Liquid Dynamics:
the hydrosocial cycle and the radical politics of water

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Abstract

The thesis attempts to develop an understanding of the reproduction of power in the context of the water sector, in relation to public sector water provision, water privatization, and community-based alternatives to both. In pursuit of that it develops a “socio-political ecology” which combines the methodology of political ecology with the theoretical framework of historical-geographical materialism and the concept of social capital. it examines the hydrosocial cycle as a socionatural process which involves the continuous (re)construction of the socionatural water cycle through the (re)construction of “water” demand, supply and scarcity, as well as the socionatural construction of the state. The water sector in Venezuela serves as an illustrative example for how first, different forms of capital interact to reproduce a mode of power; second, that reproduction tends to produce a concentration of power; and third, how internal contradictions and external pressures can lead to changes in the mode of power. In particular, points of crisis produce new recognitions of *radical contingency* - the potential for the mode of power to be fundamentally altered - and thereby politicization and new forms of activism.

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Dedication

To Esma, my wife.

Acknowledgements

I would like to thank to my supervisors, Erik Swyngedouw and Diana Mitlin, for all their support and encouragement during the long and trying process of getting to this point. I also owe various debts to many who have inspired and helped me, both in theoretical terms and in relation to my fieldwork in Venezuela.

The Author

The author read economics at the University of Cambridge (1997 - 2001), and after an internship at the Development Directorate of the European Commission, worked as a Research Fellow at the Public Services International Research Unit (PSIRU) at the University of Greenwich (2003 – 2005). At PSIRU he worked primarily on the WATERTIME project on transparency and participation in the water sector in Europe, and on water privatization issues, including the role of international financial institutions in promoting it.

1. Introduction

In this thesis I wanted to develop an understanding of the reproduction of power in the context of the water sector, in relation to public sector water provision, water privatization, and community-based alternatives to both. My theoretical interest was informed by my background in economics, where I had developed an interest in the concept of "social capital" as a means to integrate some aspects of sociology into economics which were otherwise missing. In pursuit of this I investigated the nature of capital and its relationship to water, which brings me to my primary interest in this thesis.

I wanted to analyse the role of capital in reproducing and sustaining power. I wanted to understand how changes to established power relations - breaks in the reproduction of power - occur. My particular reference point from my previous research was the water sector, and due to events in Venezuela, including in the water sector, it was a natural case study to choose. My interest was both empirical (understanding a particular case study) and theoretical. The sum total of this work produced a trans-disciplinary interest which drew me to human geography, and to political ecology in particular, and it is this area in which my thesis is developed.

My research questions became then, in theoretical terms, how the stability of established relationships of power within and between state and society is maintained and challenged, with the water sector as an entry point. In empirical terms, the question became the nature, effects and origins of the changes in Venezuela's water sector in the Bolivarian Revolution, and the implications for the Revolution's attempted reconfiguration of state-society relations. These questions have a wider relevance to the ability of communities and socio-political movements to engage with and alter the political status quo, as well as to their ability to contribute to the provision of the basic need of a safe and reliable water supply.

I am influenced by different authors, but Pierre Bourdieu's work on the forms of capital is perhaps foundational. I combine this with political ecology concerns which recast the relationship between "society" and "nature" as "socionature", and with authors such as Foucault and Gramsci interrogating the nature of power. Finally, the work of the political scientists Glynos & Howarth and Nitzan & Bichler contributes to the integration of these concerns.

These concerns have given me a very broad canvas - far broader than can be accommodated within the scope of a doctoral thesis. As a result some areas are under-developed; I hope the reader will agree that these are areas of lesser interest. I hope that these areas are also, in outline at least, more likely to be familiar to the reader, and therefore in less need of detail, than the areas I have chosen to focus on.

Why should read this thesis (if you don't have to...)? Because in it I try to bring together some theoretical ideas about capital, power and the state in a way which has not been done before; and I provide an illustrative case study which shows how this new agglomeration of ideas can be useful. (The case study is an attempt to historicize, "detailing the specific forms of political, economic and cultural relations in place and time." (Ekers and Loftus 2013:249)) My core thesis, at its simplest, is that power begets power. Like all core theses, it is trite, and what is interesting (I hope) is the way in which I analyse the inter-relation and nature of the state, power and capital in reproducing power relations, and some of the issues around challenging that reproduction, particularly in the context of water.

1.1. Overview

Chalter 2 seeks to lay out a "socio-political ecology" which combines the methodology of political ecology with the theoretical framework of historical-geographical materialism and the concept of social capital.

Chapter 3 addresses the hydrosocial cycle: the socionatural construction of water and water scarcity. The hydrosocial cycle is a socionatural process which involves the continuous (re)construction of the now socionatural water cycle through the (re)construction of "water" demand, supply and scarcity.

Chapter 4 addresses the socionatural construction of the state through the hydrosocial cycle. A key aspect of the socionatural process which is the hydrosocial cycle is the dynamic social process which constitutes "the state", which contributes to the continuous (re)construction of the cycle and is in turn (re)constructed by it. It also looks at the neoliberalisation of water from the 1980s on. It links flows of power with flows of water both physically and metaphorically, and considers the hows and whys of changes in the intersection of capital and state processes in the (re)construction of the hydrosocial cycle in Latin America.

Chapter 5 addresses the case study country Venezuela. The oil country Venezuela provides a case study of how a socio-political-ecological system can be both plastic and rigid in

different ways and different aspects, in terms of the production and reproduction of power relations and the (re)construction of the hydrosocial cycle. The chapter looks at attempts in Venezuela to develop alternative community-based approaches to water supply and sanitation.

Chapter 6 examines "water alternatives" (alternatives to traditional state and corporate private provision), focussing on co-production and participatory development as means of understanding these. It considers alternative ways of (re)constructing the hydrosocial cycle – alternatives to loss of control to capital, and alternatives to weak state processes. It also examines the "radical politics of water". Water's physical characteristics and role as a basic need give the failure to adequately meet those needs a particular socio-political significance, which means that water issues can more often involve radical contingency (how much that spreads beyond water depends on context).

Finally, the concluding Chapter 7 brings all of these elements together. It concludes that everything can be changed (the continuous process of reproducing it can be altered), but actively changing it is often very difficult, and the possibility of significant change can often become hidden. Venezuela water shows some of the ways how and reasons why things change and do not change.

2. The (re)production of natures: socio-political ecology

I begin by developing a brief history of political ecology, in order to be able to link this with Harvey's historical-geographical materialism and with elements of social and political theory, to construct something new as a means of analysing what I argue are particular modes of power. Modes of power here are defined by the concentration and fungibility of power, understood as the ability to convert different forms of capital into other forms as a means to further the accumulation of capital-power. Capital, following Nitzan and Bichler (2009), is understood as an expression of power: in essence, commodified power.

2.1. Political ecology

2.1.1. A critique of apolitical ecology(ies)

Political ecology[1] is, as the name suggests, an approach which above all distinguishes itself from traditional 'apolitical' ecology (Robbins 2004:5). This 'apolitical' ecology had failed to bring political (or rather, politico-economic) analysis to human-environment interactions, a failing which emerged particularly in relation to environmental crises. Political ecology reacted to three forms of apolitical ecology – neo-Malthusianism, cultural ecology, and apolitical "natural disaster" research.

The first form, now generally referred to as neo-Malthusianism, was in the 1970s in fact described as 'political ecology' – as referenced for example by one of the earliest political economy reactions to it: Enzenberger (1974)'s essay titled "A Critique of Political Ecology". This body of 'political ecology' ascribed environmental problems to natural limits – an excess of population (Ehrlich 1968) in relation to natural resources, summed up in the *Limits to Growth* thesis (Meadows, Randers et al. 1972). One strand of political ecology, beginning with Wolf (1972), therefore developed out of a typically Marxist political economy critique (e.g. Harvey (1974)) arguing fundamentally that the problem was not one of lack of resources, but of their distribution. This strand is associated with radical development geography more generally (Bryant and Bailey 1997:11), a sub-discipline closely associated with political ecology.

[1] We discount two uses of 'political ecology' which do not apply here: as a metaphor for human politics, and as a term for the political wing of the environmental movement (Page 2003, Forsyth 2003)

The second form of apolitical ecology was referred to as “cultural ecology” in geography, or as “ecological anthropology” in anthropology (Watts and Peet (2004:7-8)). Cultural ecology provided insight on the nature-society relationships of isolated rural communities (e.g. Vayda and Rappaport (1967)), with an approach based on showing socio-ecological adaptation, function, and equilibrium. Later criticised for crude "neofunctionalism" (overemphasising the logic of adaptation, sometimes crudely seeing everything as adaptive), it nonetheless “open[ed] the door to a range of productive questions, allowing a continuing exploration of the complex and sophisticated adaptations of people who had historically been characterized as backward.” (Robbins 2004:35). However this approach could not explain the changes occurring to previously sustainable local socio-environmental systems in the context of increasing urbanization, marketization and commodification, and globalization. Cultural ecology's later innovation, by Vayda (1983), subsequently adapted by political ecology, was to explain people-environment interactions through a chain of “progressive contextualization”, i.e. placing the interactions in “progressively wider or denser contexts” (1983:265). But, as Robbins (2004:39-40) argues, this was ultimately an atheoretical approach, merely a tool for better organising a fuller description, rather than explaining.[2] Even the most sophisticated attempts to describe the social and economic context at multiple scales above the locality study (e.g. Nietschmann (1973)’s pathbreaking book on Miskito Indians in Nicaragua) could not escape the need for political economy analysis. What was needed was “an integrated set of critical concepts, methods, and theories from which to explain problems and upon which to build alternatives” (Robbins 2004:40).

