rights and the Limits of Law University Press of Kansas.

Carter, B. 2012 Boom, Bust, Boom: A Story about Copper, the Metal that Runs the World Simon and Schuster.

Castree, N. 2005 *Nature* Routledge.

CEQ, 2007a *A Citizen's Guide to the NEPA: Having Your Voice Heard*. Council on Environmental Quality, Executive Office of the President of the United States.

CEQ, 2007b Collaboration in NEPA: A Handbook for NEPA Practitioners. Council on Environmental Quality.

Cidell, J. 2010 Content clouds as exploratory qualitative data analysis. Area 42 (4), pp.514-523.

Cleaver, F. 2001 Institutions, agency and the limitations of participatory approaches to development. In: Cooke, B. and Kothari, U. (eds.) Participation: The New Tyranny?Zed Books. pp.36-55.

Cleaver, F. 1999 Paradoxes of participation: questioning participatory approaches to development. Journal of International Development 11 (4), pp.597.

Cloke, P., Cook, I., Crang, P., Goodwin, M., Painter, J. and Philo, C. 2004 *Practising Human Geography* Sage.

CNF, 2013 Rosemont Copper Project: Final Environmental Impact Statement & Draft Record of Decision. Coronado National Forest, United States Forest Service.

CNF 2012 *Analysis Continues for Environmental Impact Statement (Announcement 16th November 2012).* Available from: http://www.rosemonteis.us/announcements/111612 [Accessed 28 November 2015].

CNF, 2011 Draft Environmental Impact Statement for the Rosemont Copper Project A Proposed Mining Operation Coronado National Forest Pima County, Arizona. Coronado National Forest, United States Forest Service.

CNF, 2009a Scoping Summary Report #1: Extent of Public Participation - Rosemont Copper Project, A Proposed Mining Operation in Southern Arizona. Coronado National Forest, United States Forest Service.

CNF, 2009b Scoping Summary Report #2: Theme of Comments - Rosemont Copper Project, A Proposed Mining Operation in Southern Arizona. Coronado National Forest, United States Forest Service.

Collins, N. and Woodley, A. 2013 *Social water assessment protocol: a step towards connecting mining, water and human rights.* Impact Assessment and Project Appraisal 31 (2), pp.158-167.

Cooke, B. and Kothari, U. 2001 *The case for participation as tyranny.* In: Cooke, B. and Kothari, U. (eds.) *Participation: The New Tyranny?*Zed Books.

Cornwall, A. 2008 *Unpacking 'Participation': models, meanings and practices.* Community Development Journal 43 (3), pp.269-283.

Creasey, S.C. and Quick, G.L. 1955 *Copper deposits of part of Helvetia mining district, Pima County, Arizona.* United States Geological Survey Bulletin 1072-F pp.301-323.

Danny L. Jorgensen 1989 Participant Observation: A Methodology for Human Studies Sage.

Del Casino Jr, V. 2009 Social Geography: A Critical Introduction John Wiley & Sons.

Del Casino, V.J., Grimes, A.J., Hanna, S.P. and Jones Iii, J.P. 2000 *Methodological frameworks for the geography of organizations.* Geoforum 31 (4), pp.523-538.

Denogean, A.T. 2008 *Stunt pulled by mining firm just shameless.* Tucson Weekly. 28 March 2008.

Derrida, J. 1982 *Margins of Philosophy* University of Chicago Press.

Diduck, A., Sinclair, J., Pratap, D. and Hostetler, G. 2007 Achieving meaningful public participation in the environmental assessment of hydro development: case studies from Chamoli District, Uttarakhand, India. Impact Assessment and Project Appraisal 25 (3), pp.219-231.

Dikeç, M. 2012 *Space as a mode of political thinking.* Geoforum 43 (4), pp.669-676.

Donohew, Z. 2009 *Property rights and western United States water markets*.* Australian Journal of Agricultural and Resource Economics 53 (1), pp.85-103.

Earthworks, 2013 *Polluting the Future*. Earthworks.

Elwood, S.A. and Martin, D.G. 2000 *"Placing" interviews: location and scales of power in qualitative research.* The Professional Geographer 52 (4), pp.649-657.

Esteves, A.M., Franks, D. and Vanclay, F. 2012 *Social impact assessment: the state of the art.* Impact Assessment and Project Appraisal 30 (1), pp.34-42.

Featherstone, D. and Korf, B. 2012 *Introduction: Space, contestation and the political.* Geoforum 43 pp.663-668.

Federal Register, 2013 *78 Fr 75919*. United States Government.

Federal Register, 2008 *73 Fr 13527*. United States Government.

Flyvbjerg, B. 2006 *Five misunderstandings about case-study research.* Qualitative Inquiry 12 (2), pp.219-245.

Anon. 2000 Paper for the Political Studies Association's 50th Annual Conference, the Challenges for Democracy in the 21st Century, London School of Economics and Political Science [online]. London, 10 April 2000. Aalborg University. Available from: https://www.researchgate.net/profile/Bent_Flyvbjerg/publication/228462103_Ideal_Theory_Real_Rationality_Habermas_Versus_Foucault_and_Nietzsche/links/0fcfd50c5def22450f000000.pdf. [Accessed 10 December 2015].

Flyvbjerg, B. 1998 *Rationality and Power: Democracy in Practice* University of Chicago press.

Forester, J. 1993 Critical Theory, Public Policy, and Planning Practice SUNY Press.

Forester, J. 1989 *Planning in the Face of Power* Univ of California Press.

Foucault, M. 1979 *On Governmentality.* In: Miller, P., Gordon, C. and Burchell, G. (eds.) *The Foucault Effect: Studies in Governmentality* University of Chicago Press.

Foucault, M. 1977 Discipline and Punish: The Birth of the Prison Vintage.

Giffords, G. and Grijalva, R. 2008 Letter to Jeanine Derby, Coronado National Forest Supervisor, 22 May 2008.

Gleick, P.H. 2014 The World's Water Volume 8: The Biennial Report on Freshwater Resources Island Press.

Gleick, P.H. 2000 How much water is there and whose is it? The worlds stocks and flows of water and international river basins. In: Gleick, P.H., ed. The World's Water 2000-2001: The Biennial Report on Freshwater Resources Washington DC Island Press 2000. pp.19-38.

Glennon, R. and Pearce, M.J. 2007 Transferring mainstem Colorado river water rights: the Arizona experience. Arizona Law Review 49 pp.235-256.

Glenza, J. 2015 After Animas river spill, experts warn of next disaster: 'We were lucky this time'. The Guardian. 17 August 2015.

Goldin, J.A. 2013 The participatory paradigm: anathema, praise and confusion. In: Harris, L.M., Goldin, J.A. and Sneddon, C. (eds.) Contemporary Water Governance in the Global South.Routledge, London, UK .Routledge. pp.179-184.

Goldin, J.A. 2010 *Water policy in South Africa: trust and knowledge as obstacles to reform.* Review of Radical Political Economics 42 (2), pp.195-212.

Goldin, J. 2003 *Washing away the sins of the past.* International Journal of Public Administration 26 (6), pp.711-730.

Gregory, D. 2011 *Positivism.* In: Gregory, D., Johnston, R., Pratt, G., Watts, M. and Whatmore, S. (eds.) *The Dictionary of Human Geography* John Wiley & Sons. pp.606-608.

Gunson, A., Klein, B., Veiga, M. and Dunbar, S. 2012 *Reducing mine water requirements.* Journal of Cleaner Production 21 (1), pp.71-82.

Habermas, J. 1996 Between Facts and Norms, Trans. William Rehg Polity.

Habermas, J. 1981 *Theorie Des Kommunikativen Handelns* Suhrkamp Frankfurt.

Harris, L.M., Goldin, J.A. and Sneddon, C. (eds). 2013 Contemporary Water Governance in the Global South: Scarcity, Marketization and Participation Routledge.

Harvey, D. 1973 Social Justice and the City Blackwell.

Haughton, G., Allmendinger, P. and Oosterlynck, S. 2013 *Spaces of neoliberal experimentation: soft spaces, postpolitics, and neoliberal governmentality.* Environment and Planning A 45 (1), pp.217-234.

Healey, P. 1997 Collaborative Planning: Shaping Places in Fragmented Societies Palgrave MacMillan.

Healey, P. 1992 *A planner's day: knowledge and action in communicative practice.* Journal of the American Planning Association 58 (1), pp.9-20.

Hoover, K. and Stern, M.J. 2014 Team leaders' perceptions of public influence in the US Forest Service: exploring the difference between doing and using public involvement. Journal of Environmental Planning and Management 57 (2), pp.157-172.

Horowitz, L.S. 2010 "Twenty years is yesterday": Science, multinational mining, and the political ecology of trust in New Caledonia. Geoforum 41 (4), pp.617-626.

Hourdequin, M., Landres, P., Hanson, M.J. and Craig, D.R. 2012 *Ethical implications of democratic theory for US public participation in environmental impact assessment.* Environmental Impact Assessment Review 35 pp.37-44.

Howe, D.W. 2007 What Hath God Wrought: The Transformation of America, 1815-1848 Oxford University Press.

Huber, M.T. and Emel, J. 2009 Fixed minerals, scalar politics: the weight of scale in conflicts over the1872 Mining Law'in the United States. Environment and Planning A 41 pp.371-388.

Huxley, M. 2000 *The limits to communicative planning.* Journal of Planning Education and Research 19 (4), pp.369-377.

Hyde, C.K. 1998 Copper for America: The United States Copper Industry from Colonial Times to the 1990s University of Arizona Press.

Anon. 1992 [online]. International Conference on Water and the Environment.

IPCC, 2013 Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment. Report of the Intergovernmental Panel on Climate Change. Intergovernmental Panel on Climate Change, Cambridge University Press.

Irwin, A. 1995 Citizen Science: A Study of People, Expertise and Sustainable Development Psychology Press.

Jung, Y. 2015 Maricopa judge overturns Rosemont mine's air permit. Arizona Daily Star. 6 March 2015.

Kadirbeyoğlu, Z. and Kurtiç, E. 2013 Problems and prospects for genuine participation in water governance in Turkey. In: Harris, L.M., Goldin, J.A. and Sneddon, C. (eds.) Contemporary Water Governance in the Global South: Scarcity, Marketization and Participation Routledge. pp.199-215.

Kaika, M. 2003 The Water Framework Directive: a new directive for a changing social, political and economic European framework. European Planning Studies 11 (3), pp.299-316.

Kelle, U. 2000 Computer-assisted analysis: coding and indexing. In: Bauer, M.W. and Gaskell, G. (eds.) Qualittive Researching with Text, Image and Sound Sage. pp.282-298.

Lawrence, D.P. 2000 *Planning theories and environmental impact assessment.* Environmental Impact Assessment Review 20 (6), pp.607-625.

Leitner, H. and Sheppard, E. 1989 *The city as locus of production.* In: Peet, R. and Thrift, N. (eds.) *New Models in Geography* Unwin Hyman. pp.55-83.

Leknes, E. 2001 *The roles of EIA in the decision-making process.* Environmental Impact Assessment Review 21 (4), pp.309-334.

Lewins, A. and Silver, C. 2007 Using Software in Qualitative Research: A Step-by-Step Guide Sage.

Ley, D. 1979 Social geography and the taken-for-granted world. In: Gale, S. and Olsson, G. (eds.) Philosophy in Geography Springer. pp.215-236.

Lostarnau, C., Oyarzún, J., Maturana, H., Soto, G., Señoret, M., Soto, M., Rötting, T.S., Amezaga, J.M. and Oyarzún, R. 2011 *Stakeholder participation within the public environmental system in Chile: Major gaps between theory and practice.* Journal of Environmental Management 92 (10), pp.2470-2478.

Machin, A. 2013 Negotiating Climate Change: Radical Democracy and the Illusion of Consensus Zed.

Marx, K. and Engels, F. 1848 Manifesto of the Communist Party .

Mason, J. 2002 Qualitative Researching Sage.

Massey, D. 2005 *For Space* Sage.

Maupin, M.A., Kenny, J.F., Hutson, S.S., Lovelace, J.K., Barber, N.L. and Linsey, K.S. 2014 *Estimated use of Water in the United States in 2010* [online]. US Geological Survey. [Accessed 17/04/2015].

McCullough, C.D., Marchand, G. and Unseld, J. 2013 *Mine closure of pit lakes as terminal sinks: best available practice when options are limited?* Mine Water and the Environment 32 (4), pp.302-313.

McDowell, L. 2010 *Interviewing: Fear and liking in the field.* In: DeLyser, D., Herbert, S., Aitken, S., Crang, M., A. and McDowell, L. (eds.) *The SAGE Handbook of Qualitative Geography* SAGE Publications Ltd. pp.156-171.

McGuirk, P.M. 2001 Situating communicative planning theory: context, power, and knowledge. Environment and Planning A 33 (2), pp.195-217.

Megdal, S., B., 2014 *Facing an Uncertain Colorado River Basin Future*. National Agricultural & Rural Development Policy Center.

Meyer, R., Schetter, C. and Prinz, J. 2012 Spatial contestation? – The theological foundations of Carl Schmitt's spatial thought. Geoforum 43 (4), pp.687-696.

Miller, C. 2013 Atlas of US and Canadian Environmental History Routledge.

Miller, J.B. 2008a *Comment time to be extended on hearings.* The Weekly Bulletin. 01 April 2008.

Miller, J.B. 2008b *Opponents disrupt mine info meeting.* The Weekly Bulletin. 25 March 2008.

Mining Engineering. 2010 *Mining law reform will not happen this year.* Mining Engineering. 1 April 2010, p.13.

Morgan, R.K. 2012 *Environmental impact assessment: the state of the art.* Impact Assessment and Project Appraisal 30 (1), pp.5-14.