Finally, a third lineage for political ecology may be identified in natural hazards/disasters research (Watts and Peet 2004:8). This developed less confrontationally than the previous two lineages, out of the increasing work in geography and sociology developing particularly in the United States in the 1960s and 70s, on the interdependence between nature and society in the making of “natural” hazards and disasters.

2.1.2. Political economy(ies)

As Watts and Peet (2004:9) point out, just as the meanings of ‘ecology’ in political ecology differ (see above), so do the meanings of ‘political economy’. Bryant and Bailey (1997:14) identify two historical phases – a neo-Marxist-based literature from the late 1970s to mid-1980s focussing on the political economic aspects of class relations in their interaction with ecology; and a second phase from the late 1980s to the mid-1990s widening the scope of

[2] ‘an extremely diluted, diffuse, and on occasion voluntarist series of explanations’ (Peet and Watts, 1996: 8).

analysis to all aspects of power relations in their interaction with ecology, using all manner of theories to do so. Early Marxian examples include Watts (1983) and Blaikie (1985), which despite rich empirical insights neglected the role of local politics in favour of structural explanations rooted in class relations and surplus extraction through globalised capitalist production.

Later political ecology often invoked the formula of a “broadly defined political economy”, as Blaikie, Brookfield et al (1987) put it. This is understood in contrast to ‘narrowly defined political economy’, which concerns itself with issues of ownership and labour. Broadly defined political economy looks at who controls resources and how the rules and conditions of production and exchange are defined through political struggle, not just in a labour context, but wherever power is exerted at the interface of politics and economics. Thus political ecology authors have drawn on, among others, neo-Weberianism; social movements theory (e.g. Scott (1985)’s ‘everyday resistance’), household studies and feminist development studies (e.g. Rocheleau, Thomas-Slayter et al. (1996)).

2.1.3. Poststructuralist political ecology

As Bryant and Bailey (1997:1) note, Peet and Watts’ influential (1996) book suggested that a “more robust” political ecology might emerge if incorporating insights from poststructuralism (e.g. Escobar (1996), Escobar, Berglund et al. (1999)). As it turns out, developing in the mid-1990s, this has been a very substantial trend in political ecology, enough that one may reasonably describe it as a third historical phase, following Bryant and Bailey (1997)’s first two, noted above (the neo-Marxist and broad-political-economy phases). Thus classic works such as Fairhead and Leach (1996) – “a book which has done much to inspire debate regarding the legitimacy of dominant environmental narratives” (Stott and Sullivan 2000:5) – have begun to deconstruct environmental and development narratives. As Forsyth (2003:8) puts it, political ecology has incorporated “poststructuralist approaches … that focus… on the historical and cultural influences on the evolution of concepts of environmental change and degradation as linguistic and political forces in their own right”.

However, as Forsyth (2008) points out, earlier political ecology also included substantial deconstructive elements, such as Roe (1991) on the political ecology of 'tragedy of the commons' narrative. Equally, early political ecology work on soil erosion in Africa (e.g. Blaikie (1985)) showed how coercive colonial soil ‘conservation’ was justified by claims made by colonial scientists. Blaikie, Brookfield et al. (1987:16) even talked about the need

for a ‘plural approach’ – “plural perceptions, plural definitions … and plural rationalities.” Indeed, the very roots of political ecology in challenging neo-Malthusian grand narratives can be read as deconstructionist.

2.2. Historical-geographical materialism

The term “historical-geographical materialism” was introduced by David Harvey in *The Condition of Postmodernity* (Harvey 1990). This approach –as expanded on in later works, especially *Justice, Nature, and the Geography of Difference* (Harvey 1996) – amends historical materialism with three additional dimensions. These are the treatment of difference and ‘otherness’ (aspects of social stratification such as race and gender); post-structuralist concerns with image and discourse as part of the reproduction of any symbolic order; and space and time (the “real geographies of social action” – 1990:355). In addition Harvey insists that historical-geographical materialism should be “an open-ended and dialectical mode of enquiry rather than a closed and fixed body of understandings” (Harvey 1990:355).

This historical-geographical materialism is founded on a dialectic conception of the world which contrasts with the modern, Cartesian notion of the world is of a system made up of parts. In this view, the world is understood through a series of moments of the social process; no single moment can be understood on its own. “Each moment is constituted as an *internal relation* of the others within the flow of social and material life.” (Harvey 1996:80).

In this view, processes have ontological priority over things (Swyngedouw 2000): historical-geographical processes *constitute* things in a double sense: these processes produce things, and things can be understood as having no separate ontological existence from the processes which produce them. This contradiction is both apparent and real, and is maintained through the human impulse to reify the world – to turn processes into things by both linguistic and material means.[3] As Harvey (1974) put it, this “involves a discursive and practical ‘cut’ into the seamless complexity of the world in order to name discrete ‘noun-chunks’ of reality that are deemed to be socially useful.” (Castree 2003:180). At the material level, the biophysical environment is physically transformed, by *producing* physical “objects” more readily understood as “things” because of their functional purpose (“use value”). At the social level,

[3] Žižek makes a similar point in psychoanalytic terms based on a linguistic construction of reality. “Relying on Lacanian psychoanalytic theory, his argument proceeds something like this: ‘reality’ goes hand in hand with, but is opposed to, the ‘Real’ (Zizek, 1989: 69; 1999:74). Reality is what we (mistakenly) take to be wholeness or harmony, while the Real denotes the impossibility of wholeness, a fundamental lack that troubles any attempt at closure and consistency. For Zizek, from the moment we enter into the world of language, reality is where we escape to avoid the Real (1989: 45, 47).” (Kapoor 2005:1205)

the socio-political environment is transformed, by *producing* social objects by reifying social relations as "things" – reification which is ultimately rendered visible by the transformation of the biophysical environment or of socialised physical "objects". In each case, processes remain ontologically prior, but the epistemological production of "things" renders those things socially real.[4] The result is not so much that processes "crystallise" into "permanences", as Harvey (1996:81) has it: it must be emphasised that permanences are actively produced by human action, and must be continuously reproduced.[5]

If the world in fact consists of processes and we must categorise them in some way in order to think about them, we may do so in terms of circulating flows of power. These flows actively constitute and continuously (re)produce the socionatural world. As Ekers and Loftus (2008:706) note, "whilst Foucault and Gramsci deploy different conceptualisations of power in their work, in both cases power circulates throughout the socionatural fabric." As Foucault put it, "in a society such as ours - or in any society, come to that - multiple relations of power traverse, characterize, and constitute the social body." (Foucault 2003:24).

Since the world ontologically consists of processes, the production of things operates through the imposition of boundaries – both discursive and material. This is as true for the operation of organic life as social life. Organisms constitute themselves through the creation and policing of physical boundaries (between the external and the internal) as means to organise physical flows of energy and matter within and across that boundary in a manner that reproduces those organisms. Those (porous, fluid) boundaries appear to give the organism a power independent of its environment. Yet those boundaries themselves are biophysical processes, so that organic life remains constituted by processes which flow in and through it.

2.3. From nature/society dualism to socionature

The "nature/society" dualism is deeply embedded in modern thinking . Yet this was not always the case - and nor is this dualism inescapable. As Marx recognised,

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[4] We can draw an analogy with quantum mechanics, where probabilistic waveforms are only "collapsed" into definite forms through the intervention of an observer.

[5] Although one cannot deny the physical permanences have physical moments which have a materiality which has a certain inertia. For example when a city is abandoned it ceases to be a city-process permanence, but the physical moments of that social process do not vanish in the same way as other moments. However, once the social process ceases, they no longer constitute physical moments of the social process: they disappear socially (and thus later, being no longer reproduced as part of that process, they disappear physically).

> *What requires explanation is not the unity of living and active human beings with the natural, inorganic conditions of their metabolism with nature. . . . What we must explain is the separation of these inorganic conditions of human existence from this active existence. (Marx 1964:86–87; emphasis in original) [Quoted from Wachsmuth 2012:507]*

Wachsmuth (2012) traces the nature/society dualism to "the social separation of town from country in the rise of industrial capitalism, and as a consequence, the perceived separation of human society from nonhuman nature." This makes the dualism a "constitutively urban phenomen[on]" (Wachsmuth 2012:510). The physical, socio-cultural and political separation of developing the city from its hinterland (which Marx already considered in terms of "metabolic rift") led to the intellectual separation of a "city-society" from a "countryside-nature". Wachsmuth here identifies the equation of city with society and countryside with nature as the development of the society/nature dualism in parallel with the city/countryside dualism (Wachsmuth 2012). In both cases, the city as the locus of "society" is developed as the norm of "civilization", whilst nature and countryside become mere "other", constructed in opposition to society/city as both mere raw material and as idealised "nature" or "wilderness" (c.f. (Cronon 1995)).

It is then through the literal production of urban landscape that the metaphorical production of a pristine non-urban landscape arises. "Nature" here becomes defined as an idealized empty space - the constitutive Other of the city.

2.4. Production of "first nature"

In the previous section we discussed the development of a nature/society dualism. An integral part of this opposition is that society is intrinsically *produced* whilst nature is intrinsically *unproduced*. But as we know from Smith (1984), drawing on Lefebvre (1991), actually existing " nature" is itself produced. Hardly a part of the Earth is now untouched by human hand - and even those parts that might be considered to a large degree untouched can be analysed in terms of the historical-geographical reasons for that state. This is an aspect of the hydrosocial cycle (see Chapter 3) which I shall not dwell on, but it needs to be acknowledged.

Smith also develops a distinction between "first nature" and "second nature" that will be relevant later, with first nature the concrete and material (the realm of use values) and second

nature the abstract, the realm of exchange value. Commodities exist in both, subject to the differing laws of each realm.

2.5. Production of "second nature"

I argued above that the world ontologically consists of processes, and that the production of things operates through the imposition of boundaries – both discursive and material. The same process of boundary imposition operates in the social world – in the reification of social processes which constitutes social things. Social boundaries are produced and maintained – for example, between nations, between "the economic" and "the political", [6] and between "the state" and "civil society". The state/civil society dualism has been criticised, for example, by Giddens:

> *"With the rise of the modern state, and its culmination in the nation-state, 'civil society' in this sense [of something separate from the state] simply disappears. What is 'outside' the scope of the administrative reach of the state apparatus cannot be understood as institutions which remain unabsorbed by the state." (Giddens 1985:21-22)*

Using the dialectical 'flows of power' schema then leads us to a Gramscian view of the integral state as both centralised and diffuse, as against the more usual view (derived from Hegel) of state versus civil society. This has affinities too with Foucault's view of governmentality as a form of dispersed rule which ultimately constitutes the state (Ekers and Loftus 2008:703): "Thus, Foucault regards the state as a relational ensemble and treats governmentality as a set of practices and strategies, governmental projects and modes of calculation, that operate on something called the state. This something is the terrain of a non-essentialized set of political relations, however, rather than a universal, fixed, unchanging phenomenon. In this sense, while the state is pre-given as an object of governance, it also gets reconstructed as government practices change" (Jessop 2007:37). In Foucault's words: "all these power relations do not ...emanate from a single source; it is the overall effect of a tangle of power relations that allows one class or group to dominate another."[7]

[6] The subject of 'the political' will be one to return to. "Poulantzas argues that the definition of a separate political sphere is itself the outcome of the social relations of the capitalist state, and that the appearance of separation does not involve the insulation of 'society' from 'the state' but is in fact 'one specific form of the State's presence in socio-economic relations' (1978: 70)." (Painter 2006:759) The declaration of "economic" and "political" spheres in a democratic capitalist society functions partly as an obvious protection of economically powerful interests.

[7] Foucault (1994: 379), as quoted by Fontana and Bertani in Foucault (2003:277).

2.5.1. The political

These social boundaries, which in an ontological sense do not exist, have real effects, and in those real effects the things (permanences) they define gain a power which appears independent of the processes which constitute them. One of the best examples is "the state", which must be understood as a 'social reality' emergent from the everyday practices (processes) of socio-political power: as Foucault puts it (quoted in (Jessop 2007:36)), ''the state is nothing more than the mobile effect of a regime of multiple governmentalities''. The illusion that the state exists independently of these practices is what we mean by reification or fetishisation. The state is "not a concrete object (consisting of 'institutions plus territory') at all, but is really an *idea*" (Painter 2002); emphasis in original); or, better, "an imagined collective actor" (Painter 2006:758). The state is thus "not a unitary object but is, rather, a set of practices enacted through relationships between people, places, and institutions." (Desbiens, Mountz et al. 2004:242). Of course, as Castree (2004) reminds us in the context of the economy-culture debate in human geography, citing Tim Mitchell (1998:91): "an idea is 'never, as it always pretends to be, a mere representation'." The state narrative is always historically constructed by particular constituencies for particular purposes, and insofar as a particular constituency (class) dominates the 'discussion' (a discussion that is constituent of both speech acts and other acts), its narrative becomes hegemonic (Gramsci 1971). However, as (Jessop 2007:38) points out, these classes and groups are not to be fetishised either: "Foucault … never regards the state, capital, or the bourgeoisie as pre-constituted forces, treating them instead as emergent effects of multiple projects, practices, and attempts to institutionalize political power relations."

2.5.2. The economic

This brings us to the sphere of the "economic" – the production of things through "capital". Capitalist production operates through a historical-geographical social process with multiple moments (Harvey 1996) which we may call different 'forms of capital' (Bourdieu 1986). These forms of capital must in turn be understood as *processes*, each being a moment in the overall production process (which operates by transforming the socionatural environment, broadly defined, into commodities). Conventionally they are understood as stocks – a conception equivalent to a snapshot of a process at a particular point in time. For some purposes this stock conception is adequate. More precisely, however, each form of capital represents a process (moment) which, in conjunction with other processes (moments)

constitutes a flow of a certain productive (transformative) power.[8] Even physical capital does not consist of stocks of machines - it consists of machines *operating as part of the production process*.[9] All forms of capital – all moments of the capital process – are only capital as long as their transformative (productive) power is embedded in a process of continuous commodification in which all moments of the process of production are operative. To reify these moments as “factors” of production – as independent sources of value – is to fall foul of what Murray (2002) argues is a fetish parallel to the commodity fetish (one might call it the “capital fetish”), which is to say, the transformation of social relations into (ahistorical, despatialised) objects.

2.5.3. The social: Social capital

Social capital is an essentially multidisciplinary concept,[10] with different conceptions traceable to uses of the term in economics (Loury 1977), sociology (Bourdieu 1986; Coleman 1988; Coleman 1990), and political science (Putnam, Leonardi et al. 1993; Putnam 1995; Putnam 2000).[11] Of these conceptions, it is Putnam’s[12] which has been by far the most influential in the policy domain (where it resonated with communitarian perspectives) as well as forming the backbone of the outpouring of literature on social capital, through which Putnam became the single most cited author across the social sciences (Fine 2007:566). Patulny and Svendsen (2007:34) suggest there is now an “emerging consensus that social capital is comprised of networks and norms of trust and cooperation”, which emerges from Putnam’s (1996)’s definition of “norms, networks, and trust”.

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[8] This can also be expressed as a monetary value through the *capitalisation* of future flows of such power (e.g. the capitalisation of future revenue streams of a PFI project, for the project stake to be sold).

[9] This is amply illustrated by pointing out that even the most sophisticated factory in the world, with its machines suddenly transplanted to Pluto, is no longer capital, being no longer a part of the capitalist production system. (Any residual value ascribed rests on a hypothetical reintegration with the production system.)

[10] There is some debate about whether social capital is a theory, concept, or metaphor. Fulkerson and Thompson argue that “social capital is a theory in transition to becoming a paradigm … [with] many incompatible and conflicting images [from a variety of sociological traditions]” (2008:539)

[11] Social capital concepts can also be read into the work of older authors, such as Weber (ref) and Veblen (Waldstrøm and Svendsen 2008).

[12] Although Putnam drew on Coleman’s work, and it is worth noting that Coleman is a rational-choice sociologist. Both Putnam and Coleman emphasise the collective good aspects of social capital, but Putnamist social capitalism focuses on quantitative aspects of social relations, where Coleman (and especially Bourdieu) are interested in the relations’ emotional, cultural and social qualities. (Svendsen and Svendsen 2003:620)

2.5.4. Putnamist social capital

The core of the Putnamist social capital conception is that trust (and the norms and networks of reciprocity which sustain it by ensuring social sanction) can create a "logic of collective action" (Olson 1965) which can help overcome the "tragedy of the commons" (Hardin 1968), where common property resources are over-exploited (or underinvested in) due to rational self-interested opportunism (Putnam, Leonardi et al. 1993:172). Putnam's methodological individualism (DeFilippis 2001:785) grounds an apolitical but morally "positive" understanding of social capital *qua* (voluntarist, apolitical) civil society. In particular, Putnam insists on the positive role of voluntarist associations (emblematically, bowling leagues and choirs) in underpinning democracy and development, sidelining not only the social "downside" of networks such as the Mafia (Portes and Landolt 1996) and the role of internal conflict (Rankin 2002:6) and power (Fine 2001) but also the role of explicitly political associations or "adversarial movements" (Mayer 2003:117). Indeed, Putnam effectively conflates social capital with both civil society (*ref*) and community (Colclough and Sitaraman 2005:474). He focuses on horizontal social relations (between people of roughly equal social status) as opposed to vertical or hierarchical social relations, but also "bridging social capital" (Woolcock 1998) based on "weak [social] ties" (Granovetter 1973) as opposed to "bonding social capital" based on pre-modern affect (family, ethnicity, etc). This also corresponds to Portes (1998)'s "instrumental" motivation for investing in social capital, based on expectation of some specific gain (while the "consummatory" motivation relates more to the meeting of norms internalized as part of normal socialization processes, where failure to meet them would result in cognitive dissonance). Moreover, as Portes and Landolt (1996) point out, there is a real danger of social capital becoming meaningless when defined in purely functional terms: it becomes "tautologically present whenever a good outcome is observed" (Durlauf 1999:2), and absent when good outcomes are not observed (Portes 1998).[13]

Putnam's perspective was enthusiastically taken up by some within the World Bank, potentially as a "missing link" (Grootaert 1998) to incorporate "the social" into overly economic conceptions of development (Woolcock 1998; Bebbington, Guggenheim et al. 2004) – though critics charged that it could equally be construed as "self-help raised to the level of the collective" (Fine 2007:568), as if social capital could simply substitute for financial capital (Smith and Kulynych 2002:167). Putnam's perspective has however

[13] At times there is an element of *deus ex machina* (Schuurman 2003), underlined by an implication that social capital is "free", rather than a resource which is costly to produce and maintain (Ballet et al 2007:365). For example, Ivan Light (in Putnam et al 2004), writes that "social capital is a kind of philosopher's stone that, costing no money and available even to the humble, can metamorphose into rare and precious values."

inspired the World Bank and other development agencies to endorse once marginal approaches such as “microfinance” (Rankin 2002), which in some cases explicitly draw on local social capital to back small loans.[14] But in many cases the problem may not be (merely) a lack of social capital on the part of the poor, so much as their active exclusion from social, financial, and other resources – as Mayoux (2001:449) concludes in a study on women’s social capital in Cameroon.