Moskowitz, P. 2015 Mount Polley mine spill: a hazard of Canada's industry-friendly attitude? The Guardian. 13 August 2015.

Mouffe, C. 2013 *Space, Hegemony and the Radical Critique.* In: Featherstone, D. and Painter, J. (eds.) *Spatial Politics: Essays for Doreen Massey* Wiley-Blackwell. pp.21-31.

Mouffe, C. 2005 *On the Political* Routledge.

Mouffe, C. 1999 *Deliberative democracy or agonistic pluralism?* Social Research 66 (3), pp.745-758.

NOAA, 2015 NOAA National Centers for Environmental Information, State of the Climate: Global Analysis for August 2015. National Oceanic and Atmospheric Administration.

NOAA, 1992 Oil Spill Case Histories, 1967-1991: Summaries of Significant US and International Spills. National Oceanic and Atmospheric Administration.

O'Faircheallaigh, C. 2010 Public participation and environmental impact assessment: Purposes, implications, and lessons for public policy making. Environmental Impact Assessment Review 30 (1), pp.19-27.

O'Riordan, T. and Sewell, W.R.D. 1981 *From project appraisal to policy review.* In: O'Riordan, T. and Sewell, W.R.D. (eds.) *Project Appraisal and Policy Review* Wiley. pp.1-28.

Page, B. and Kaika, M. 2003 The EU Water Framework Directive: Part 2. Policy innovation and the shifting choreography of governance. European Environment 13 (6), pp.328-343.

Patashnik, J. 2013 Arizona v. California and the Equitable Apportionment of Interstate Waterways. Arizona Law Review 56 pp.1-51.

Pima County 2015 *The Sonoran Desert Conservation Plan.* Available from: http://webcms.pima.gov/government/sustainability_and_conservation/conservation_science/the_sonoran_desert_conservation_plan/ [Accessed 24 November 2015].

Pitzer, G., Eden, S. and Geld, J. 2007 *Layperson's Guide to Arizona Water* [online]. Water Resources Research Center, University of Arizona. [Accessed 04/05/2014].

Poisner, J. 1996 Civic Republican Perspective on the National Environmental Policy Act's Process for Citizen Participation. Environmental Law 26 pp.53-94.

Pope, J., Bond, A., Morrison-Saunders, A. and Retief, F. 2013 *Advancing the theory and practice of impact assessment: setting the research agenda.* Environmental Impact Assessment Review 41 pp.1-9.

Pred, A. and Watts, M. 1992 Reworking Modernity: Capitalisms and Symbolic Discontent Rutgers University Press.

Predmore, S.A., Stern, M.J. and Mortimer, M.J. 2011 *Constructing the public: the 'substantive sieve'and personal norms in US Forest Service Planning.* Journal of Environmental Planning and Management 54 (3), pp.403-419.

Pretty, J.N. 1995 *Participatory learning for sustainable agriculture.* World Development 23 (8), pp.1247-1263.

Rancière, J. 2004 *Disagreement: Politics and Philosophy* U of Minnesota Press.

Rancière, J. 1995 On the Shores of Politics Verso.

Reed, M., Evely, A.C., Cundill, G., Fazey, I.R.A., Glass, J., Laing, A., Newig, J., Parrish, B., Prell, C. and Raymond, C. 2010 *What is social learning?* Ecology and Society .

Reed, M.S. 2008 Stakeholder participation for environmental management: A literature review. Biological Conservation 141 (10), pp.2417-2431.

Reisner, M. 1993 Cadillac Desert: The American West and its Disappearing Water Penguin.

Rice, G. 2010 *Reflections on interviewing elites.* Area 42 (1), pp.70-75.

Richardson, T. 2005 Environmental assessment and planning theory: four short stories about power, multiple rationality, and ethics. Environmental Impact Assessment Review 25 (4), pp.341-365.

Rosanvallon, P. 2008 Counter-Democracy: Politics in an Age of Distrust Cambridge University Press.

Rose, N. and Miller, P. 1992 *Political power beyond the state: problematics of government.* British Journal of Sociology pp.173-205.

Rubin, H.J. and Rubin, I.S. 2011 *Qualitative Interviewing: The Art of Hearing Data* Sage Publications.

Rydin, Y. 2003 Conflict, Consensus, and Rationality in Environmental Planning: An Institutional Discourse Approach: An Institutional Discourse Approach OUP Oxford.

Cv 11-094-Tuc-Frz [2011] .

Sayer, R.A. 1992 Method in Social Science : A Realist Approach Routledge.

Schrader, F.C. and Hill, J.M. 1915 *Mineral deposits of the Santa Rita and Patagonia mountains, Arizona.* United States Geological Survey Bulletin (582), .

Seale, C. 2000 Using computers to analyse qualitative data. In: Silverman, D., ed. Doing Qualitative Research: A Practical Handbook Sage. pp.155-174.

Sheridan, T.E. 2012 *Arizona: A History* University of Arizona Press.

Sheridan, T.E. 1995 *Arizona: the political ecology of a desert state.* Journal of Political Ecology 2 (1), pp.41-57.

Sin, C.H. 2003 Interviewing in 'place': the socio-spatial construction of interview data. Area 35 (3), pp.305-312.

Spencer, J. 2012 Performing democracy and violence, agonism and community, politics and not politics in Sri Lanka. Geoforum 43 (4), pp.725-731.

Spensley, J.W. 2014 *National Environmental Policy Act.* In: Sullivan, T.F.P., ed. *Environmental Law Handbook* 22nd ed. Bernan Press. pp.635-693.

Sprouse, T., Cory, D. and Varady, R. 1996 *Aquifer Contamination and Safe Drinking Water: The Recent Santa Cruz County Experience.* Hydrology and Water Resources in Arizona and the Southwest 26 pp.87-98.

SSSR 2015 *Save the Scenic Santa Ritas: History.* Available from: http://www.scenicsantaritas.org/history [Accessed 3 December 2015].

Staddon, C. 2010 Managing Europe's Water Resources: Twenty-First Century Challenges Ashgate Publishing.

Stewart, J.M. and Sinclair, A.J. 2007 Meaningful public participation in environmental assessment: perspectives from Canadian participants, proponents, and government. Journal of Environmental Assessment Policy and Management 9 (02), pp.161-183.

Sullivan, T.F.P., ed. 2014 *Environmental Law Handbook* 22nd ed. Bernan Press.

Sultana, F. and Loftus, A. 2012a The Right to Water: Politics, Governance and Social Struggles Earthscan.

Sultana, F. and Loftus, A. 2012b The right to water: prospects and possibilities. In: Sultana, F. and Loftus, A. (eds.) The Right to Water: Politics, Governance and Social Struggles Earthscan. pp.1-18.

Swyngedouw, E. 2011 Interrogating post-democratization: reclaiming egalitarian political spaces. Political Geography 30 (7), pp.370-380.

Swyngedouw, E. 2006 Circulations and metabolisms:(hybrid) natures and (cyborg) cities. Science as Culture 15 (2), pp.105-121.

Swyngedouw, E. 2005 Governance innovation and the citizen: the Janus face of governance-beyond-the-state. Urban Studies 42 (11), pp.1991-2006.

Swyngedouw, E. 2004 Social Power and the Urbanization of Water: Flows of Power Oxford University Press.

Swyngedouw, E. 1999 Modernity and hybridity: nature, regeneracionismo, and the production of the Spanish waterscape, 1890–1930. Annals of the Association of American Geographers 89 (3), pp.443-465.

Swyngedouw, E. 2013 *UN Water Report 2012: Depoliticizing Water.* Development and Change 44 (3), pp.823-835.

Swyngedouw, E. 2009 *The Political Economy and Political Ecology of the Hydro-Social Cycle.* Journal of Contemporary Water Research & Education 142 (1), pp.56-60.

Tewdwr-Jones, M. and Allmendinger, P. 1998 *Deconstructing communicative rationality: a critique of Habermasian collaborative planning.* Environment and Planning A 30 (11), pp.1975-1989.

Tippett, J., Searle, B., Pahl-Wostl, C. and Rees, Y. 2005 Social learning in public participation in river basin management—early findings from HarmoniCOP European case studies. Environmental Science & Policy 8 (3), pp.287-299.

Trenberth, K.E., Fasullo, J.T. and Shepherd, T.G. 2015 *Attribution of climate extreme events.* Nature Climate Change .

Twelker, E. 1990 Twenty years of NEPA: from decisionmaker's aid to decisionmaker's dread. Land & Water Law Review 25 pp.119-132.

United Nations, 2009 *Water in a Changing World: World Water Development Report* [online]. UNESCO Publishing/Earthscan. [Accessed 14 March 2015].

United States 2012a *U.S. Code 30 § 22: 'General Mining Act of 1872'* [online]. Available from: https://www.law.cornell.edu/uscode/text/30/22 [Accessed 08/09/2015].

United States 2012b *U.S. Code 43 § 1744: 'Federal Land Policy and Management Act of 1976'* [online]. Available from: https://www.law.cornell.edu/uscode/text/43/1744 [Accessed 08/09/2015].

United States Bureau of Reclamation 2008 *The Law of the River.* Available from: http://www.usbr.gov/lc/region/g1000/lawofrvr.html [Accessed 29/09/2014].

USFS, 2012 FSH 1909.15 – National Environmental Policy Act Handbook. United States Forest Service.

USGS, 2015 *Copper: Mineral Commodity Summary*. United States Geological Survey.

Valance, N. 2012 *Not Your Father's Mine: The Rosemont Copper Mine and Dry Stack Tailings.* Arizona Journal of Environmental Law & Policy 3 (29), pp.29-45.

Vanderpool, T. 2012 Stop This Mine: The ugly fight over the proposed Rosemont Copper project rages on. Tucson Weekly. 23 February 2012.

Vanderpool, T. 2011 Copper Capers: A mining company's PR people make another gaffe. Tucson Weekly. 17 February 2011.

Wahl Pierce, F. and Bolm, J.G. 1995 Porphyry Copper Deposits of the American Cordillera: The Helvetia Area Porphyry Systems, Pima County, Arizona. Arizona Geological Society Digest 20 pp.436-441.

Waterstone, M. 2010 Smoke and mirrors: inverting the discourse on tobacco. Antipode 42 (4), pp.875-896.

Watts, M. 1999 *Commodities.* In: Cloke, P., Crang, P. and Goodwin, M. (eds.) *Introducing Human Geography* Arnold London. pp.305-315.

Watts, M.J. 2004 *Oil as money: the devil's excrement and the spectacle of black gold.* In: Barnes, T.J., Peck, J. and Tickell, A. (eds.) *Reading Economic Geography* Blackwell Publishing Ltd. pp.205-219.

Waughray, D. 2011 Water Security: The Water-Food-Energy-Climate Nexus (World Economic Forum Water Initiative) Island Press.

Webb, S. and Webb, B. 1975 *Methods of Social Study* Cambridge University Press.

Weston, J. 2010 *EIA theories—all Chinese whispers and no critical theory.* Journal of Environmental Assessment Policy and Management 12 (04), pp.357-374.

White, S.C. 1996 Depoliticising development: the uses and abuses of participation. Development in Practice 6 (1), pp.6-15.

White, S.K. 1995 *The Cambridge Companion to Habermas* Cambridge University Press.

Whitmore, A. 2006 *The emperors new clothes: Sustainable mining?* Journal of Cleaner Production 14 (3), pp.309-314.

Woodley, A., Keir, G. and White, J. 2013 Systems modelling of mine water and energy tradeoffs.

World Health Organization and UNICEF 2012 *Progress on Drinking-Water and Sanitation: 2012 Update* [online]. World Health Organization. [Accessed 14 March 2015].

Chapter 6 Water Governance and Participation in the UK: Disaster Management and Decision Making: a case study of the Somerset Levels Flooding 2013 (K. Burton and R. Newman)

> "…it was a very interesting time…we basically watched as the Prime Minister tore up 20 years of flood risk management (FRM) policy for the Somerset Levels in an instant"[11] (Cronin, 2015)

6.1 Introduction

During the last 10 years the UK has been subject to a number of disruptive flood events, which have provoked high profile local participation in contested terrains. Government responses have been reactive and swift, and not beneficial to long-term flood management. We argue that both the public and government reactions are symptomatic of wider problems within stakeholder engagement in flood risk management. Here, we examine the problems of timing of response, the influence of discursive framing and contestation, and the difficulties of public/stakeholder engagement processes in times of disaster. In examining the timing, we argue that moments of disaster management are not time to make environmental decisions. In considering the framing of problems, we investigate the viral power of misinformation and false solutions particularly when backed-up with anger and frustration. We use the four-month flooding of the Somerset Levels in southwest England (winter 2013-2014) as a case study illustrating how times of disaster management are not appropriate for decision-making. We conclude by exploring some key issues that this case brings forth and offer words of caution. We conclude by examining the failures of stakeholder engagement within wider flood risk planning and management and call for more context sensitivity in engagement practices.

In examining UK water management, flooding poses specific difficulties for stakeholder engagement. Successive government reports have called for urgent re-thinking of flood risk management and wider public participation; from information dissemination to preparedness, response, and resilience. Yet, the temporal and spatial uncertainly of flood events makes for a highly moveable political terrain. Where flooding hasn't occurred but a community is at risk of future flooding, it has proven difficult to engage the identified vulnerable groups within the flood risk management planning. When communities have been affected by flooding, participation can be shaped by psychological responses (such as fear, anger, and denial). The chapter also examines how public and media interest shaped government responses that were contrary to

[11] Cronin, B (2015) Splashing the Cash *New Civil Engineer*

prevailing scientific expertise. We examine how discursive disputes expose a failure of formal stakeholder participation in moments of perceived emergency and the power of informal participation when ideas can become viral. Flood crisis moments can become highly charged discursive battle grounds, garnering reactions from both top-down and bottom-up that seemingly leap-frog those stake-holders in the middle that are usually those who can offer perspectives on the wider context of events and actions; such as the scientific community.