2.5.5. Bourdieu’s social capital

As a number of critics of Putnamist social capital have noted (Fine 2007:568), Pierre Bourdieu’s concept of social capital is substantially different and offers some promise of retrieving the usefulness of the concept, and some of the more recent literature has begun to do this (Mayer and Rankin 2002; Rankin 2002; Svendsen and Svendsen 2003; Cleaver 2005; Ballet, Sirven et al. 2007; Bebbington 2007; Koniordos 2008; Waldstrøm and Svendsen 2008). Bourdieu’s focus on the role of various forms of (material and non-material) capital in the reproduction of class fits well with the dialectical historical-geographical materialist views outlined above: as Bebbington (2007:156) remarks, “[Bourdieu’s] social capital will be historically and geographically situated.” Furthermore, Bourdieu’s structural analysis “draws attention to the ideological as well as material dimensions of social change.” (Rankin 2002:3), which links with the dialectics outlined above.

For Bourdieu, forms of capital exist in a number of different “states”. For example, cultural capital exists in an objectified state (books, musical instruments, etc); in an institutionalised state (e.g. academic degrees); and in an embodied state (as semi-permanent dispositions and tastes) termed “habitus”. (Svendsen and Svendsen 2003:618)

Bourdieu’s analysis focuses on *habitus*, which is the set of dispositions, tastes, and modes of thoughts through which individuals engage the world; in an important sense it is an understanding of how the social game is played (in a particular context). Habitus is acquired through socialisation, which socialisation is strongly dependent on the social context (class, gender, ethnicity; but especially class) in which it is embedded. This social context is characterized by unequal distribution of capitals: economic, social, and cultural, which are to some extent convertible. That convertibility is limited by a functional differentiation of society into many “fields” which have their own rules, so that a habitus key to operating, for example, in academia, may be unhelpful in the political arena.

[14] In Bourdieu’s terms, improving the conversion rate between social and financial capital.

Social capital, here, is defined as

> *"the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital, a "credential" which entitles them to credit, in the various senses of the word" (Bourdieu 1986:248-9).*

In other words, Bourdieu understands social capital as resources accessed by social means (through social networks) – or, put another way, in social power. Similarly, economic capital and political capital can be understood as resources accessed by economic and political means (through the market and the state, respectively). The unequal distribution of these resources (in social networks which always exclude as well as include) thus reinforces the reproduction of class distinction, in ways mediated by the convertibility of capitals. To give a concrete example: an upper-class parent is likely to have sufficient economic capital to ensure access to good education for their child, which builds up a habitus appropriate to their class, in particular through the acquisition of appropriate cultural capital.
This habitus includes norms and internalised assumptions which typically endorse the socioeconomic system that produced them, so that the system's ideology in effect is reproduced through habitus. [15] (Whilst Bourdieu focuses on class distinction, it is clear that the social game which habitus helps to reproduce includes other distinctions – such as gender or race – which overlap with class in complex ways.) As Cleaver (2005:895) puts it:

> *"…institutions as embodiments of social process ensure that things are done "the right way" in cultural and symbolic terms. The 'right ways' of socializing, associating, and participating in public are generally those that confirm dominant world views, which reinforce existing relations of authority and which channel routinized and habitual everyday actions to reproduce such social structures."*

This confirmation of dominant worldviews constitutes an additional form of capital for Bourdieu: symbolic capital, founded in the "misrecognition and recognition" (Bourdieu 1986:255) of other forms of capital. This, inevitably, has affinities with Gramsci (1971)'s

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[15] Habitus "produces practices that tend to reproduce the regularities immanent in the objective conditions of
the production of their generative principle, while adjusting to the demands inscribed as objective potentialities in the situation, as defined by the cognitive and motivating structures making up the habitus" (Bourdieu 1977:78).

concept of hegemony and Marx's concept of "false consciousness". There are also parallels with Foucault's notion of governmentality (Dean 1999) and power, as formulated by Judith Butler: power should not be understood merely "as what presses on the subject from outside, as what subordinates…" (Butler 1997:2) because power also forms the subject, "providing the very condition of its existence and the trajectory of its desire" (Butler 1997:28). Nonetheless, for Bourdieu habitus merely provides the basis for the everyday decisions through which social structure is reproduced through the practice of individuals; it does not mean that social structures cannot change. Reproduction is never perfect, and societies undergo gradual evolution – or sometimes revolution, especially at moments of crisis. And it remains possible for individuals to set out to change that structure in large or small ways – and even to develop a "radical habitus" (Crossley 2003) in which transformational politics is internalised (Wilson 1996:622).

2.5.6. Dialectical social capital: social-capital-as-process

Social capital cannot be understood as an alienable, fungible commodity: it is a process which constitutes one moment of a historically-geographically embedded (Granovetter 1985) capital process in which multiple forms are always implicated. The boundaries between these forms are not ontologically given, but epistemologically imposed. Conversion between these forms is possible – but not always, and at varying conversion rates. All forms of capital can be accumulated (in ways which entail risk), although (particularly in the case of social capital) that accumulation may not be conceived in instrumental terms (or in instrumental terms which are non-economic). Accumulation may be understood broadly as an accumulation of non-economic power – which may enable the accumulation of more power, not least because forms of capital are complementary in the accumulation process. As Bourdieu emphasises, the historical-geographical capital process tends to reproduce the class structures which enable that process. Broadly, social capital is one moment of the complex process through which capitalists actively (re)produce the conditions of capital accumulation, broadly defined (i.e. including non-economic capital accumulation).

As the plethora of definitions and understandings of social capital indicates, greater understanding of social capital requires a disaggregation of the concept.

First, individual-level social capital can be defined as "personal social capital" – or even subsumed into human capital. It is the collective aspects of social capital which are of most interest. At an individual level, resources (potentially) accessed through social networks are at the same time someone else's costs (liabilities). That exchange can leave both better off,

producing “mutually beneficial collective action” (Krishna and Uphoff 1999); but this is not necessarily the case. This means for example, that individuals may seek to escape social networks which draw heavily on their resources, seeking to escape either symbolically by changing their names (Portes and Sensenbrenner 1993) or physically by moving away from an immigrant community neighbourhood (Waldstrøm and Svendsen 2008:1507). Social capital is thus an emergent effect of sociability: it is a collective asset. Indeed it is the process which constitutes collectivity; it is (part of) the process by which collective actors (fetishised social relations) are reproduced. In order to be invested in or disinvested from, collective social capital must always be converted into personal social capital: collectivities are actively constituted through individuals, and their benefits accrue to individuals. Nonetheless, the collectivity has an existence separate from its members through reification, fuzzy boundaries (membership need not be either/or), and internal conflict.

Second, “collective social capital” can be structured along two axes: structural/cultural and police/political. Following Krishna and Uphoff (1999), structural social capital facilitates collective action through informal networks and formal organisations, while cultural social capital predisposes people towards collective action through “shared norms, values, attitudes and beliefs” (1999:7). Situated social capitals cannot be understood without understanding their source. Portes and Sensenbrenner (1993) recognise “four sources from which [social capital] originates: internalisation of values, transactions of a reciprocal character, forms of collective solidarity, and the trust imposed by negative or positive sanctions.” (Koniordos 2008:323).

The police/political distinction places a particular historical-geographical social capital process on a spectrum of being as more aimed at transforming the world (political), as opposed to actively maintaining it (police), or simply surviving in it. As Mayer points out, “not all movements fit into the peculiar understanding of a (harmonious) relationship between civil society and the state inherent in the [Putnamist] social capital perspective” (Mayer 2003:118). Furthermore, social capitals may move along this spectrum over time. For example, social movements may be transformed into service delivery and community management organisations, which does nothing to materialise their democratizing potential. Thus social capital and “capacity building” discourse focuses on “the rather institutionalized community-based organisations that have routinized their collaboration with local as well as other levels of government…” (Mayer 2003:119), which leads to ‘non-confrontational methods’ and consensus organising instead of advocacy. Worse, institutionalised local movements can become “mere service providers” which no longer seek to empower the poor

or transform social relations; they do little more than help the poor 'get by', struggling even to help individuals escape poverty, never mind transform communities.[16]

Third, situated social capitals cannot be understood without considering their ownership and control. What exactly is the distribution of shares in a particular social capital? Or, as Mayer puts it, "social capital for whom and to what end?"(Mayer 2003:118). An exclusive focus on the resources mobilisable by individuals through their personal social capital too easily overlooks the question of how the profits (converted into various forms of capital) from collective social capital are distributed. For example, individuals may be able to use political contacts on behalf of and through the vocal backing of a local community organisation to mobilise certain resources for their community; but how are those resources distributed, and who decides? These issues are of particular salience when it comes to the state, which can itself by considered a form of collective social capital ("government social capital", as Collier (1998) has it).

2.5.7. Radical social capital: social capital and radical contingency

Whilst Bourdieu's conception of social capital includes the "misrecognition and recognition" (Bourdieu 1986:255) of other forms of capital, it lacks a fully developed elaboration of the way in which social capital processes relate to the "radical contingency" of society: the "structural undecidability" of Derrida, the "internal dialectical contradictions" of Marx or Harvey, or more simply, the whispered belief that society is always a work in progress. Only by incorporating radical contingency can socio-political ecology fully marry analysis of social and political (that is, socio-political) processes with the analysis of ecological (that is, socio-natural/socio-politico-ecological) processes.

To this end I draw on the work of the political theorists Jason Glynos and David Howarth (2007), who, drawing on work done by others such as Laclau, develop an ontology of "logics of critical explanation" based on the notion of radical contingency and a post-Marxist conception of "the political" as the process of institution or contestation of a social practice. Glynos and Howarth develop four dimensions of social practice along two intersecting axes, grounded in relation to dislocatory events: "occasions when a subject is called upon to confront the contingency of social relations more directly than at other times." (Glynos and

[16] Local social movements' efforts can also reinforce ghettoisation via 'a localised circuit of capital disconnected from the mainstream economy' (Amin et al 98, quoted in Mayer 2003:120). Informal community self-help programmes can reinforce informalism, instead of integrating the community into the formal economy.