Despite regulatory frameworks on stakeholder-engagement, flood disasters have been used by government to bring in land-use changes without due consideration of stakeholders. In effect, moments of disaster become moments where the 'state of exception' over-rides the normal rule of law[12], stakeholder engagement in decision making was overridden by direct government responses to the disaster. Within the direct aftermath of disruptive flood events and disasters normal participatory processes are suspended and decisions made directly from the top-own in unilateral mode. In England, this has led to government spending on schemes that the scientific and environmental communities have contested as neither hydrologically or ecologically suitable for the current context of the area[13]As Warner (2013) discusses, the Netherlands have seen similar reactions: "The high-water crisis event [Limburg region 1995] sparked special legislation in which everything seemed possible" (pg299). In both the UK and Netherlands these instants have led to a questioning of government motives, and contestation that the flood events have, in effect, been used to legitimise project works that are environmentally or socially unsound.

In the UK, flood events have become the focus of public, government, and media scrutiny. There is a consensus between government and practitioners that there is a needs to re-think flood risk management in both urban and rural settings, yet a combination of economic cut-backs and entrapment within hegemonic regimes of flood risk management and participation may hinder that process before it begins[14].

England has seen an increase in rural and urban flood events. Flood events of summer 2007 and winter 2013-14 led to calls a re-think flood risk management strategy. Widespread flooding in the winter of 2015-16, across northern England once again bought questions about public participation, the failure of stakeholder engagement, and the future of flood risk approaches. The loss of life due to flooding has been minimal in England (and the rest of the UK, unlike many parts of the world) but damage to homes and businesses has economic impacts to individuals and local economies. It has been estimated that the annual financial cost of flooding across the UK will rise to £27 billion by 2080 (House of Commons, 2014). In addition, nationally important

[12] Warner, J. (2013). Dances with Wolves 18. Water Security: Principles, Perspectives and Practices, 289.
[13] Bates, P (2014) Flood crisis: dredging is a simplistic response to a complex problem *The Guardian*
[14] See Burton and Newman *Re-imagining Urban Water* chapter in this collection

infrastructure, particularly rail lines (with routes cut off to Scotland and to the west of England) have incurred damage that has far-reaching social and economic impacts.

In 2007, floods across England were framed as the "country's largest peacetime emergency since World War II', affecting more than 55,000 homes and business properties. Many of the towns and rural areas affected had been taken by surprise, which was widely viewed as increasing the impact on both human lives and property damage. In response to the events, the then UK government (Labour) commissioned a 'comprehensive review of the lessons learned" (Pitt 2008). The review was headed by Sir Michael Pitt and included more than 1000 submissions of evidence and reviews of preparation and responses to flooding in other countries. The report, *Lessons learned from the 2007 floods* (known widely as the Pitt Report), states that climate change made it likely that the country would see an increase in such flood events and called "for urgent and fundamental changes in the way the country is adapting to the likelihood of more frequent and intense periods of heavy rainfall" (pg vii).

Lessons learned from the 2007 floods made almost 100 recommendations to government and was clear that decision making for public and institutions had been impacted by a lack of information about flood risks and preparation. It criticised the lack of institutional cooperation and preparedness and called for 'genuine public participation' to overcome community level barriers to flood resilience. "In this vein, the Environment Agency[15] has, over the past few years, examined how best to achieve these conditions through a number of research projects, reports and initiatives engaging local communities in flood risk management. In some areas, their work has been successful but it is often difficult to involve the public, particularly in areas that have not been flooded but are at risk (Pitt 2008:319).

In the winter of 2013-2014, parts of England were subjected to flooding that caused infrastructure damage (to rail lines in the south west), prolonged submergence of agricultural land in the Somerset Levels, and suburban flooding along the river Thames. In response to these events another inquiry into flood management was commissioned by the UK government (this time Conservative) and chaired by the All Party Parliamentary Group for Excellence in the Built Environment. The primary agency tasked with flood management and stakeholder engagement in England, the Environment Agency, refused to appear before the commission panel.

The report from the inquiry, *Living with Water: Report into flood resilience of the future,* states that we face a future of increased flood risk, with 5.2 million properties at risk of flooding, which is nearly one in six. Of these, 3.8 million are at risk from surface water flooding, which can be the most difficult to deal with, with a water infrastructure (supply and drainage) that cannot cope

[15] The Environment Agency is a Quasi Autonomous Non-governmental Organisation working the UK government Department of Environment, Food and Rural Affairs to implement policy and regulation (including the EU Water Framework Directive 2000)

with environmental demands (House of Commons 2015). Again, this report acknowledged the need to re-think flood risk management. It concluded that "flood resilience and water management still remains a Cinderella issue at the highest political level, though its importance is no less than that of transport and power infrastructure…Failure to take the issue of comprehensive water management much more seriously will have severe economic impacts on UK plc" (House of Commons 2015). Echoing the findings of the earlier Pitt review (2008), it states the need for increased public understanding of flooding, increased public participation in responding to vulnerability, and the need for localised solutions. In particular, moves toward sustainable systems for flood mitigation and water capture, and non-structural responses such as increased understanding of flood risk, preparation for flooding, and community level resilience.

Whilst the successive reports (above) call for an increase in public participation as a means to creating more sustainable forms of flood risk management, stake-holder engagement has been written into regulatory frameworks. Public participation in environmental decision-making has been central to ideas of sustainable development since the Rio Conference on Environment and Development (UNCED) 1992. Participation of all stakeholders and decision making at the most localised level (subsidiarity), were seen as drivers for better decision-making and long-term environmental protection. Ideally, stakeholder participation gives everybody with a stake in the issue an opportunity to learn from each other and be empowered to co-produce the most appropriate and equitable decisions on environment. Formal public participation within water management is the UK is driven by international regulatory frameworks (EU Water Framework Directive 2000) and overseen by the Environment Agency (in England). Within UK flood management local government actors also play a key role.

Narratives of participation have been critiqued as offering a 'panacea' for environmental problems with little meaningful impact on the ground, due to embeddedness within the political-economic rationalities of neoliberalism. Practices of participation and stakeholder engagement have also been problematised through uneven power relations, processes where expertise is defined in narrow terms (ie scientists) and used to steer rather than empower participants (Cooke and Khotari 2003).[16] Lay knowledge is often disregarded or viewed as inferior to formal expert knowledge, where more equitable processes can view this informal expertise accumulated through lived, place specific experience, and is comparable, and in some cases exceeds professional expertise and understanding. This perspective challenges traditional notions of expertise as attributes attached only to the professional sphere.

In examining the role of discursive battlefields and the dangers of decision making in times of crisis, the case study of the Somerset floods of 2013-2014 offers insights that open questions

[16] Cooke, B., & Kothari, U. (2001). *Participation: The new tyranny?*. Zed Books.

about the role of informal participation, government failure to consult stakeholders, and the power of Knowledge Controversies.

6.2 Case study: Somerset Levels

The Somerset Levels are an area of coast bordering marshland in England. The majority of the Somerset Levels lay under sea level and have been drained for the dual purpose of creating new agricultural land and flood control for the past 2000 years. In this sense, the levels are a landscape where humans have continually attempted to tame nature, engineering a drainage system with capacity to support the draining of almost 800 sq miles of upland into less than 250 sq miles of lowland floodplain and basins. Since the 1940s, the levels have included large artificial rivers, such as the river Huntspill, to further increase the proportion of drained land available to agriculture. Agriculture forms the basis of land use for the area and the human population is scattered among a handful of small communities. The levels are drained by two main rivers, the Tone and the Parrett, through a network of sluices, pumps, and gates, which are used to control the amount of water flowing through the drainage channels and natural rivers and controlled flooding to protect larger towns upstream. The Somerset Levels and Moors are designated as an Environmentally Sensitive Area, with a many areas protected by government as Sites of Special Scientific Interest (SSSI).

Due to unprecedented rainfall over a prolonged period, between November 2013 and March 2014, the Somerset Levels suffered extensive flooding of around 65km^2 of land. It affected about 40 properties primarily located in small villages, two of which were cut off by flooded road. The flooding went largely unnoticed for the first two months (apart from those directly disrupted by flooded rail lines). By January 2014, the community had organised a widespread campaign against those tasked with flood management on the levels, the Environment Agency.

In response to what local people viewed as a lack of support for the flood hit areas a local campaign group emerged, called FLAG (Flood Action Group). At first the group focussed upon supporting local communities and set-up social media sites to co-ordinate this. They soon started to garner a high level of media and public interest through a growing narrative attacking the Environment Agency policies against dredging. The group blamed the Environment Agency and non-dredging for the flooding and called upon the government to immediately dredge the levels. From a few mentions of the flooding during the first two months of land submergence, the media suddenly latched onto the dredging of the Somerset Levels as a cause célèbre, with FLAG moving from a local group garnering practical support to a lobbying movement for dredging.

Traditionally rivers had been dredged every 10 years, supported by farming interests, but in recent years this has been viewed as an inappropriate practice for the area. Environmental and

conservation stakeholders (such as the Royal Society for the Protection of Birds) and hydrological researchers had deemed that dredging destroyed habitats, whilst giving very little protection against flooding. The Environment Agency report *To Dredge or not to Dredge* outlines their position on flood management and dredging, based on evidence that the process would 'solve nothing while creating a whole host of new problems': dredging speeds up of water flow to a point that can exacerbate flooding; removing vegetation increases the erosion of river banks; infrastructure such as bridges, culverts, walls and foundations are compromised by deeper channels and faster flowing water, increasing the likelihood of pinch points, where more dangerous and hard to handle flooding can occur; loss of spawning grounds for fish and destruction of riverbank flora and fauna. Moreover:

> "Dredging of river channels does NOT prevent flooding during extreme river flows … The concept of dredging to prevent extreme flooding is equivalent to trying to squeeze the volume of water held by a floodplain within the volume of water held in the river channel. Since the floodplain volume is usually many times larger than the channel volume, the concept becomes a major engineering project and a major environmental change.[17]"

The government Pitt Review (2008) had also recommended that dredging not be seen as a panacea for flood mitigation, and that it should be "limited to areas where it is most appropriate, with money that is saved being used for more effective methods of flood protection" (:recommendation 25): "The Environment Agency should maintain its existing risk-based approach to the levels of maintenance." This policy has been followed by the Environment Agency and limited, strategic dredging defended by water management professionals, but it has been criticised by farmers, and politicians are under pressure to revoke it.

Initially, the Environment Minister Owen Paterson attempted to calm the rising narrative of the FLAG, supporting the Environment Agency against the claims: "Dredging is often not the best long-term or economic solution and increased dredging of rivers on the Somerset Levels would not have prevented the recent widespread flooding" (ITV News 23/01/2014). Chair of the Environment Agency, Chris Smith, also vehemently defended the policy, " What really saddens me, though, is seeing the Environment Agency's work and expertise in flood-risk management, internationally respected and locally praised in many parts of the country, being used as a political football for a good media story"[18]. But the sudden high profile of the campaign in the media saw swift action from all political parties, each sending representatives to visit the area.

---

[17] Environment Agency cited in Monbiot, G (2014) Muddying the Waters *The Guardian*

[18] Chris Smith (2014) Don't blame the Environment Agency for floods. Blame the spending rules The Guardian February 16 2014 http://www.theguardian.com/environment/2014/feb/09/flooding-chris-smith-speaks-out

National Newspapers were headlining the flooding on the Somerset Levels and giving widespread coverage to the FLAG protests over dredging, focussing almost entirely upon the local residents and their campaign and giving very little space to water management expertise. The Head of the Environment (Chris Smith) came under attack from the local communities affected by the flooding and the national media and on the 30th January 2014 the Ministry of Defence deployed 600 army personnel in a highly visible show of support for relief efforts.

As the media, and in particularly social media stepped up the focus on the FLAG protests around dredging the government started to challenge their own Environment Minister's support for the Environment Agency. By early February the government's Communities Secretary Eric Pickles was attacking the Environment Agency policy on dredging and blaming them for the flooding. In attacking the Agency, he also seemingly attacked their decision making processes: "At least the Environment Agency will not need to organise a focus group to understand what people think."[19] in a well-established context of uncertainty over the technical and ecological efficacy of dredging (Scrase and Sheate 2007) and to the alarm of the stakeholders usually tasked with providing evidence for such approaches, the hydrologists, environmental groups, and civil engineers:

> "Suddenly the issue of dredging rivers became the topic du jour, and in the region's largest ever such operation, 65 pumps began working around the clock to clear the floodwater. Next, the government announced it was to spend £30M on new flood defence maintenance and repairs money for this year and £100M next year. A specific £10M has so far been allocated to deal with Somerset's problems" (Wynne 2014).

Hydrologist Paul Bates expands upon the politics of this 'interesting time': "In times of disaster, you do disaster management. Later, you learn the lessons from that disaster. And finally, informed by evidence and motivated by what has happened, you set policy. That is the most frustrating aspect of the current political debate, because in an effort to outmanoeuvre one another, our leaders are making promises to enact a policy for which the benefits are dubious" (Bates 2014).