Howarth 2007:110) They label an “authentic response” (one which recognises the radical contingency of social reality) as “ethical”, and an inauthentic one as “ideological”, providing one ethical-ideological axis. They identify the “political dimension” of responses with the public contestation of social practice, and the “social dimension” with a lack of or prevention of public contestation.

Glynos and Howarth discuss how these dimensions can be applied to particular social or political practices – or rather, practices in which either the social or the political is foregrounded. Thus, for example, following (Laclau and Mouffe 1985), they identify “the subordination way” as aspects of a practice which appear not to need public contestation; and “the domination way” as aspects of a practice which prevent the public contestation of social norms. Other elaborations include a distinction between unofficial and official political practice, and the identification of political practices as more or less ethical depending on the degree to which subjects pay attention to the radical contingency of their political practice: where such attention is prominent, a political practice may be considered to have a “radically democratic ethos” (Glynos and Howarth 2007:123). Another elaboration is that political practices may be considered hegemonic to the extent that they articulate a grievance that has more or less universal appeal.

Within the framework of socio-political ecology, then social capital cannot be understood as an alienable, fungible commodity: it is a socionatural process which constitutes one moment of a historically-geographically embedded (Granovetter 1985) capital process in which multiple forms are always implicated. As Bourdieu emphasises, the capital process tends to reproduce the class structures which enable that process. But an understanding of “the political” grounded in radical contingency allows us to see how socio-political practices, in their institution and in their contestation, do produce social capital processes which can function in both radical and hegemonic ways.

2.6. Capital: the production and reproduction of power relations

In a previous section I discussed how social capital can be understood as a process which constitutes one moment of a historically-geographically embedded capital process in which multiple forms are always implicated. In this section I draw on Nitzan and Bichler (2009) to elaborate the argument that *all* forms of capital can and should be understood as processes which are expressions of the underlying power relations of a socioeconomic system. This rests on the fact that economics' conventional use of "capital" depends on maintaining a

meaningful relationship between physical and financial assets - a relationship which, as the Cambridge Capital Controversy showed, is meaningful only by convention, not due to any theoretical foundation or empirical evidence. The financialisation of the world economy since the 1970s (Duménil and Lévy 2004) has only heightened the pre-existing and fundamental contradiction. As they put it, "Capital, we claim, is neither a material object nor a social relationship embedded in material entities. It is not 'augmented' by power. It is, in itself, a *symbolic representation of power*." (Nitzan and Bichler 2009: 7, emphasis in original.)

According to Nitzan and Bichler, the core of the capitalist system is in fact the *process of capitalization* - i.e. the discounting into present value of anticipated future earnings. It is this process which is capitalism's "generative order" - being, in effect, the commodification of anticipated future power. Since anticipations of the future vary continuously, so does capitalization, which is why we are dealing essentially with a continuous process.

Part of the reason this approach is useful is because the alternative, in which capital valuations are founded on material sources such as utils or labour time, is that in an economic world which is increasingly interdependent, and "with technology being temporally cumulative, spatially interdependent and intermingled with politics, it is practically impossible as well as theoretically inconceivable to even identify all 'inputs', let alone determine their separate productive contributions." (Nitzan and Bichler 2009: 223) The relationship between Smith's "first nature" and "second nature", if it was ever a firm one, has fundamentally broken down.

Another reason is that understanding capital as the commodification of power clarifies a key distinction with other moments of power: "Unlike the power of kings and sovereign governments, capital power is vendible. And the fact that capital can be bought and sold means that the power it represents can be expanded on an ever-increasing scale." (Nitzan and Bichler 2009: 270) Since the advent of government debt, state power (as represented through anticipated future earnings, primarily of taxes) has been priced and capitalized (Nitzan and Bichler 2009: 294); but the modern corporation's ability to merge, demerge and de-territorialise itself has given it increasing advantages over the state, whose advantage of the sole legitimate user of violence can increasingly be put at the service of corporations.

Above all, the commodification of power in financial capital seeks to subsume all other forms, to expand the domain in which its basic rationality is applied. Its ability to accumulate

power is unparalleled, and is a driving force behind the financialisation of the world economy since the 1970s. The radical advantage of social capital is that it is less easily subsumed than other forms; to a significant degree (depending on the widely varying social and cultural institutions involved) it is antithetical to commodification (see e.g. (Mauss 1990)). With these thoughts in mind, we approach later discussions about privatization and alternatives to it, and the role of social capital in enabling those alternatives, significantly differently.

2.7. Conclusion: the art of the possible, and the possibility of the impossible

The theoretical framework developed thus far allows us to more easily access the critical concept of "radical contingency", the recognition that the reproduction of the current system of power relations is not inevitable. This recognition is essential to a post-Marxist conception of "the political" as the process of institution or contestation of a social practice.

I argue that radical contingency is a key element of the process of social change between modes of power. Modes of power here are defined by the concentration and fungibility of power, understood as the ability to convert different forms of capital into other forms as a means to further the accumulation of capital-power. As discussed above, the pre-eminent form of concentration, accumulation and fungibility of power is financial capital, and modes of power can be categorised in part on the basis of the extent to which political and legal structures act in relation to its unremitting expansion and circulation in pursuit of accumulation. Radical contingency, in a world dominated by financial capital, may easily involve a recognition that, in a democratic polity, market rationality should be excludable from certain domains, and that the very ability to exclude it can be associated with a need for new forms of political action and democratic decision-making.

Beyond this, it is worth considering that whilst politics is famously the "art of the possible", radical contingency may underlie the political as the ever-present "possibility of the impossible". This could be linked with Swyngedouw (2008) argument for a "foundation of and for the political ... that foregrounds the notion of equality as the foundation for democracy, for egaliberte as an unconditional democratic demand, one that sees the properly political as a procedure that disrupts any given socio-spatial order, one that addresses a wrong. This 'wrong' is a condition in which the axiomatic principle of equality is perverted through the institution of a police order that is always necessarily oligarchic." The point here is that radical contingency is possible in any system; no endpoint of political "completeness"

is conceivable or possible. Radical contingency lies in the recognition that the reproduction of the current system of power relations is not inevitable. It enables a demand for the impossible (a significant change in the current mode of power), and in articulating it, shifts its impossibility, by making the unthinkable thought.

3. The hydrosocial cycle: the socionatural construction of urban water and water scarcity in Latin America

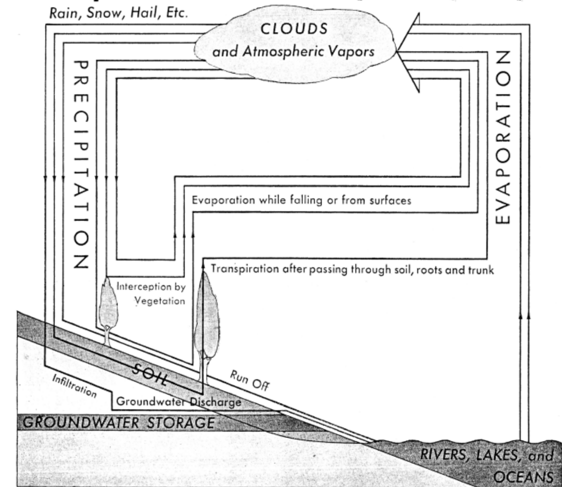
The meeting of urban water supply and sanitation needs (or failure to meet them) is the outcome of a historically and geographically situated socionatural process which constructs both urban water needs (through urbanization) and the meeting of those needs (by linking urban dwellers with the "natural" water cycle in various ways). This socionatural process involves distributional inequities, and involves the (continuous) reconstruction of the now socionatural water cycle. This process, because of how fundamental water supply and sanitation is to human health as well as to industrial/economic processes, is intensely political. It is continuously contested at multiple levels.

3.1. "The so-called hydrologic cycle"

In the previous chapter I discussed the development of the nature/society dualism. Here, we have a more specific case of the construction of a particular nature/society model, the standard "hydrological cycle".

Water, being so basic to human and non-human life, is a subject about which even small children gain a degree of both practical experience and scientific knowledge. A central part of this scientific knowledge has been (at least in the developed world) the understanding, developed in the twentieth century, of the existence of a "hydrological cycle". The basics of this cycle (often known more simply as "the water cycle") are therefore well-known: water evaporates from water bodies such as seas, condenses in the atmosphere as clouds, which eventually deposit the water they contain as rain, which flows (sometimes more directly, sometimes less) back to the sea, where the cycle begins again. As Linton (2008) points out, this cycle has usually been considered, and frequently been described, as one that is "natural". Yet he argues that while such hydrological flows undoubtedly predate humanity, and conceptions of water circulation are ancient parts of human culture, the "modern" hydrological cycle is a social construct, and that deconstructing it reveals important hidden assumptions.

Linton begins by looking at the conventional history of the modern hydrological cycle, which traces the roots of the concept to the seventeenth century, where measurements of precipitation began the displacement of the older conception of a hydrological cycle in which rivers were replenished from the seas via underground rivers flowing in the opposite direction. Yet these measurements, and the resultant proto-cycle, were deeply coloured by the time and place of the scientists making them. First, the relative abundance of water in north-western Europe created a particular generalisation of the abundance of water and the reliability of water flows. Second, this conception of water circulation, as part of the early pre-Darwinist "natural theology", was seen as part of the evidence for a divine designer of nature. This meant that when this concept became adopted by secular science, it retained a certain aura of the sacred, of the perfect: a concept deeply rooted in time and place had become timeless and unrooted.