6.3 Learning from the Levels

The case of dredging and the Flood Action Group on the Somerset Levels provides insights into the power of discursive battlegrounds that can shape policy decisions. In the case of the levels, it

[19] In an interview on the BBC's flagship political program *The Andrew Marr Show* (9 February 2014) Eric Pickles apologized to the communities of the Somerset Levels and stated that the fault had been the Environment Agency.

was local stakeholder and government making decisions excluding the voices of those experts in between. The narratives of FLAG are illustrative of the danger of 'knowledge controversies'[20]. Knowledge controversies unfold where a lack of information steers people toward uncritically attaching narratives to a narrow piece of technical or scientific knowledge, which then circulates as the overarching truth of the situation. In the case of FLAG, dredging was an already contentious issue that became *the* focus of local anger and campaigning in the absence of any alternatives. Knowledge controversies, such as that seen in the case of the Somerset Levels can become contagious, spreading through media and social media quickly and becoming the prevailing discourse on the problem, despite dredging being just one area of concern to the broader body of stakeholders. This illustrates how, particularly in times of crisis (such as flood events and disaster management scenarios), information deficits (such as the voices of hydrologists and civil engineers in this case) scan skew debates, create fear and disproportionate public reactions, and shape government responses. False solutions become framed and adopted as as public discourse and viewed as appropriate (see Kimhi & Shamai 2004 and NCDR 2006).

The case of the Somerset Levels dredging protests also illustrates how an overload of information[21] combined with a deficit of trust can undermine relations between different stakeholders, adding to the argument that any flood risk planning decisions need to be made after the disaster management phase have finished. The idea of a quick fix solution became magnified in moment of crisis, which is understandable, and a lack of mediation between the affected communities and wider stakeholders meant that alternative solutions were not debated. Affective and emotional responses, such as those in the aftermath of the Somerset flooding, are influenced by the psychological 'wellness' of a given community emotional, affective, and embodied responses, such as place attachment, can be powerful in shaping reactions to risk and vulnerability.

6.4 Concluding comments

The flood events in England from 2007 – 2015 have ensured that flood risk management is now a public and political debate. Flood events in the UK are predicted to increase as an impact of changing climate, extreme weather events, and urbanisation, and within current modes of stakeholder engagement in flood risk management around perceived vulnerability will remain difficult. Here, and in wider research on disaster management scenarios, those affected on the ground have been shown to be eager to participate in both practical responses and debates around

[20] Whatmore, S. J. (2009). Mapping knowledge controversies: science, democracy and the redistribution of expertise. *Progress in Human Geography*.
[21] See Burton chapter on Balcombe anti-fracking protests

problem solving[22]. However, contestation with wider stakeholders is also prevalent within moments of crisis, where an increased pressure to find answers and solutions is combined with and an inability to negotiate the information available. After the event, emotions on the ground have been illustrated to affect decisions at the top, with decisions rooted too firmly within current and past events, making the assumption that flooding will be the same next time around. The case of the Somerset Levels illustrates a need for people to be involved in flood risk management, and offers a warning for the temporal and spatial context of that participation. Stakeholders with environmental management roles (for instance, the Environment Agency) and hydrological expertise were over-ruled in favour of a high profile local campaign, resulting in actions that were counter to expert advice on flood management of the area and unlikely to offer any long-term benefit. Our aim in using this case study is to open further dialogue on the timing and constituency of flood risk decision-making and encourage further consideration about the management of stakeholder engagement in times of crisis. In a climate of predicted flood risk increase these issues need to be addressed with some urgency in order to better manage situations in the future.

[22] Murphy, B. L. (2007). Locating social capital in resilient community-level emergency management. *Natural Hazards*, *41*(2)

Chapter 7: UK Water Governance and Participation: Virtual Participation: a social media analysis of Balcombe anti-fracking protests (K. Burton)

7.1 Introduction

On the 18th August 2013 almost 2000 bodies formed a human chain around a small industrial site in Southern England. This was part of a summer of protest that started on 25th July, when a small group of people (mainly local) created a physical blockade set up a protest camp at the gateway to a woodland that was to become the first site of highly contested test drilling for shale oil. The UK based energy company Cuadrilla - "experts in unconventional sources of exploration" – had gained a license to undertake exploratory drilling, to test if the site was viable for shale oil extraction[23]. The site was about to become one of the most contentious environmental sites in recent UK history and the focus of physical and discursive protests about water management. The protestors included local residents and supporters from further afield and quickly spread from village to international focus through the virtual spaces of participation now opened up by social media. This chapter examines the impact of information contagion upon risk perception and public participation. It uses a case study of social media within the Balcombe anti-Fracking contestation. Using media analysis of the events leading up to and including the protests of summer 2013, it examines two area of concern for those involved in stakeholder participation. The first interrogates the connections between information and risk perception, in relation to one of the most contentious issues affecting contemporary water management in the UK (and USA), the use of water within unconventional hydrocarbon[24] production. The second considers social media as a platform for increasing the voices that are now included within water management debates. It concludes by exploring how new technologies are shaping the constitution of 'stakeholder' participation.

Hydro-politics and contestation over water resource management are emerging as a site of focus for those interested in governance and participation. Increasingly, local struggles involve localised water issues that become international sites of contestation. Where participants in contestation would once be confined by geographical proximity, social media (web 2.0) has acted as vector for increasing the spread of both the constituency and the information to a global scale with increasing speed. Water security is now established as a multifaceted discourse that is both steered and critiqued within academic and policy discourse as a "key objective of a range of

[23] Caudrilla 2013 http://www.cuadrillaresources.com

[24] Michael Klare describes 'unconventional hydrocarbons' as Oil Shale (tar sands) and Hydraulic Fracturing (Fracking)

governmental and nongovernmental agencies across the spectrum of governance levels" (Jansky 2008 cited in Cook and Bakker 2012). However, as Cook and Bakker (2012) demonstrate, majority of academic and policy papers on water security have focussed on the international scale, closely followed by that of the nation state. The centrality of healthy water resources to place-making and human well-being ensures that it will always be a local resource defending (and/or fighting for) (see Mithen 2012). The role of water as an object and weapon of conflict is charted beyond 3000 BC (Gleick 2009), but it is important to remember that whether water becomes the focus of conflict depends on a myriad of non-linear social dynamics. Water co-operation remains more prevalent than water conflict and the majority of commentators agree that finding the means (legal and otherwise) to share water resources and come to consensus over its uses. However, there is also agreement that struggles and tensions over water are on the increase, due, in large part, to increased pressures on water resources due to demographic changes (particularly economic growth and urbanisation) and the environmental impacts of climate change.

7.2 Toxic energy: new terrains of resistance

Increasingly, struggles over water resources are between competing stakeholders, particularly residents (long-term users) and in-coming corporate interests. Here, we might understand water a fully enrolled within wider political economics of globalisation as well as localised struggles. Civil society has actively (and ferociously) contested the exploitation of water resources for economic gain. For instance, the anti-corporate protests in Kerala (India), between peasant (small and subsistence) farmers and soft drinks multi-national Coca Cola[25]. However, contamination has emerged as an area of political protests and concern for water and human security, particularly in relation to real and perceived fears associated with the move toward unconventional hydrocarbons. The post-peak oil era has heralded a shift to dirtier fuels[26]. When oil reserves 'peaked' (anywhere between 1970 and 2010, depending on whose record you examine) we moved into an era where the continued need for fossil fuels is increasingly met by processes that are technically, environmentally, geopolitically, and economically problematic. The inability (political and/or environmental) of so few countries to meet energy requirements through green technologies necessitates bridging (at the very least) to secure energy supplies for the process of transition away from fossil fuels. Unconventional hydrocarbons are cited as 'dirty oil', more resource intensive, harder to access, but more geopolitically comfortable, enabling the USA and UK to move away from volatile export markets based in the Middle East, Caspian region, Venezuela.

---

[25] Shiva, V. (2002). Water wars: Privatization, pollution and profit. India Research Press.
[26] Klare, M. (2012). The race for what's left: the global scramble for the world's last resources. Macmillan.

One of the key resources needed for the extraction of shale gas and oil is water, which has led to public concern over quantity and quality issues. Shale oil and gas production exploits reserves that lay between shale strata using hydraulic fracturing to drill horizontally and vertically and before high-pressure pumping of water (and chemicals), up to 4 million gallons per fracture, is used to access the oil or gas. Shale Oil and Gas is far more spatially dispersed and has been most prominent in North America and Canada, though South America, Europe, Russia, and China are all estimated to have large reserves. Whilst the majority of Shale based reserves are located in the USA, technically recoverable fuels are known to exist in at least 41 countries (EIA ibid). Whilst many have welcomed this new energy boom the industry and processes have been widely contested, by local communities, activist groups (such as Frack Off!) and Environmental NGOs. In contesting the water use within the Fracking process, both contamination and quantity issues have been cited. In considering risk perception, contamination is a subject that raises interesting insights into the public imagination of water. As social constructions, both risk and contamination converge within discussions of perceived purity and safety, against a reality where water is far from pure, containing numerous chemicals for safety (for cleanliness), public health (including fluoride), and the residue of modern farming that are managed but cannot be removed (for instance, mettaldahyde). However, incidents such as the accidental contamination of drinking water in the Cornish town of Camelford in 1988[27] leave a legacy of fear that can shape future perceptions of risk.

Manuel Castells claims that the Internet has speeded up the networked flows of mobilisation and solidarity, pointing to virtual spaces as pivotal in contemporary organising and within environmental campaigning "the internet has become a major organising tool for environmentalists around the world"[28]. Environmental and political movements have recognized the importance of social media as tool for local, national, and transnational organizing. As illustrated during the 'Arab Spring', 'Occupy', and student protests of 2010, social media fulfils multiple roles for even the smallest campaign: to quickly spread information between campaign supporters, to enable a small group to become/feel part of a larger (frequently international) network, and as a tool for the virtual participation in debates that are spatially dispersed or distant. Virtual participation becomes as, if not more, important than the physical presence in social movement mobilisation. Social media creates real-time tracing of events but is also a spectral presence as its remains continue to retain an online presence often long after the protest event has been and gone. Here, I use an analysis of social media data to trace the trajectory and of the Balcombe protest

[27] Aluminium Sulphate at 3000 times higher than safe levels was accidently put into the drinking water supply and resulted in health issues for many residents.
[28] Pickerill, J. (2001). Environmental internet activism in Britain. *Peace Review*, *13*(3), 365-370.

The rapid fire of information frequently blurs the boundaries of official and unofficial sources. Many journalists eschewing the term 'citizen journalist' in favour of 'citizen reporter' in recognition that employed journalists operate under the regulation of the NUJ. Yet, citizen reports now make up the majority of news consumed through social media and traditional media is frequently responding to news generated elsewhere (rather than through its own investigative journalism). Of interest here, is the link between a proliferation of voices, The democratisation of information and the temporal and spatial explosion of information means that the general public are left to pick through multiple layers of partial information, leading to confusion, misrepresentation, sensationalism and a heightened sense of risk. In effect, the technologies that enable such information 'contagion' have shifted the terms of the debate. As the proliferation of voices participating in debates increases, and the amount of available information multiplies, so it becomes harder for those with little or no scientific expertise to negotiate. These debates have been illustrative of Ulrich Beck's 'risk society'[29].

For Beck, the risk society is the result of a post-modern condition, where an increasingly individualised society attempts to negotiate the risks that are the symptoms or by-products of modern living. The Internet, in particularly, has lead to vast amounts of information from a multitude of sources, making it difficult for individuals to make decisions on which risks are those we can live with. The large amounts of competing information have made it increasingly difficult for publics to decide which sources to trust, and so fear increases. Risk perception can become heightened in such circumstances. In addition to the difficulty in negotiating risk, communities can quickly form around one narrow piece of information, which can spread quickly through networks of contagion. For this the combination of platforms such as twitter, which can quickly circulate information to a global audience, and a lack of consensus around a certain level of risk, can lead to a temporal and spatial convergence around what may, in the past, have remained a localised problem.

The media is a space where issues rise and disappear with increasing speed. The global reach of mobile technologies such as smart phones that can capture and disseminate events as they unfold mean that news stories now follow a trajectory where they peak within hours of an event occurring. Arguably, the peak might now be within minutes of an event, as the viral nature on contemporary media spreads news with contagious force. The rapid growth of social media platforms such as *Twitter* and *Facebook* has seen a temporal and spatial shift in how we produce and consume news and global events, and how spatially dispersed publics participate in political debates[30]. Arguably, platforms such as *Twitter* have erased the notion of a local problem, with issues now quickly circulating through multiplicitous networks at high speed. The UK

---

[29] Beck, U. (1992). Risk society: Towards a new modernity (Vol. 17). Sage.

[30] Burton, K. (2013). "This feels like the start of something"—Storying the 2010 Exeter Occupation. *ACME: An International E-Journal for Critical Geographies*, *12*(3), 471-491

'Horsemeat' scandal provides an example of how contagion of ideas and opinions is heightened when the situation involves actors across multiple industries, states, and corporations. Horsemeat was found within products labelled beef. Whilst there was no evidence of risk to human health, the issue quickly became a public health debate, with products removed from shops and destroyed. In the summer of 2013, information about Fracking became a subject of social media contagion as much as it did contestation. A process of contagion that might be described as trial by hashtag: #Fracking.

7.3 Balcombe case study

Media analysis was undertaken through a case study approach, that of the campaign against Fracking in the West Sussex village of Balcombe (UK). Social media analysis is an emerging field of enquiry for those interested in examining public participation within scientific debates, giving an indication of how scientific knowledge spread, and in many cases, become contagious. Small campaigns can garner a wide audience if their ideas are passed on by larger groups. For instance, whilst tweets from Balcombe initially circulated to small constituency (of less than 100 followers), they soon started to get picked up and re-tweeted to the followers of larger and more spatially dispersed groups such as Frack Off! (with a follower base of almost 20,000) or environmental groups such as Friends of the Earth (with over 150,000 followers). The analysis examined content and discourse starting in January 2012, with the first social mention of Fracking in relation to Balcombe and continued until the physical protests ended at the end of summer 2013 (and Cuadrilla ended its exploration process). Temporal, spatial, and content data was collected and analysed. To gauge the wider debate of Fracking a number of 'snapshots' were taken, these analysed the discourse of twitter and social media posts for one-hour slots each day, during the physical protest these averaged 300 mentions in an hour.