A typical illustration of the hydrological cycle - from the US National Resources Board 1934 (taken from Linton 2008:638)

The transformation of these ideas of water circulation into a standard model of a "hydrologic cycle" is due to an American hydrologist, Robert Horton, who created this model in 1931 (Linton 2008: 634). This creation was part of the attempt to develop hydrology as an academic discipline distinct from geophysiology, by making water visible (or "legible" in Scott (1998)'s terms) in a way which it allowed to be better controlled both intellectually and physically. Linton draws parallels with the creation of "the economy" as a discursive object (Mitchell 1998) around the same time. In the US, the new hydrology model fitted in well with a massive expansion of state control over water resources under the New Deal, in the shape of physical structures such as the Hoover Dam and bureaucratic structures like the Tennessee Valley Authority.

3.1.1. Flaws in the cycle

Yet this model, which so rapidly became conventional and exported around the world in the post-war period, is an abstraction of a *temperate* climate. "By representing water as a constant, cyclical flow, the hydrologic cycle establishes a norm that is at odds with the hydrological reality of much of the world, misrepresenting the hydrological experience of vast numbers of people." (Linton 2008:639). In other climates, precipitation varies much

more both within and between years. Delhi, for example, as around the same annual precipitation as London, but receives much of it in July and August and very little in November.

A related flaw is the model's privileging of what Swedish hydrologist Malkin Falkenmark calls "blue water" - particularly lakes and rivers. Falkenmark argues that "green water" (soil moisture which is taken by plants for transpiration) is a major aspect of water circulation which is treated by the conventional water cycle as simply "losses", yet is "the main water resource involved in rain fed crop production and in biomass production in natural terrestrial ecosystems".[17] Green water is often more significant for water circulation in non-temperate climates.

By treating temperate climates as the norm, the model supports hydrological interventions designed to make other climates conform to the expected temperate model. This might be described as "hydrological Orientalism", given the way in which the United States pursued the "conquest of water" through international development in the post-war period, aiming to replicate its internal hydrological interventions.

Dissatisfaction with the conventional cycle is not new (Linton 2008 quotes a 1968 work on hydrology - "as commonly stated and illustrated it appears so loose and generalized as to be almost meaningless. Certainly it is of little applied use..."), and textbooks may hedge descriptions of it with remarks about it being a simplification and generalization. But the model has had a powerful on the popular, political and scientific imagination for over half a century, and despite some challenges, it remains the convention.

3.2. The "bacteriological city"

Gandy (2004) introduces the term "bacteriological city" to describe the infrastructure and governance model emerging in the mid-nineteenth century, as the public health movement led to a new emphasis on state-led engineering to develop centralised water and sewerage infrastructure. This model included new forms of finance and the development of new forms of urban planning.

But Gandy emphasises that "The symbiotic relationship between water supply systems and the development of the modern city has not only involved a hybridized interaction between nature and culture but also a co-evolutionary dynamic between technology

[17] Falkenmark 2005, 9–10, cited in Linton 2008:641.

and the human body." (Gandy 2004:367) The modern understanding of how water should be used domestically (for washing and private lavatories) is an intrinsic part of the development of the bacteriological city and the water infrastructure it depends on. Gandy suggests that it can be "conceived in Foucauldian terms as part of a “bio-political” dynamic wherein social relations and codes of bodily conduct were increasingly subjected to indirect modes of social discipline" (Gandy 2004:367). This development of seeing a particular mode of water consumption as almost a prerequisite for full urban citizenship is part of the reason for the strength of feeling around commodification and privatisation of water services (see Chapter 6).

Kallis (2010) makes the case (using Athens as an example) that there is a co-evolutionary relationship between water demand and supply, as the meeting of health and status-related water demands led to an expansion of supply, which in turn made the city more attractive economically and residentially and contributed to urbanization and increasing demand. The development of the water system also created systemic political and economic incentives for expansion to those who controlled it.

Similarly, the consequent problem of how to dispose of growing quantities of waste water had to be resolved, and the need to do so first by removing it from the urban environment and then to process it to reduce pollution in peri-urban areas continued to drive the changing relationship between the hydrological city and its periurban areas and hinterlands for a long time in the now-developed world, and still does in the developing world.

3.3. Commodifying water: flows of capital, flows of water

Undoubtedly one reason that the model has had such power is that it presents solutions that chime on the one hand, with the capitalist need to commodify nature, and on the other hand, with the political need of the modern nation state to carry out major development projects – preferably ones with major visible structures, which give a sense of prestige and accomplishment. Jawaharlal Nehru's famous description of dams as "temples of modernity" encapsulates this. The two needs mesh neatly in the creation of opportunities for corruption in such major projects – either through large-scale clientelism (generating employment for favoured constituencies) or through bribes from contractors (or both).

These themes will be picked up again in Chapters 4 and 5.

3.4. Addressing the flaws

3.4.1. Hybridities and water

This reconstruction of the hydrological landscape encourages the development of a different understanding of the relationship between the waterscape and the built environment. The traditional modern conception of nature being something “out there”, untouched by human hand, is increasingly hard to sustain in a world where mankind’s interventions are dramatic, recent, and visibly artificial. The “production of nature” thesis (Smith (1984), drawing on Lefebvre (1991)), can usefully be applied, given these dramatic interventions into the waterscape, so that the waterscape is understood as socially constructed.

> *“Through understanding how these relations become embodied in the everydayness of ‘things’, we begin to see how local waters and global capital are part of a differentiated, dialectical unity. We see how everyday acts of collecting water from standpipes, kiosks and ground tanks are both productive of the social relations that comprise the waterscape, as well as reproductive of certain forms of accumulation.” (Loftus 2007:49-50)*

This is by itself however unsatisfactory, as even when we emphasis a dialectical relationship between “society” and “nature” it obscures the *hybridity* involved.

This brings us to the hydrosocial cycle. Whilst some authors have challenged the conventional model by integrating the social into an expanded concept of the hydrological cycle (e.g. Rost, Gerten et al. (2008)), others have sought to explicitly distinguish their approach by using the term "hydrosocial" (or "hydro-social" - there does not seem to be a consensus about hyphenation). This has generally been in a political ecology context, and is associated with the related term "socionature" (or "socio-nature") which more broadly captures a rejection of the modernist distinction between society and nature (Latour 1993). Examples - besides the work of Swyngedouw, e.g. Swyngedouw, Kaika et al. (2002), Swyngedouw (1996; 2005; 2006; 2007) - include Bakker (2003), Merrett (2004) and Budds (2009).

3.4.2. Metabolizing water: cities as social bodies

Wachsmuth (2012) traces the history of the "urban metabolism" concept through Chicago School human ecology, industrial ecology (Wolman 1965, material flows) and urban political ecology (Swyngedouw 1996). He argues that while UPE's re-cleaving of society

and nature as "socio-nature" has been a step forward, it has neglected the non-urban aspects of these processes, privileging the city over the "non-city". This is particularly significant given his tracing of the roots of the society/nature dualism to the development of the city/countryside dualism under 19th-century capitalism (see section 2.3 above). Linking the two dualisms is the city being constructed as the locus of "society" and the norm of "civilization", whilst nature and countryside become mere "other", constructed in opposition to society/city as both mere raw material and as idealised "nature" or "wilderness". Wachsmuth argues that therefore urban political ecology (or at least those using its insights and approach) needs to go beyond the urban, and spend more time looking at socionatural processes flowing in and through and around cities at different scales.

3.5. The hydrosocial cycle

Taking the preceding discussion into account allows us to construct a metabolic conception of the hydrosocial cycle which allows a better placement of the peri-urban within it.

In the natural world, liquids perform a literally vital role in allowing organisms to sustain internal and external boundaries through their limited and controlled transgression. Familiar examples include the role of blood in the internal circulation of humans, and of water in the circulatory cycle of “nature”. Humans form part of this circulatory cycle of water, and in turn water is essential both internally and externally. The individual consumption of water (the circulation of water into and out of the body) is basic to the human physical condition, and the collective consumption of water (the circulation of water into and out of human society) basic to the human social condition. Yet to this conception we must add the contribution of a range of scholars in demolishing the distinction between society and nature which has become ever harder to sustain as human society as expanded in scale and scope on Planet Earth. The demolition confronts us with the notion of “socionature”, a hybrid entity in which the fates of what may be placed in the flawed categories of “society” and “nature” are always ultimately intertwined, being locked in a circulatory metabolism in which water plays a key mediating role.

Water is therefore not only a key part, but also an exceptional emblem of, the socio-political-ecological processes described in Chapter 2. The need for water is constant (yet highly variable in quantity and quality), and encourages us to think about the flows involved in these metabolic processes of the continual transformation of the socionature of the immediate past into the socionature of the immediate future.

Sustainability of these processes can be understood in terms of the Lorenz Attractor; stable systems have an inherent resilience to internal and external dynamic influences, but that resilience is limited. In an important sense, the stability of systems is always contingent. In social systems, one of the things it is contingent on is beliefs, including beliefs about the future. For example, the supply of bottled water in supermarkets may be perfectly stable (so many sold, so many restocked, a supply always available for sale) until a sudden belief that the supply may be limited appears, leading to panic buying the destruction of the stability of the flow of bottled water by nothing mo re than belief about the future. In other words, the maintenance of social order depends in substantial part on the belief that social order will be maintained; that things are as they are, and cannot be changed except within parameters defined by the system. Radical contingency is about belief in the possibility of the system being altered; the recognition that social systems are actively maintained by the everyday actions of the social beings involved in them acting as is expected of them.[18]

3.6. Conclusion

The hydrosocial cycle described above is emphatically not a static entity. It is a series of inter-related processes which reproduce social and physical systems - but the reproduction is not perfect, and both the social and physical moments of the hydrosocial cycle process can and do introduce changes in it. The way in which the hydrosocial cycle process is contested is intensely political (even when it is not conceived as such). Questions that arise include how producing or attempting to produce certain kinds of socionature can affect power relations between social groups, and how what effects the privileging of certain kinds of knowledge may have (White 2006).

These are issues I will pick up in the following chapters.