Balcombe is a small village in southern England, 50 km south of London. The small population (less than 2000 people) were described by the British mainstream media as archetypally 'middle England'; a term used to denote a "middle-class, middle-income section of British society living mainly in suburban and rural England"[31]. The name Balcombe gives an indication of its geography and history; derived from *Bal*, meaning mining and *coombe*, a valley or camp. The mapping of mineral reserves has gained credence in recent years, as the UK Sustainable Development mapping of the UK states '... it will become increasingly important to have reliable information about the nature, quantity and location of mineral resources as *workable reserves* in environmentally acceptable areas become scarcer'. As technological advances enable

[31] Collins Dictionary

more of these reserves to become 'workable' and as such so does the likelihood of energy companies attempting to exploit them.

Initially, from January 2012, social media was used for occasional dissemination about the possibility of Fracking in the Balcombe area and local anger at a perceived failure to consult local residents[32]. The information had little spread, with the numbers of followers being quite small. When it became certain that Cuadrilla would be setting up an exploration site social media became a platform for the Balcombe protestors to report first hand on local concerns, link to wider campaigns, and call for solidarity. The momentum was still slow, with occasional re-tweets form groups with a larger amount of followers. In July 2013, a small number of protestors blockaded the exploration site in an attempt to stop the Fracking operation. Social media suddenly gained momentum, as larger environmental groups, international anti-Fracking groups, and news outlets started to report on the campaign. Initially, these were reports from the protest site and calls for solidarity – often direct calls for protest tools, bodies, equipment, and sustenance. As interest grew, rapidly, the issues around Fracking outweighed the physical actions on the ground. Those that were the most widely dispersed were from the established environmental groups such as Friends of the Earth, whose followers were most likely to re-tweeted to their own followers. Analysis showed that those groups with a wide follower base and environmental remit were those most likely to result in a spread of information. Larger groups such as 350.org (with almost 300,000 followers) were less likely to generate additional spread, which could be due to the wide focus of the group, which campaigns across a multitude of issues, both social and environmental.

Mainstream media focused on the protests around the Balcombe Fracking operation, with nearly 5,000 news articles across the two weeks of the protest camp. The mainstream media (BBC News Channel *Breakfast 11/8/2013*) in the UK focussed upon the physical protests. They remarked on the similarities with protests in the USA and a critique of irrational residents and celebrity posturing (making reference to the involvement of Green MP Caroline Lucas and a number of local celebrities). Former MP Edwina Curry (with no formal expertise in energy production or water management) criticised the Balcombe residents and made a public call for more Fracking, claiming a preference to Fracking over windfarms; an argument that inferred that the anti-fracking protests were no more than a display of NIMBYism (Not In My Backyard). The former chief scientist to the UK Government, Sir David King (on BBC *Today* 9/8/2013), didn't go as far as Curry. Whilst reiterating that 'earthquakes and fire breathing taps (caused by

[32] The local council of Balcombe sent a survey to residents in 2011, but very little was known about Fracking and few people responded.

methane)' were 'irrational fears', he did call for tighter regulations around the 'rational' fear of water contamination.

Sir David said: "Yes, there's no question that there is a whole set of rather irrational fears I think, including a generation of earthquakes…[the seemingly contradicting this, by adding] It is certainly possible that there will be tremors, and we know this from the practice in the United States". He added: "More than a million wells have so far been created, so we know quite a lot about the impact … Another issue has been raised which is the contamination of surface water and I think this is one of the issues that has to be dealt with very careful legislation … But I think that there are a set of issues that need to be dealt with through very careful regulation and I think we need to see that this information all goes out into the public domain" (recounted in Telegraph 10/8/2013)

The information put forward by King was badged under the headline of "*Former chief scientist Sir David King warns of 'irrational' Fracking fears*" (Ibid). However, both of the implied irrational fears, of water contamination and earthquakes, were simultaneously stated to be possibilities. The information from King acknowledges a lack of scientific certainty around the relatively new Fracking processes and the unknown differences across geographical locations and geological conditions. Framing public concerns as irrational is problematic in such a climate of uncertainty, yet is symptomatic of the negotiation of contemporary risks (as outlined by Beck, see above). The water industry had also called for more consideration of water quality and quantity issues within any move toward Fracking.

The content of the social media discourse, contrary to headlines and government claims, were mainly illustrative of this negotiation of risk. In practice, it was the 'rational' fear of contamination dominated the discourse that spread mentioned the Balcombe protests, particularly during the test drilling. Less than 5% of comments mentioned a fear or likelihood of earthquakes. The majority of contributors focused on water, with more than 80% of the tweets mentioning water management issues (quality and quantity). On the most part, social media was used to disseminate information from scientific reports and to circulate wider information about the potential growth of Fracking in the UK and the political economics of energy production. Climate change was also cited as an environmental ethics to invest in green technologies rather than Fracking. The wider politics of Fracking gained momentum as the spatial distribution of information grew. In effect, the small protests in Balcombe became tied to international environmental politics and a site to attach wider arguments about energy politics too.

In examining use of social media within the Balcombe anti-fracking case study, there are a number of key points that future work on stakeholder engagement and public participation should consider. Firstly, where water management becomes a site of contestation we must consider the possibility that a wide range of people now view themselves as stakeholders and want to participate in debates that may seem local in focus. In short, water is increasingly a site

of global concern and publics are emerging around a global citizenship of voicing concern, whether this is on the science, politics or ethics. A second consideration is how to manage risk perception in the age of social media. The majority of social media information in response to Balcombe and Fracking should not be viewed as 'irrational', rather they should be considered with a wider context where risks are being negotiated in conditions where uncertainty exists. In many modern processes we will never have certainty over the level of risk posed by activities and will always need to negotiate between these unknowns in relation to different but equally contentious activities. Social media provides a site where information spreads quickly, and the amount of information can further exacerbate the perception of risk. For those involved in garnering public participation, this poses a challenge, a need to provide platforms where uncertain science can be publically deliberated in a mode that doesn't become so highly charged. The social media campaign around the Balcombe Fracking gathered momentum around water contamination, and participants circulated reports that predominantly focused on likely problems. Social media, in this sense, closed down a number of wider debates, such as how to meet continued energy consumption, comparisons between Fracking, Nuclear, and green energy, or the environmental and ethical problems attached to imported fuel.

The aim of this research was to examine the role of social media in contested water situations. It intentionally makes no claims to the scientific or ethical benefits or problems associated with the process of Fracking.

Chapter 8: Report on July 2015 Seminar "Re-imagining Urban Waters"

8.1 Introduction

In July 2015 the authors of this chapter organised and facilitated a one-day workshop for a wide range of stakeholders involved in urban water thinking and management. The workshop was titled 'Re-imagine Urban Waters', which was held in Bristol (UK) and attended by water management professionals, community members and activists, environmental consultants, artists, and academics. The aim of the workshop was to consider barriers and possibilities: the barriers within current practices and concepts that have been problematic, and, more importantly to enable knowledge sharing (re-imagining) on possibilities for the future of urban water management. In this short chapter we reflect on the themes that emerged throughout the workshop.

Water management practitioners responded to the UK flooding events of the winter 2013/14 with a call for urgent engagement on the future of urban water management. Fifteen of the nation's leading landscape, water, and environmental management bodies addressed an open letter to the UK government; "We have taken the unusual step of writing to you at this difficult time so that the government is aware that the knowledge, training and expertise of all of the professions is available to you, and we believe, urgently required" […] "in the long-term, the way in which we manage, store and distribute our water, and how we rethink and plan both the natural environment, and the built environment of our towns and cities to make them more resilient, requires a clear strategy. This must be coherent and adaptable to local circumstances, to allow it to be rolled out countrywide".

Within academic research, critical thinking at the intersection of engineering and social science has established a need to address water management as a hydro-social and socio-technical arena, and has foregrounded the importance of context-centric approaches to urban flood risk. Most importantly, here, this work has highlighted the need for capacity building through social learning and non-structural solutions, such as behaviour change across both public and professional spheres to be taken seriously . In addressing the need for context sensitive planning and management, we see the need to take both material and non-material considerations of context into account, acknowledging the urban environment as the 'product of distinct place-based relationships; specific geographies, social milieus and inhabitants' and also as part of wider global phenomenon (such as climate change, urban development etc.).

In response to these issues, and as researchers committed to issues of inclusivity and equity, we were also concerned by a top-down prevalence of 'resilience' imagined in a way that is problematic to the re-thinking that was being called for. As Katrina Diprose point out,

'resilience' has become part of a 'bounce-back-ability bandwagon' , where the goal is to retain or return to the status quo. Our own research and initial discussions with stakeholders within flood vulnerable areas had indicated that the status quo is the problem, and that more radical transformation about how we consider and manage water needed to be discussed. Our concern was that water management and 'resilience' has been too bound-to the promise of technical fixes (through an engineering approach to control and defend) or associated with forms of citizenship that sat too comfortably within wider neoliberal rationalities (particularly that of a commitment to continued economic growth) to bring about transformation.

So, in calling for participants, we asked for ideas on how we might re-imagine urban water management. The call was widely distributed via water practitioner networks, academic forums, and online platforms for communities affected or vulnerable to urban flooding:

"We welcome contributions that engage with urban water and questions of how we cultivate transformative transitions that go beyond the 'bounce-back-ability bandwagon'. Contributions may look to (but are not restricted by) the following questions:

- How can we live with more and/or less water in the urban environments of the future?
- What human values and non-human actions will shape future discourses on urban water?
- What are the possibilities for more environmentally and socially just relationships with water?
- What socio-technical waterscapes and hydro-publics might emerge?
- What kinds of relationships need to be cultivated to move toward water sensitive cities?
- Can resilience be more than bouncing back?
- Where and how are informal and experimental practices offering alternative solutions?"

8.2 Emerging themes

The main objective of the workshop was to allow the participants to engage on an equal platform and facilitate as much dialogue as possible, allowing space for consensus and space for disagreement. The workshop was free to attend, with lunch provided and travel bursaries for those travelling from outside of Bristol. Around half of the 23 participants gave presentations on their research, practitioner, or community interests in urban water management and all participants were encouraged to join in the discussions that followed each talk. Whilst the talks and discussions provoked quite distinct contributions – for instance, blue-green design and construction, financial incentives, public water fountains, urban desalination, art and public

engagement, flooding - there were a number of emerging themes that participants' discussions kept coming back to.

Within the scope of this chapter we cannot give a full and detailed analysis of the workshop or hope to reflect all of the participants voices, so we present major emerging themes that generated most discussion and consensus amongst the group. We had two key departure points for discussion, one in the morning and one in the afternoon. The first was on the possibilities for water sensitive infrastructures and the second was about participation and engaging the public. Here, we introduce the key debates raised in practitioner talks and start to unpack the discussions that emerged in response. We will conclude by bringing some of these themes together and add some personal reflections on the role and organisation of multi-stakeholder visioning style workshops.

8.3 Workshop insights

Michael Small, researcher with CIRIA (the Construction Industry Research and Information) introduced current research on Water Sensitive Urban Design. CIRIA are a non-profit organisation that works with stakeholders across the construction industry on research and innovation. The Water Sensitive Urban Design (WSUD) research project, is funded by multiple partners (including UK water companies, civil engineering groups, the government Department of Environment, Food and Rural Affairs, and city councils) to examine the possibilities of a more holistic approach to living with the urban water cycle. WSUD design treats different elements of water management (supply, waste, flood management) as connected, with the aim of creating water sensitive places on all scales; from houses to neighbourhood to cities. Ideally, WSUD creates "attractive, functional and valued places that are also sensitive to the needs of the water cycle" these water sensitive places take account of supply and demand, wastewater and pollution, rainfall and runoff, water resources, and flood risk management. The WSUD approach uses green infrastructure to capture rainfall, manage surface water, it also looks to building and retrofitting houses to minimise water usage and waste, and creates urban wildlife habitats that mitigate flood risk and add natural value to the city. CIRIA presented a number of case study examples, including the replacement of non-permeable surfaces with permeable paving and increased green planting within city neighbourhoods (see WSUD.co.uk).

The workshop participants had varying levels of prior knowledge about WSUD, but all were engaged in discussing the potential of working with (rather than separating out) elements of the water cycle and barriers to the implementation and success of any schemes. Participants agreed that water systems were interconnected and should be viewed as such. Residential neighbourhoods were seen as a good geographical and social scale at which retro-fitting could take place within the city. The majority of participants felt that replacing hard/grey

infrastructure (roads, covered rivers, culverts, drainage etc.) with greener more water sensitive alternatives.

The participants opened-out the discussion on infrastructure to include social perspectives, seeing blue/green approaches as having the potential to create more people friendly community spaces. The 'parklet ' movement was referenced for its emphasis on community led projects that had incorporated urban green spaces – small parks – into bottom-up greening and regeneration projects. These projects have potential water management impacts through improved drainage that doesn't rely on existing sewer systems (that are already over capacity in many cases, which leads to overflow in flood events), whilst offering new social and recreational spaces.

Whilst the move toward water sensitive cities was welcomed and viewed as a model with potential for greener and more equitable urban spaces, the participants put forward a number of barriers that they felt needed to be addressed to enable more take-up of such schemes. The first of these was a societal over-reliance on big or hard engineering (infrastructure), which we understand as defend and control approaches. This was seen as a problem on varying fronts. The first coupled problems associated with current 'hard' engineering was the top-down decision making, that was viewed to put too much emphasis on technological solutions (such as flood defences) and excluded communities and community knowledges out of decisions that would affect them. The long lifecycle of current infrastructure was viewed as detrimental to the ability of cities to adapt to changing societal demands and the uncertain effects of a changing climate. The majority of participants, particularly those directly affected by flooding, felt that communities were not being given adequate input into decision making that affected the areas where they lived and/or represented. Non-structural responses, such as behaviour change were also necessary, in the view of the workshop. Whilst the WSUD models focus on technological transformation, there was consensus that without user buy-in (for example, looking after green infrastructure) these would struggle. Behaviour change toward more water sensitive living was also discussed (and raised in a presentation on a Hydro-citizen project).