[18] The notion of socionature has also been introduced into sociology – see Gellert, P. K. (2005). "For a Sociology of 'Socionature': Ontology and the Commodity-Based Approach." Research in Rural Sociology and Development **10**: 65-91..

4. Flowing like a state: the socionatural construction of the Latin American state through the hydrosocial cycle

The previous chapter focussed on the socionatural process of construction of urban water needs and of the means to meet them, and concluded by emphasising the intensely political nature of the process.

This chapter looks at the effects of this process on the construction and maintenance of the Latin American state, as an example of how the state process (the continuously-constructed and defended claim of legitimate authority) is maintained – and at critical times, fails. The state process is legitimised through the meeting of water needs, but also helps construct those water needs by actions it takes (e.g. which encourage urbanization). Where the state is expected to provide, that provision is key to its legitimacy, and the breakdown of the provision undermines its legitimacy. (In a non-democratic state, authority rests also on force, and legitimacy, whilst important, is not the sole means of support for the state process.) The state process gets feedback (socionatural construction) from “society” and from “nature”, which constrict and direct it, whilst the state process in turn modifies those processes.

4.1. Socio-natural construction of the state

In Chapter 2 I discussed historical-geographical materialism and the reproduction of natures. In this chapter I focus on the reproduction of the state, and the role it plays in the reproduction of power relations. In Chapter 2 we saw the development of a nature/society dualism, and challenges to it; here, we have a parallel development of a state/civil society dualism, and challenges to that.

Just as discussed in chapters 2 and 3 for the physical world, boundary imposition operates in the social world – in the reification of social processes which constitutes social things. Social boundaries are produced and maintained – for example, between nations, between “the economic” and “the political”, and between “the state” and “civil society”. As discussed in Chapter 2, using the dialectical ‘flows of power’ schema leads us to a Gramscian view of the integral state as both centralised and diffuse, as against the more usual view (derived from

Hegel) of state versus civil society. This has affinities too with Foucault's view of the state as a 'social reality' emergent from the everyday practices (processes) of socio-political power.

If, then, the state is socially constructed through everyday material and symbolic practice, this raises the issue of whether the state has any autonomous power to in turn control individuals and construct society. The answer, I argue, lies with an understanding of the state as a reified category of socioeconomic relations (symbolic and material practices), which creates a "recursive relationship between agency and structure" (Cleaver 1999:600). As Judith Butler puts it, "there is no power that acts, but only a reiterated acting that is power in its persistence and instability." (Butler 1993:9). Or as Foucault would have it, power "is diffuse and circulates through the social body in a myriad of relations that are considered to be productive." (Ekers and Loftus 2008:705).

However, as a result of individuals and social groups acting *as if* the state has power, the state appears as a quasi-object which seems actually to have (some) power vis-à-vis any given individual or social group. However its power is a property emergent from (Harvey and Reed 1994) and enacted through socioeconomic relations as ideological and material practice, which are two moments of the same process.[19] The state, in other words, is constructed by a continuous process of fetishisation, analogous to the process of commodity fetishisation. As noted in Chapter 2, the social reality of the state emerges in part through official and unofficial narratives developed by state and non-state actors of how the state operates. Any given state narrative is always historically constructed by particular constituencies for particular purposes, and insofar as a particular constituency or class dominates the 'discussion' (a discussion that is constituent of both speech acts and other acts), its narrative becomes hegemonic (Gramsci 1971). An important of this hegemony is the construction of an understanding of the state as a machine-like object whose levers may be pulled in different ways by different civil actors, but whose basic structure is fixed. This creates a social imaginary which denies the possibility of radical change. Following Holloway (2005) and distinguishing commodity fetishism (established fact) from commodity fetishisation ("as a continuous struggle, always at issue" – Holloway 2005:78), we can say that in this way the state is continuously constructed in an ongoing organic process of fetishisation (of the active reproduction of fetish). This understanding opens up possibilities[20]

[19] It has no more autonomous power than does another quasi-object constructed in a similar fashion – the "market price" in a competitive market.
[20] "How the social fabric is conceptualised has important consequences for how politics is conceived. If the social fabric is seen as fragmented and discontinuous, it becomes difficult to conceptualise political struggles that are not trapped in the local. …In contrast, if various parts of the socionatural

of everyday resistance (Scott 1985) against hegemony constructed in and enacted through the state – for example in the "everyday production of the waterscape" (Loftus and Lumsden 2008:110). As Ekers and Loftus (2008:698) put it, "can we understand everyday relations to water as being imbricated in the operation of hegemony and in the maintenance of subtle forms of rule?" With increasing "statization" of society affecting the water sector as much as any other (e.g. (Bakker 2003; Bakker 2003) on privatization in England and Wales being accompanied by more regulation), we may answer yes.

4.2. The state and the hydrosocial cycle

The state has often been seen as shaped by the waterscape in which it is found (see e.g. Worster's *Rivers of Empire* (1985)). The traditional role of the state in relation to the hydrosocial cycle has been in relation to agriculture, in terms of controlling rivers and organising large-scale irrigation. In fact, the construction of such "hydraulic bureaucracies" has been considered a significant factor in state formation since at least Wittfogel's "oriental despotism" thesis (1957). Although much critiqued in its original form, the thesis has some truth to it – where state water bureaucracies develop, they do support the centralisation of power.

But of course these demands on the state are intrinsically a meeting of society and environment - i.e. *hydrosocial*. So with the developing demands of modern firefighting and modern hygiene, new forms of municipal governance were encouraged (Bakker 2010); and with the spread of water governance across government borders (local, regional, and national) in line with the flows of water, new forms of regional government are emerging (Mosse 2003),(Bakker 2012). As Ekers and Loftus (2008:699) put it, "the interactions between social and natural processes are seen to shape political fortunes."

4.2.1. Traditional role

The traditional role of the state in relation to the hydrosocial cycle has been in relation to agriculture, in terms of controlling rivers and organising large-scale irrigation. In fact, the construction of such "hydraulic bureaucracies" (Lewis Mumford called them "social mega-machines") has been considered a significant factor in state formation since at least Wittfogel's "oriental despotism" thesis (1957). Although much critiqued in its original form,

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world are considered internally related, it becomes possible to envision political practice that brings together coalitions cutting across different spatialities and positionalities." (Ekers and Loftus 2008:708)

the thesis has some truth to it – where state water bureaucracies develop, they do support the centralisation of power – see Molle, Mollinga et al. (2009:329).

But in the modern era, large-scale irrigation is associated with a particular form of bureaucratic statehood – namely an intertwining of public and private interests, and of politico-bureaucratic interests at multiple levels. Molle, Mollinga et al. (2009:336) highlight what they call "synergetic relationships" between hydraulic bureaucracies, politicians, construction companies, landed elites and development banks, with flows of water and power intertwined and the diversion of part of those flows for private gain is common. In this respect, water resources share similarities with some other natural resources, not least oil and gas, which famously leads to the "resource curse" thesis (Robinson, Torvik et al. 2006).

The advent of hydroelectric power provides further incentives for such a modern and modernising hydraulic bureaucracy (as for example Venezuela's Guri Dam). According to Briscoe (1999),[21] "Rent-seeking behaviour is deeply embedded in the social and political fabric of all major irrigating countries and thus changes only slowly and usually because of major exogenous threats".

4.2.2. Bacteriological city

Settled human society depends on continuous flow of water into and out of its settlements - but it is only in the nineteenth century, with increasing urbanization, that a modern conception of a "bacteriological city" develops (Gandy 2004). With growth of population and population density the challenges of maintaining these flows to an acceptable social standard become ever greater. The processes of rapid urbanisation seen in many countries in the course of the twentieth century created large requirements for an active reconstruction of the existing hydrosocial cycle.

These requirements fall substantially on the state for various structural reasons. Meeting, or failing to meet, this need is a substantial measure and reflection of power of the state. At the same time these flows of water in the hydrosocial cycle are part of the conditions for the continuous reproduction of those flows of power. The state process is the effect of the collective fiction of singular territorially-based authority.

[21] Briscoe, J. 1999. The financing of hydropower, irrigation and water supply infrastructure in developing countries. Water Resources Development 15(4): 459-491. - cited in Molle (2009:337)

4.2.3. Hydropolitics: democracy and the state

The conventional view of democracy grounds it fundamentally in the legitimacy deriving from popular representation: that is, in representatives chosen by and accountable to the *demos*. Yet as (Saward 2008) points out,[22] it has been well argued that this fundamentally not about some reified quality of legitimacy being conferred by an election; rather, it is part of a continuous process of *legitimization*. This takes on some of the qualities of theatre, as the demos of the theatregoers elects its actors, who it then observes for a set period, while the actors provide a performance based on what they believe the audience wishes to hear. It may be that the sets, props, and scripts (besides the theatre itself) are virtually fixed, and beyond the effective control of the actors or the audience.

Water bureaucracies typically develop fairly similar strategies in response to neoliberalism: 1. Shift costs to users; 2. Capitalise on privatisation rhetoric, with expertise and services shifted to private companies, often staffed or controlled by ex-public servants; 3. Centralise, to better manage competing claims; 4. Divert, neutralise or delay institutional reform efforts (Molle 2009:342-3).

4.3. The state and the hydrosocial cycle: Venezuela

The construction of Venezuela's Guri Dam serves as an exemplary example of how the commodification of nature can result in the reproduction of the state through a modification of the hydrosocial cycle. The Guri Dam, one of the largest in the world, has provided a large majority of Venezuela's electricity since its completion in the 1980s. Funded by the 1970s oil boom that created *Venezuela Saudita*, it also illustrates the corruption typically associated with a society based on rent extraction (resource curse). In effect, the Guri Dam represents the conversion of oil into electricity, via a major intervention into the pre-existing hydrosocial cycle. This conversion is both an expression of the Venezuelan state's flow of power, and a strengthening of it, by reinforcing the power dialectics on which the state rests (the commodification of nature).