To the participants, the governance of water management was seen to spread across different institutional and decision-making silos (supply, waste, flood management), which made the joined-up conditions necessary for water sensitive cities difficult to achieve. Building upon this, infrastructure expert Nalin facilitated a lively discussion on big infrastructure and the need to see water management as existing within larger systems. To make changes to the system takes knowledge of the whole and the ability to replace its parts. The discussion related of infrastructural systems as palimpsests and was backed up by relating the idea to national rail systems in the UK; the railways have remained almost the same for more than 160 years, but have been erased and replaced by successive technological and social changes; from single gauge lines and steam trains to electrification. In discussion, ideas moved to considering the possibilities of a replacing current failing systems with a large quantity of small social and

technical innovations as more feasible and equitable than a centralised approach to dismantling and rebuilding of infrastructure.

Behaviour change and participation were seen as crucial for creating such social innovations at the local level. A barrier to making change at local level is the ability to engage people in debates and action about water management. The perception was that most people don't think about urban water management until there is a problem – scarcity or excess – at which point the participation of people is likely to become focussed upon quick fix solutions to the immediate issues (see Burton and Newman chapter on the Somerset Levels in this Handbook).

A third provocation for discussion came from artist and community activist Anna, who presented on an art-engagement project called Highwater Line. The project was a response to increased flood risk to communities in Bristol, along the river Avon and harbourside, with the aim of engaging individuals and communities within discussions on how to live with flooding. The project was inspired by US environmental artist Eve Mosher, who developed Highwater Line as a project that used visual intervention and participatory workshops in Miami and New York to start a discourse on living with the effects of climate change. Environment Agency data on predicted flood risk in Bristol was used as the basis for the Highwater Line project to develop visual and participatory methods to engage people living and working within at risk communities. The visual element of the project consisted of a blue chalk line – made with a football pitch marker – that traced the predicted high water line throughout the city centre and affected communities. The line was built upon through community level meetings and workshops.

For Anna, and other workshop participants, the benefit of using art and creative methods of engagement were viewed as multiple: enabling dialogue, co-learning from range of expertise. Physically tracing the mapped flood line facilitated a number of unsolicited conversations. These may have started with a question around why the line was being painted, but offered a starting point for wider discussions on flood risk. As part of the painting process, which took 6 days, a number of participatory activities were also organised, including a historical walk and talk through one of the flood vulnerable areas of Bristol (St Werburghs). Community workshops were facilitated in areas that had already identified a need to think about flood risk management and the project worked alongside these communities to explore their own flood vulnerability and possibilities for bottom-up planning for resiliencies. The community workshops generated innovative ideas that were relevant to local contexts, such as uncovering culverts to enable more room for local rivers.

8.4 Re-imagining urban water: concluding reflections

We have been selective in our recounting of the Re-imagining Urban Water Workshop here, due to the scope of this chapter. As researchers and workshop facilitators, we have attempted to draw out the key threads that best represent the shape of discussion and consensus on the day. In reflecting upon the workshop as a means for stakeholder participation, the spread of participants was welcomed and contributed to lively discussions from a number of perspectives. Attempting to bring together a representative group of stakeholders in urban water management is always going to be difficult, and (despite invites and wide advertising) many voices were missing from the discussions. Our aim as organisers was to be as participatory as possible, and all participants joined in with discussions on an equal platform, yet, we shaped both the call for participation and the order of the day, which inevitably impacts on the direction of discussions. As researchers interested in critical aspects of engineering and water management, we intentionally steered our call for participation toward those who shared a perception that we needed to re-think (re-imagine) human relationships with urban water. However, participant expertise provided an impressive spread of water management perspectives and expertise, which give us a good level of stakeholder input: from desalination, public health, flood risk management, water economics, art, community members and activists.

Agreement that water management is becoming an urgent focus within urban development makes stakeholder engagement an area that should be carefully considered. For the most part, water sensitive urban landscapes will start at the scale of local communities. Water sensitive cities needs to be more embedded within the way we live, not just the fabric of the built environment; technology alone will not provide solutions, behaviour change is also crucial. The current water management systems in the UK, were viewed as too embedded (entrapped) within systems that were both too centralised and too fragmented (across private and public sector and across managerial/ontological silos (supply, waste, flooding). The local scale was considered productive for challenging these issues, particularly through context sensitive approaches. However, context sensitive approaches to water management (and wider climate adaptation), necessitate co-produced understandings of socio-ecological processes that go beyond the typography of place. Engaging people who live, work, and/or use an area will play an increasing role within wider stakeholder engagement, as both lay and formal expertise, knowledges, and ideas, will be key in developing management schemes that are sensitive to the context in which they are enrolled. This particularly resonated with those interested in surface water management, where both flood management and water retention are an increasing issue. A high level of community understanding of socio-ecological needs (and responsibilities) will enable a sense of ownership over the direction and shape of community resiliencies, whether this is behaviour change or the introduction of blue-green infrastructure and the behaviour changes necessary to shift dependence away from the current hard engineering pathways of control and defend toward water sensitivity. It may be here, in delivering ownership of resilience that those involved in

stakeholder engagement might look to creative forms of participation for the sustainability transitions needed for water sensitive cities.

Chapter 9: Public Consultation around the Water Act 2014 (C. Staddon, L. De Souza)

9.1 The Water Act 2014: contributions of the public to drafting the Act

This paper explores the structural and substantive dimensions of public consultation around this key piece of legislation passed by the UK Parliament in June 2014.

9.2 Regulatory Structure for the Water Sector in the UK and Europe

Regulation of the water services sector in the UK has come a very long way since the satirist Tobias Smollett observed of London in 1769:

> "If I would drink water, I must quaff the mawkish contents of an open aqueduct exposed to all manner of defilement from the Thames...human excrement is the least offensive part of the concrete, which is composed of all the drugs, minerals, poisons used in mechanics and manufacture, enriched with the putrefying carcases of beasts and men...this is the agreeable potation extolled by Londoners as the finest water in the universe".

Between 1760 and the first systematic national census in 1801 the population of London grew from about three quarters of a million to 1.1 million people. Improvements in water services, especially water supply and sewerage, played a crucial role in both attracting labour and capital and keeping both healthy once they got to the burgeoning cities. The 19th century "great sanitary awakening" resulted in a proliferation of new technologies and regulatory strategies for the storage, treatment and distribution of water to burgeoning urban populations in London and elsewhere. By the First World War most towns and cities also had companies, public or private, providing water supply and wastewater removal services. In the UK the 1945 *Water Act* launched the process of consolidating a very confused water supply system that was comprised of over 1000 statutory water undertakers in 1945 to only 200 in 1974. The 1973 *Water Act* further consolidated the sector into 10 regional public water authorities which also gained control over the myriad sewerage companies that had not been included within the 1945 *Water Act* (MacDonald and Kay, 1988, p.213; Maloney and Richardson, 1995). Then the 1989 *Water Act* mandated the privatisation of these 10 regional water authorities and promulgated a new basis for water services allocation – *ability to pay*. Related legislation in 1991, the *Water Industry Act* (amended in 1999 to remove the industry's power to disconnect water users) and the *Water Resources Act*, consolidated previous Acts relating to the water supply and the provision of

waste water services in England and Wales. It also provided the initial framework for new market entrants to be appointed as water or sewerage undertakers within specified geographical areas and for trading water between companies.

The 2003 *Water Act* completed the new architecture of water services regulation more or less as it currently exists, as shown in FIGURE X. Economic regulation is provided by the Office of Water Regulator (Ofwat), environmental regulation by the Environment Agency (EA), drinking water safety regulation by the Drinking Water Inspectorate (DWI) and a focus on consumers of water services through the Consumer Council for Water (formerly Watervoice). The last of these is not, *sensu strictu*, a regulatory body, although in 2009 it acquired certain limited sanctioning powers over water services companies through customer complaints reporting mechanisms, the so-called "Service Incentive Mechanism (SIM). Together, these four public bodies constrain the activities of otherwise private water services companies which continue to operate regional monopolies supplying drinking water and sewerage to English and Welsh businesses and households. The system in Scotland is somewhat different, reflecting different constitutional arrangements around resource management.

The 2003 Act transferring responsibility for economic regulation from an individual Director General to a public sector Authority (which is known as Ofwat), changing its statutory duties, and introducing a new regime for water resources management specifically aimed at increasing opportunities for market competition in water services. Since the 2003 Act the water services sector in England and Wales has been comprised of roughly twenty private water services providers (a few supplying water only, most supplying both water and sewerage services) regulated by three key state entities. The Water Services Regulation Authority (OFWAT) is the economic regulator of the water and sewerage industry in England and Wales. Its purpose is to use regulatory mechanisms and powers to ensure that the privatised water sector is run in an economically efficient, prudent and socially just manner. OFWAT also has powers under the *Competition Act* 1998, which came into force on 1 March 2000. The *Competition Act* prohibits companies from entering into agreements that are anti-competitive and prohibits abuse of a dominant market position, through for example discriminatory network access pricing.[33] Ofwat's most publically-prominent role is to review and approve water companies' business plans, including plans for water pricing and revenue generation, on a five year cycle. Ofwat is current considering companies' business plans for the 2015-2019 period as part of "Price Review 2014" ("PR14" as it is known in the trade).

[33] Utilities differ from other market sectors in that they have very large fixed capital assets related to the distribution of their marginal cost good – water, electricity, gas. Therefore any new market entrant will need to access this network (building their own is prohibitively expensive), which entails an access cost for the entrant.

The Environment Agency (until 1995 the National Rivers Authority) is the primary government agency involved in implementing UK and EC legislation with respect to water management and the natural environment. It operates a monitoring and enforcement mechanism based on a series of mechanisms:

- Protection through abstraction licensing
- Protection through discharge consents
- Protection through enforcement
- Protection through pollution prevention

The Environment Agency is responsible for ensuring that water resources are managed effectively, so that there is enough to meet all user needs. Almost anyone who wants to take water from a surface or groundwater source must first obtain a licence to do so from the Agency. In the last decade the Catchment Abstraction Management Systems (CAMS) and Restoring Sustainable Abstraction (RSA) processes have carefully re-examined water availability for abstraction in the light of new environmental science and the movement towards increased protection of the natural environment, in many cases significantly reducing existing abstraction licences (cf. Staddon 2014). Under the Water Resources Act 1991 it is an offence to cause or knowingly permit polluting matter to enter into 'controlled waters', that is, rivers, estuaries, coastal waters or groundwater without permission. Permission is generally obtained as a 'discharge consent' granted by the Environment Agency. The Agency sets conditions which may control volumes and concentrations of particular substances or impose broader controls on the nature of the effluent. Each consent is based on the objective set by the Agency for the quality of the stretch of water to which the discharge is made as well as any relevant standards from EC Directives. If pollution occurs, including when the conditions of a consent are broken, a criminal offence has been committed. In these cases the polluter can be prosecuted, usually by the Environment Agency acting on behalf of the public interest, and may be fined and made to clean up the pollution (Wong, 2009). the EA prefers to promote pollution prevention than to regulate through enforcement. As Gunningham (2011) points out, as an institution it prefers to work through education, publicity and guidance; regulation, enforcement action.

The Drinking Water Inspectorate's (DWI's) main task is to check that water companies in England and Wales supply water that is wholesome and complies with the statutory requirements of the Water Supply (Water Quality) Regulations (2000). The Inspectorate carries out this function largely through desk-based technical audits of water companies. Technical audits consist of three parts:

an annual assessment, based on information provided by companies, of the quality of water supplied, compliance with sampling and other statutory requirements, and the progress made on improvement programmes;

inspection of individual companies, covering not only a general check on the matters above but also checks that the sampling and analysis carried out by the companies is accurate and that it provides a reliable measure of drinking water quality; and

interim checks made on particular aspects of compliance with the Regulations based on information provided periodically by the companies.

If companies are found to be in breach of the statutory requirements and the breach is deemed not trivial the Inspectorate notifies the company that enforcement action is under consideration. Such action may involve only careful examination of specific incidents, such as occurred in a January 2012 breach of water quality through discolouration caused by a third party contractor breaching a water main, affecting supplies to approximately 300,000 people. In this case the statutory provider, South Staffordshire Water Plc was found not culpable and its mitigation measures were assessed by the DWI as satisfactory (DWI Annual Report 2012). Contrastingly, a "taste and odour" water quality incident (which did not result in any illness) in August 2011 resulted in a fine of £50,000 and a criminal prosecution against Severn Trent Water.

The 2003 Act also created the Consumer Council for Water (CCW), a statutory body intended to represent water consumers, but without specific statutory powers of enforcement or regulation. Many proponents of CCW argue that its lack of specific statutory powers (except indirectly through the operation of the "Service Incentive Mechanism") gives a certain suasive power with water companies as a "critical friend". Highly valuing this special relationship with water companies, there was no little controversy when changes to the Service Incentive Mechanism placed CCWater more squarely within the regulatory ambit, specifically by heavily penalising companies should customer complaints route through CCWater.

These powers are of course nested within a larger piece of European legislation, the Water Framework Directive, passed in December 2000. The Water Framework Directive marked an attempt to create a unified, Europe-wide, approach to water quality management out of the plethora of specific technical water quality directives developed over the past 20 years. It also applied to water management in member countries powers and principles contained in the 1992 Maastricht Treaty including:

The Precautionary Principle: Any regulatory authority should, in the substance of its decisions, take into account the full range of knowledge and, where that knowledge is uncertain or incomplete, it should err on the side of assuming the worst possible consequence - ergo, it should avoid risks rather than maximise benefits.

The Subsidiarity Principle: No regulatory authority should deal with an issue or make decisions about a policy that could be handled more effectively or more legitimately at a lower level of

aggregation, i.e., at the level of Member States or their sub-national units. Inversely, no authority should occupy itself with an issue that cannot be resolved and implemented at a higher level

The Principle of Transparency: No regulatory authority should take up an issue or draft a *projet de loi* that has not been previously announced and made publicly available to potentially interested parties not participating directly in its deliberations.

The Principle of Proportional Externalities: No regulatory authority should take a decision whose effects in financial cost, social status or political influence (especially for those not participating in it) is disproportionate either to the expectations inherent in their original charter or general standards of fairness in society.

The WFD requires all inland and coastal water bodies to reach at least "good status", defined in chemical and biological terms) by 2015. It attempts to do this through a river basin district structure within which demanding environmental objectives are set out in "River Basin District Management Plans", most of which had been filed with the European Commission by December 2012. For more discussion of the WFD and its implementation in England and Wales see Staddon (2010).

After the 2003 Water Act the sector entered into a period of relative stability and calm with little legislative change until the passage of the Flood and Water Management Act in the spring of 2010. This act was the product of both proximate and more distant causes. The most proximate cause was the extensive flooding of June and July 2007 in Tyneside and Gloucestershire respectively. The Flood and Water Management Act was introduced to provide better, more comprehensive management of flood risk for people, homes and businesses, help safeguard community groups from unaffordable rises in surface water drainage charges and protect water supplies to the consumer. It was also a key moment in the process of rethinking flood risk management, both in terms of engineered flood protection schemes and insuring against flood risk.

Slightly more distant drivers of the FWMA (2010) were government imperatives to reform water services pricing and to boost competition in the water sector, subjects of the Walker and Cave Reviews respectively. The Walker Review on Charging for Water Services (2009) recommended a faster move towards universal domestic water metering as a key policy for driving down water use, clearer policies for the provision of so-called "social tariffs" to those having difficulty paying water bills and a special subsidy to customers of South West Water, seen to be footing the bill disproportionately for keep clean so much of England's coastline. The Cave Review on Competition and Innovation in Water Markets (2010) aimed to improve the economic efficiency of the sector by opening up the water services product chain to increased

levels of competition. The Gray Review[34] (2011) of Ofwat-concluded that Ofwat did not require major changes to its statutory and institutional framework, but there was a need for the UK Government to provide clearer objectives for the water sector with improvements to regulation. The Gray Review also paved the way for a new "Water White Paper"[35], *Water for Life*, which included market reform proposals to support growth and innovation in the water industry.

9.3 The Original Water Bill, as introduced to Parliament in June 2013

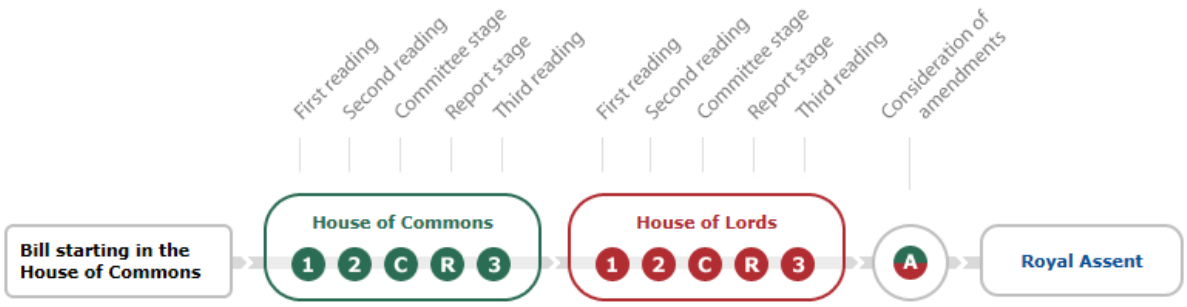
The initial draft Water Bill was formally published by the UK Department for Environment, Food and Rural Affairs (Defra) and presented in the UK Parliament on 10 July 2012. The draft Bill develops the proposals set out in the 2011 Water White Paper, *Water for Life* discussed in the previous section of this paper. The Bill aims especially to increase retail competition for water and sewerage services particularly for non-household customers, and to increase "upstream competition" by opening up other parts of the water services value chain to new market entrants. The Bill also imposes upon Ofwat a duty to secure the long-term resilience of water supplies and sewerage systems (a key recommendation of the 2007 Pitt Review). All these provisions are also largely in line with the Cave and Gray Reviews discussed above. Recommendations from the Walker Review are less in evidence; the cross-subsidy to customers of Southwest Water having been dealt with the FWM Act 2010 and the call for compulsory universal household water metering and associated volumetric tariffs being side-lined in the draft Bill

As with most legislation in the UK, the Water Bill went through several stages en route to becoming law. The first stage involves "pre-legislative scrutiny", wherein written and oral comments are invited from statutory and other stakeholders (sometimes directly invited and sometimes self-nominated). Following oral and written stakeholder consultations, the Environment, Food and Rural Affairs (EFRA) Select Committee published on 1 February 2013 a pre-legislative scrutiny report (we will discuss the main stakeholder comments received as a part of this process below) which led to further revisions to the draft Bill. The Bill was then debated through a series of stages before both Houses of Parliament, the House of Commons (elected representatives) and the House of Lords (appointed representatives). There are currently approximately 650 MPs and 780 Lords. The diagram below illustrates the movement of a Bill through Parliament:

---

[34] The Gray Review, set up by the Conservative-Liberal Democrat coalition government shortly after the May 2010 elections was tasked with assessing whether the water regulatory apparatus, especially Ofwat, was fit for purpose. While it recommended certain minor changes it largely supported existing arrangements, in particular the distinction between Ofwat as the economic regulator and CCWater as the consumer body.

[35] Sometimes preceeded by even more tentative and exploratory "Green Papers", White Papers" are a key part of the legislative process in the UK.



Source: UK Parliament - http://www.parliament.uk/about/how/laws/passage-bill/

The stages in both houses are roughly the same, with the First Reading usually only requiring the formal declaration that the Bill is on the Parliamentary agenda, resulting in its publication in Hansard, the official Parliamentary gazette. This triggers scheduling of longer second reading debates in both houses, which are then followed by Committee stages whereby specific issues or objectives attendant will be explored in the lead up to the "Report Stage". The Report Stage may involve significant suggestions for alterations, based both on internal scrutiny and consultations from outside parliament (often given as testimony before standing committees). When a Bill returns from the Report Stage, the government will usually impose a limitation on time for further debate, known as a "guillotine". Delays between committee stage and report stage allow time for Government to give further thought to some of the points raised during committee stage though they are not obliged to accept them and may strike off in entirely different directions. The House may reverse or amend changes made by the standing committee. The Lords stages are roughly similar to those in the Commons with the exception that the Lords cannot impose a guillotine. Because Bills must be agreed in identical form between the two Houses, there is often an inter-House process known as "ping pong" during which suggested alterations will be sent back and forth between the two houses prior to its passage in final form by both houses.[36] Once both Houses have accepted identical forms of a Bill, it receives Royal Assent and becomes law.

The Draft Water Bill provides a good example of the working of this process, and the differences it can make to what ultimately became a significant piece of water law in the UK. During the pre-legislative scrutiny phase, lasting from July 2012 to June 2013, 45 written stakeholder submissions were received from public, private, non-governmental organisations and academia. Section 4 of this paper provides a breakdown of the stakeholder feedback from the various sectors. There were also four oral evidence sessions held during October to November 2012 and

[36] The *Prevention of Terrorism Act* (2005) went back and forth no less than 8 times in a 30 hour period before receiving Royal Assent on the evening of March 11 2005.

Figure 1 below provides a list of the 13 stakeholder organisations who provided evidence at the four oral evidence sessions:

Figure 1 - Pre-legislative Scrutiny oral evidence sessions

DATE	ORGANISATION	NAME
23 October 2012	Water UK	Rob Wesley
	Wessex Water	Colin Skellett
	Severn Trent Water	Tony Ballance
	Anglian Water	Jean Spencer
30 October 2012	Consumer Council for Water	Yve Buckland and Tony Smith
	Scottish Government	Robert Leask
	Ofwat	Regina Finn
20 November 2012	Moody's Investors Service	Neil Griffiths-Lambeth
	Business Stream	Mark Powles
	SSE Water	Nathan Sanders
	Blueprint for Water	Rob Cunningham and Nicci Russell
21 November 2012	Parliamentary Under-Secretary of State for the Natural Environment and Fisheries	Richard Benyon MP
	DEFRA (Department for Environment, Food and Rural Affairs)	Sonia Phippard and Gabrielle Edwards

Pre-legislative scrutiny testimony suggested widespread support for the proposed retail market reforms to increase competition, but as the water sector requires significant capital investment, there was also concern about impacts on industry and customer charges. As a result of this pre-legislative scrutiny, the EFRA Committee recommended that charging rules guidance should be scrutinised by UK Parliament and published at the same time as the Bill. Further concerns about

cross-subsidisies within the industry (raised as an issue also in the Water Review of 2009) were raised by consultees, and recommendation given that the introduction to reform upstream water market would require further stakeholders consultation and engagement. EFRA also recommended that the government work with water companies to incentivise and encourage the use of water meters in tackling water efficiency, a recommendation not included in the Act as passed in May 2014. The report also highlights the Bill's broad framework and lack of sufficient detail to estimate the full impact which means detailed guidance will have to be developed as so-called "secondary legislation" and may receive less scrutiny. Consultees also raised their disappointment that provisions for tackling water stress or reforming abstraction licencing were not included in the Bill. Interestingly, the Committee combined concerns about economic reform and environmental management into a recommendation that Ofwat's primary duty should be revised to include sustainable development – a recommendation at odds with much of the 2011 Gray Review.

The UK Government responded to EFRA Committee's pre-legislation scrutiny report on 27 June 2013 and revised the Water Bill to include new measures following EFRA and stakeholders feedback. The new measures include an increased focus on growth and resilience, strengthening ministerial and parliamentary accountability for the public policy framework which includes future charging and market codes. Due to the varying costs benefits associated with metering together with variable levels of water stress across the UK, the government do not intend to impose universal metering across the country but intend to implement this in future areas when need arises. The government amended Ofwat's principle duty to long-term resilience compared to sustainable development to achieve the correct balance.

By the time the Water Bill was formally introduced into the Commons on June 27, 2013, it was already the product of three large scale "reviews" (Gray, Cave, and Walker) and a detailed pre-legislative scrutiny process. Described by then Environment Secretary Owen Paterson as a "once in a generation opportunity to reform the water sector", the bill was more drily described in Hansard as "...a Bill to make provision about the water industry; about compensation for modification of licences to abstract water; about main river maps; about records of waterworks; for the regulation of the water environment; about the provision of flood insurance for household premises; about internal drainage boards; about Regional Flood and Coastal Committees; and for connected purposes" (Commons Hansard, 27 Jun 2013: Column 506).

9.4 The Water Bill's Passage Through Parliament: June 2013 – April 2014

The House of Commons

First Reading

The Water Bill was formally introduced without debate, its "First Reading", in the House of Commons on 27 June 2013. Owen Paterson MP, for the Conservative Party and the Secretary of State for Environment, Food and Rural Affairs hailed it as critical to making the water industry "fit for the 21st century" The Government stated that the Bill contained provisions to increase drought resilience and give business customers the choice of who supplies their water. Outside the House Paterson said:

"We need to address growing pressure on our water resources. These reforms will make the sector more resilient and help us build a stronger economy.

"Creating a modern customer-focused water industry is crucial. We have listened to businesses who want more choice, and our new measures will give them the freedom to switch supplier and find a more competitive deal."

The Government claimed that the Bill would benefit the economy by £2 billion over the next 30 years.

Second Reading

On 25 November 2013, Owen Paterson opened the Second Reading debate with Ministers of Parliament, by outlining the Water Bill's main principles. He emphasised the need for "continued investment in our water and sewerage systems. We need investment in storing water and moving it to where it is needed; investment in maintaining our sewerage network and improving drainage, including through sustainable drainage options; investment that will protect our rivers through improvements to water quality; action to address over-abstraction; and investment in greater water efficiency." [1] In highly formalistic responses, he official Opposition spokesperson, Maria Eagle MP, for the Labour Party, stated that despite the "sensible measures" included in the Bill, "it was a wasted opportunity to tackle the impact that rising water bills are having on stretched household budgets." [1] and Liberal Democrat Party spokesperson, Roger Williams MP, stated … (*no information in Committee minutes though House of Commons Research papers states "Liberal Democrat MP Roger Williams also raised the issue of sustainability and informed the House he would seek to change the bill at a later stage to give Ofwat, the industry regulator, a primary duty to promote sustainability: One of Ofwat's secondary duties is to promote sustainable development. Liberal Democrats would like to see this duty elevated to a primary level. For that reason I intend to table an amendment giving Ofwat a primary duty to promote sustainability."* Anne McIntosh MP, Conservative party, Chair of the Environment, Food and Rural Affairs emphasised the need for Government to place a statutory duty on Ofwat – normally seen only as an economic regulator – for sustainable development to improve environmental stewardship

After the Second Reading debate a 'Programme Motion' was agreed and a Programme Order was initiated to assist the Bill's progress through Parliament; a 'Money Resolution' was passed as the Water Bill proposes public expenditure as well as a 'Ways and Means Resolution' to raise revenue for the Government was agreed.

The post-Second Reading Committee stage ran from 3 December to 17 December 2013 with nine committee sittings. During this period there were two public evidence sessions where the following stakeholders provided evidence directly through physical attendance:

Figure 2 - House of Commons oral evidence sessions

DATE	ORGANISATION	NAME
First sitting – 3 December 2013 (morning)	Business Stream	Mark Powles, Chief Executive
	Ofwat	Cathryn Ross, Chief Executive
	Water Industry Commission for Scotland	Alan Sutherland, Chief Executive
	Water UK	Rob Wesley, Head of Policy
	Consumer Council for Water	Dame Yve Buckland, Chair
	New Policy Institute	Dr Peter Kenway, Director
	Consumer Council for Water	Tony Smith, Chief Executive
Second sitting – 3 December 2013 (afternoon)	Association of British Insurers	Aidan Kerr, Assistant Director
	National Flood Forum	Paul Cobbing, Chief Executive
	British Insurers Brokers Association	Graeme Trudgill
	Council of Mortgage Lenders	Paul Smee, Director General
	Environment Agency	Trevor Bishop, Head of Water Resources
	Environment Agency	Pete Fox, Head of Strategy and Investment (Flood and Coastal Risk Management)

	WWF-UK	Dr Rose O'Neill , Freshwater Programme Manager (UK Rivers)
	RSPB	Rob Cunningham, Head of Water Policy, Blueprint for Water Coalition
	Chartered Institution of Water and Environmental Management	Colin Fenn, Chairman of Water Resources Panel
	Water Reform, DEFRA	Gabrielle Edward, Deputy Director
	DEFRA	Dan Osgood, Deputy Director for Flood Risk Management
	Environment, Food and Rural Affairs	Dan Rogerson MP, Parliamentary Under-Secretary

Written evidence was also provided to the Committee and Table 3 provides a synopsis of comments received from various sectors in relation to metering and pricing – key themes of the Water Bill. The remaining sittings debated suggested amendments from Committee and went through a line-by-line scrutiny of the Bill and reprinted for the next stage of Parliamentary consideration

Report Stage and Third Reading

Ministers in the House of Commons had an opportunity to consider changes proposed for the Water Bill on 6 January 2014. New clauses were added to establish a new independent dispute resolution scheme to provide customers with an independent method to resolve their complaints without having to go to court; consultation of regulators (Environment Agency and Natural Resources Wales) by Ofwat and Secretary of State on licences and policies; and flood insurance.

Other new clauses that were not added because they were defeated on division in the House of Commons included provision of billing information to domestic customers; a national affordability scheme; requirements for water companies to provide commercial information to the public; tackling bad debt; enabling water companies to exit the retail market; delaying the introduction of upstream competition until after the abstraction reform; de-averaging of charges; separation of retail and wholesale activities; a primary sustainable development duty for Ofwat.

Clauses that where *withdrawn* after debate included powers to re-open price review settlements; the proposed fracking bond to ensure fracking companies clean up any accidents; Canal and Rivers Trust a statutory consultee on regulations.

The House of Lords

First Reading

The Water Bill was formally brought from the House Commons and introduced for the first time in the House of Lords without debate and with little media interest on 7 January 2014.

Second Reading

The House of Lords had the first opportunity to debate the key principles and main purpose of the Water Bill on 27 January 2014. Parliamentary Under-Secretary of State, Department for Environment, Food and Rural Affairs Lord De Mauley declared that "[t]here are two important parts to the Bill; first, to reform the water industry to ensure it is fit for the long term, and, secondly, to provide a solution to deal with the availability and affordability of flood insurance for households at high risk of flooding. In the four hours of debate that followed, the Lords raised concerns about how regulation would assist poorly performing water companies, the financial structure of the water industry, and the management and regulation of the water system in the UK.

Committee Stage

The Lords examined the Bill line by line and the clauses and schedules separately which took place over 3 sittings on 4, 6 and 11 February 2014. These debates led to a number of amendments being made on issues such as consumer redress schemes, flood insurance provisions, and additional requirements for consultation of the Environment Agency and Natural Resources Wales in relation to water and sewerage licencing, policy statement and guidance for water resource management plans.

Report Stage

This stage provided the House of Lords yet another opportunity to examine the Bill which took place over two days, 25 and 31 March 2014. At this stage a new clause was introduced to give the National Assembly for Wales legislative competence for water up to the geographical boundary with England, but this clause was defeated at vote as the Government was not inclined to change the devolution settlement as regards water resource management.[37] Other suggested amendments were made for the timetables for upstream competition and abstraction reform to be aligned but they were defeated at vote. The Lords were particularly critical of the detachment of abstraction reform from this Bill, arguing that abstraction reform should be dealt with prior to many of these other competition-related reforms.

Other new clauses that were not added because they were defeated on division in the House of Lords include, corporate governance which would require undertakers to submit business reports to the Secretary of State and Ofwat, but as Ofwat is improving the corporate governance standards in the water industry and water companies produce corporate governance information for the public domain the clause was defeated. A new clause on the national affordability scheme that provides funding for domestic water bills, especially for households in water poverty, would require funding from water companies profits and not by other water consumers. As Ofwat set the profit levels for water companies and the complexities involved in defining profits this clause was defeated at vote. It was also stated that WaterSure (a funding scheme for vulnerable groups with water meters) is available for those households. http://www.ofwat.gov.uk/consumerissues/assistance/watersure/

The other clause that was defeated at vote was the flood insurance scheme.

Amendments on fracking and water contamination were withdrawn as wider regulatory frameworks were already in place to cover these issues.

The House of Lords felt that the clause on retail market exit did not address the Government's concern, that enabling water companies to exit from non-household retail markets risks being a negative outcome for domestic consumers. The Government did not rule out returning to this issue in the future. The clause on bad debt was debated but as the water industry is working with landlords to establish a voluntary scheme, being launched in March 2015, where landlords can provide water companies with their tenants information to recover bad debts. Clauses on

[37] Such as amendment also ran counter to the WFD requirement that water planning take place at the catchment basin scale.

sustainable drainage and connections to public sewerage system were also discussed and provisions were being made in other legislative frameworks.

Third Reading

On 8 April 2014, the Lords discussed a series of amendments covering exit regulations for non-household supplies which were agreed without a vote. The Flood Insurance Scheme in relation to funding and a need for an annual review.

Consideration of amendments – Ping Pong

'Ping Pong' is the term given to a Bill when it has passed the Third Reading in both the House of Commons and House of Lords. On the 7 May 2014 the Water Bill was returned to where it was initiated in the House of Commons with the House of Lords amendments.

The Programme of motion in the House of Commons took place on 7 May 2014.

Royal Assent

On the evening of 14 May 2014, during prorogation (a formal name given to mark the end of a parliamentary session), the Water Bill received Royal Assent and went onto the statute book as the Water Act 2014.

Royal Assent is granted when a bill has completed all the parliamentary stages in both the House of the Commons and Lords to become law through an Act of Parliament. The Queen, the UK's Monarch, formally provides agreement to Royal Assent which is then announced in both the House of Common and Lords by the Lord Speaker.

At prorogation, Black Rod (the Gentleman Usher responsible for security in the House of Lords) interrupts the proceedings in the House of Commons and summons MPs to the Lords Chamber (the grandest room in the Palace of Westminster where the three elements of Parliament the Sovereign, the Lords, and the Commons come together to hear the Lords commissioners

announce royal assent to the bills passed. (http://www.parliament.uk/about/living-heritage/building/palace/architecture/palace-s-interiors/lords-chamber/)

After Royal Assent has been granted, the new Water Act 2014 means that for the first time, businesses, charities and public sector customers will have the freedom to switch water supplier from 2017. It is predicted that the Water Act 2014 together with the other water market reforms set out in it will benefit the UK economy by £2billion over the next 30 years. The Act anticipates in addressing growing pressure on water resources by making supply more resilient; assist in connecting the national water network by making it easier for water companies to buy and sell water from each other; increase competition and encourage new entrants into the market, and ensure that those living in high risk flood areas have access to affordable flood insurance from 2015. (DEFRA 15 May 2014)

9.5 Vox Populi: specific contributions on metering and pricing and flood insurance

Stakeholder-based models of participation such as the de facto one employed to the British Parliament are at least tacitly predicated on the notion that in a well-functioning democracy all members of political and civil society should be able to make their voices heard on issues that concern them. Beyond the ballot box of course the most obvious ways of doing so are through one's local MP (generally used when trying to address a very local or personal concern) or through making direct representation to government during consultation exercises like the one examined in this paper.[38] In this section we examine both the range and number of both stakeholders heard from and comments received at the different stages of the legislative process. The object of this brief analysis is to assess the sort of participation process enacted here against the general model proposed at the outset of the paper.

The following table outlines the main issues raised by stakeholders from the pre-legislative scrutiny, House of Commons written in relation to metering, pricing and public participation.

As mentioned above, pre-legislative scrutiny oral evidence sessions took place between 23 October 2012 to 21 November 2012 where 13 stakeholder organisations provided oral feedback, and 45 written submissions were received on the Draft Water Bill at this stage.

Table: summary of numbers and types of stakeholders heard at each stage

Stakeholder Type	Bill Stage		

[38] There is a fourth way of accessing government, through the press, which can be effective, but is ad hoc and reactive.

	Pre-legislative Scrutiny	Commons Committee	Lords Committee
Academic			
NGOs			
Private Water Companies			
Other Private Interests			
Regulatory Bodies			
Other			

Table: Issues Raised, by Stakeholder Type

Stakeholder Type	Metering	Pricing	Flooding
Academic			
NGOs			
Private Water Companies			
Other Private Interests			
Regulatory Bodies			
Other			

9.5 Concluding Comments on the Role of Stakeholders in Drafting Major Water Legislation in the UK

References:

European Commission 2012 Final Report from the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC) River Basin Management Plans COM(2012) 670

Gray Review - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69442/ofwat-review-2011.pdf

Water White Paper - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69480/water-for-life-market-proposals.pdf, December 2011

House of Commons – Environment, Food and Rural Affairs Committee, Draft Water Bill, Sixth report of Session 2012-13, Volume 1 - http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenvfru/674/674.pdf

Government response to the ERFRA Committee's pre-legislative scrunity of the Draft Water Bill - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/235922/8643.pdf

Draft Water Bill (July 2012) - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228852/8375.pdf

Ofwat - http://www.ofwat.gov.uk/

Passage of bill - http://www.parliament.uk/about/how/laws/passage-bill/

House of Commons, First Reading – 27 June 2013 http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm130627/debtext/130627-0002.htm#13062761000015

House of Commons, Second Reading – 25 November 2013. http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm131125/debtext/131125-0002.htm#13112514000001

House of Commons, Money Resolution – 25 November 2013. http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm131125/debtext/131125-0004.htm#13112541000006

House of Commons, Ways and Means Resolution – 25 November 2013. http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm131125/debtext/131125-0004.htm#13112541000007

House of Commons, Programme motion – 25 November 2013. http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm131125/debtext/131125-0004.htm#13112541000005

House of Commons, Committee Debate, 1st sitting – 3 November 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131203/am/131203s01.htm

House of Commons, Committee Debate, 2nd sitting - 3 November 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131203/pm/131203s01.htm

House of Commons, Committee Debate, 3rd sitting - 5 November 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131205/pm/131205s01.htm

House of Commons, Committee Debate, 4th sitting – 10 December 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131210/am/131210s01.htm

House of Commons, Committee Debate, 5th sitting - 10 December 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131210/pm/131210s01.htm

House of Commons, Committee Debate, 6th sitting - 12 December 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131212/am/131212s01.htm

House of Commons, Committee Debate, 7th sitting - 12 December 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131212/pm/131212s01.htm

House of Commons, Committee Debate, 8th sitting - 17 December 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131217/am/131217s01.htm

House of Commons, Committee Debate, 9th sitting - 17 December 2013 http://www.publications.parliament.uk/pa/cm201314/cmpublic/water/131217/pm/131217s01.htm

House of Commons, Report Stage -6 January 2014 http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140106/debtext/140106-0002.htm#14010614000001

House of Commons, Third Reading – 6 January 2014 http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140106/debtext/140106-0004.htm#14010625001256

House of Lords, First Reading –7 January 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140107-0001.htm#14010750000892

House of Lords, Second Reading – 27 January 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140127-0001.htm#1401272000431

House of Lords, Committee Stage, 1st Reading – 4 February 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140204-0001.htm#14020486000486

House of Lords, Committee Stage, 2nd Reading – 6 February 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140206-0001.htm#14020661000851

House of Lords, Committee Stage, 3rd Reading – 11 February 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140211-0001.htm#14021176000408

House of Lords, Report Stage, 1st sitting – 25 March 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140325-0001.htm#14032569001401

House of Lords, Report Stage, 2nd sitting – 31 March 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140331-0001.htm#1403315000303

House of Lords, Third Reading – 8 April 2014 http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140408-0001.htm#14040852000496

House of Commons, consideration of amendments (ping pong) - 7 May 2014 http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140507/debtext/140507-0001.htm#14050791000002

House of Commons, Programme motion – 7 May 2014 http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140507/debtext/140507-0001.htm#14050791000006

Royal Assent – 14 May 2014 Water Act 2014 - http://www.legislation.gov.uk/ukpga/2014/21/contents/enacted/data.htm

House of Lords – library note, Water Bill (HL Bill 71 of 2013-14) http://www.parliament.uk/briefing-papers/LLN-2014-002/water-bill

House of Commons Committee Stage Report http://services.parliament.uk/bills/2013-14/water/documents.html

House of Commons – Briefing Paper on Secondary Reading. http://www.parliament.uk/briefing-papers/RP13-67/water-bill

Wong Sam, (2009) Institutionalizing Water Governance in England and Wales: Potential and Limitations, Journal of Natural Resources Policy Research, 1:4, 307-320, DOI: 10.1080/19390450903033533