The state is a particular aspect of the hydrosocial cycle which is constructive and reconstructive through the everyday expression of flows of power. The fiction of the state is a major instrument through which an imagined community (Anderson 1991) regulates itself. These flows of power continuously reconstruct the conditions for their own re-production.

[22] "Rodney Barker's convincing account of legitimation: '. . . what characterizes government . . . is not the possession of a quality defined as legitimacy, but the claiming, the activity of legitimation'; Legitimating Identities (Oxford: Oxford University Press, 2001), p. 2." – Saward (2008:3:footnote 9)

Under capitalism this process begins and ends with the commodification of nature through the hydrosocial cycle.

In the Venezuelan case, as in all nature-exporting societies (Coronil 1997), this process is particularly evident through its foundation on the commodification of extractable natural resources, which produces forms of power which can be used to alter ("modernise") the society and its hydrosocial cycle. This commodification of natural resources facilitates the commodification of power of private and state capital. Both became centred on the extraction of rent ("resource curse"). These processes tend to lead to a concentration of power, to a degree which is only possible under capitalism. This concentration of power brings with it a dialectical opposition which requires a combination of clientelism and authoritarianism to keep opposition in check. The failure of the system that sustains the mechanisms of authority and economic power create a basis for challenges to the existing order to reach tipping points where the recognition of the possibility of systemic change ("radical contingency") become wide spread. In the Venezuelan case this can be seen at turning points such as the 1989 Caracazo, the 1992 coups, the 1993 impeachment of the president. This created the conditions for the reconstruction of the state-society relations in the Bolivarian Revolution from 1998 onwards. However, it remains the case that the Venezuelan state is dependent on the continuing commodification and export of non-renewable natural resources.

4.5. Neoliberalisation of water in Latin America

The hydrosocial cycle described above is emphatically not a static entity. It is a series of inter-related processes which reproduce social and physical systems - but the reproduction is not perfect, and both the social and physical moments of the hydrosocial cycle process can and do introduce changes in it. The two issues I focus on here in this regard are the processes of urbanization and of marketisation (commoditisation and privatisation).

Urbanization in the Latin America in the twentieth century has contributed to the development of a water supply and sanitation problem as infrastructure has failed to keep up with population movement and growth, particularly in the "peri-urban" areas of often informal settlements around the core of major cities (Bahri 2001). In the face of these pressures and the economic problems associated with the oil and debt crises of the 1970s and 1980s, the traditional model of state provision increasingly appeared inadequate, and its replacement with a private model appeared a logical extension of neoliberal policies.

4.6. Context: Neoliberalisation in Latin America

4.6.1. ISI: Modernization and urbanization

ISI (Import Substitution Industrialisation) was initially an ad hoc response to the disruptions to Latin America's economies caused by the Depression of the 1930s and then World War II. These practical responses were followed by a theoretical framework of which the Raul Prebisch's United Nations Economic Commission on Latin America and the Caribbean (ECLAC/CEPAL) was the most prominent exponent (Kingstone 2011:32). In essence, ISI formulated an inward-looking industrialisation, as opposed to the export-oriented industrialisation more common in East Asia. Both forms were state-led and reliant on protectionism, but the export-oriented form was able to sustain a stronger focus on creating companies and industries that would be able to compete on the world stage, ultimately without the protectionism that helped nurture them.

ISI helped transform Latin America in the post-war period. Between 1945 and 1980 GDP per capita more than doubled, while larger economies saw urbanization rise from around 40% to around 70%. Over the same period, life expectancy rose from the low fifties to the mid-sixties, and significant improvements were seen in educational attainment, access to healthcare, and access to modern water and sanitation (Kingstone 2011:36). Particularly in the larger economies, the period saw a rising urban middle class. Rapid urbanization,

however, brought with it an intensification of urban poverty, as many newcomers settled in peripheral informal settlements, generally lacking legal title and adequate access to public transport, utilities, and services such as healthcare and education.

4.6.2. State failure and the construction of "state failure"

ISI produced a series of contradictions which Latin American countries by and large sought to sidestep rather than tackle head-on. In particular, ISI tended to make agriculture uncompetitive (through an overvalued exchange and other disadvantages), which, given the role of commodity exports in underpinning Latin American economies, contributed to state financial problems. These became more acute as economies began to move to the stage of producing capital goods, which required more investment. States sought financing from a variety of sources, including international financial institutions, but this was ultimately unsustainable, and the easy financing available in the 1970s (petrodollars and eurodollars) merely delayed the inevitable, and made the resulting crisis more intense.

Against this historical ISI backdrop, the "Washington Consensus" developed in the course of the 1980s as a recipe for economic reforms. The intellectual roots of this recipe lie with the Chicago School (Klein 2007), which had tested it at several opportunities, including in Latin America in the 1970s, notably in Pinochet's Chile.[23] However it was not until the debt crisis of the 1980s coincided with a wave of democratization in Latin America and external pressure from international financial institutions that the stage was set for the recipe to be applied more widely and consistently (Panizza 2009). Latin America thus became one of the main laboratories for the application of the Consensus.

However, the move towards marketization was not simply imposed from outside. The successes and failures of the import substitution industrialisation (ISI) model were being critically evaluated well before the debt crisis (Fishlow 1990).

4.6.3. International financial institutions and the debt crisis

The principle of "conditionality" (attaching policy requirements to loans to member states) became an accepted part of IMF lending practice in the 1950s (Teivainen 2002:40). These conditionalities focussed on removing policies considered market distortions, including subsidies, tariffs, and limits on foreign investment, together with limits on public spending.

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[23] The deindustrialisation outcomes of Pinochet's "stabilization" regime are often overlooked Glassman, J. and P. Carmody (2001). "Structural adjustment in East and Southeast Asia: Lessons from Latin America." Geoforum **32**(1): 77-90..

Other funding sources, both public and private, also to a significant extent depended on the IMF "seal of approval", making it harder for countries to avoid seeking it when needing significant external financing.

This changed dramatically during the 1970s, when the 1973 oil shock saw a dramatic rise in the price of oil, with the price of oil quadrupling from $3 per barrel to $12 per barrel in 1973-4 (Kingstone 2011:55). This lead to large sums of money flowing to oil-producing countries, and from there to deposits in private banks. To a significant extent these and other funds (petro-dollars and euro-dollars) were lent to poorer oil-consuming countries, which built up large debts at low (but floating) interest rates. Some oil producers (such as Venezuela) also built up debts, borrowing against future oil income to fund current industrialisation and modernisation projects.

The 1979 US interest rate shock (in which the Federal Reserve raised rates by two percentage points), together with the world economic recession in the early 1980s, saw many countries that had borrowed heavily in the 1970s struggling to service their debts. The "debt crisis" then saw countries defaulting on their debts (beginning with Mexico in 1982), and a range of international efforts to contain the problem.

In this new environment, IFIs, lead by the IMF, found that the lever of conditionality, which had been severely weakened for a decade, had a new-found strength. Combined with a new ideological imperative, conditionalities increasingly extended beyond that traditionally imposed, into "structural adjustment programs" which featured demands such as privatisation.

4.6.4. Neoliberalisation

The core concepts of the Washington Consensus can be considered globalization and neoliberalization (Peck and Tickell 2002), with the former representing the removal of barriers to trade (increasingly broadly construed over time) and the latter the removal of state involvement in the economy (again, increasingly broadly construed over time). Both of these taken together represent a depoliticisation of the economy, as decisions about economic structure are - at least in principle - increasingly removed from the political sphere. A third strand, less visible but just as important, is the denial of alternatives, and the sense that the Consensus, in its broadest terms, is inevitable. (In UK politics this concept became referred to as "TINA", There Is No Alternative.) As Jamie Peck put it, "a defining feature of

neoliberalism is its necessitarian, there-is-no-alternative character and its invocation of a 'politics of inevitability' based on a deference to (global) economic forces" (Peck 2004:394) .

Gramsci and Polanski can be drawn on to clarify the state's role in creating this modern-day *laissez-faire*, functioning as a redistribution of accountability from voter-facing to market-facing (Teivainen 2002:44). This goes hand in with what (Coronil 2000) calls “the transmaterialization of wealth,” or "the transfiguration of material wealth through the ever more abstract commodification of its elements across time and space" (Turner 2002). These themes link with the discussion in Chapter 2 about the capitalist tendency to aggregate power through commodifying it in the form of various capitals.

More broadly, the neoliberal celebration of competitive "free market" individualism functions partly as an ideology that suits the needs of the corporate and state elite (increasingly intertwined in neoliberalisation in a form of corporatism, as the state retreats into regulation of private markets instead of acting in them directly). But it in part also represents the effective attempt to make real the fantasy of de-atomised, de-socialised pseudo-human ciphers which underlies mainstream modern economics - despite the fact that were this fantasy to be realised, the economy would collapse, depending as it does on social institutions that are not or not fully subject to market rationalities.

In practical terms, this ideology promotes "labour flexibility" and despises trade unions, and places little or no value on life as experienced by workers (in terms of economic and social security, work conditions, etc), despite the fact that the overwhelming majority of consumers are also workers. (The disjuncture would be less dissonant in a slave-based economy in which the core workforce is not defined as part of society.) This means also, for example, the destruction or absorption of communal landholding in favour of private property rights (Chase 2002:2).

For the promotion of this ideology, the debt crisis was not just an opportunity for the North to discipline the South - it was also an opportunity for Latin American elites to discipline popular classes and social movements (Teivainen 2002:45). The link with democratisation should be considered here: as Latin America democratised and the machinery of the state became notionally accountable to the *demos*, there was a natural tendency for the elites to wish to ensure that the machinery of the state continued to serve their interests, and neoliberalisation can be understand as being in part a means to that end.

4.7. Neoliberalisation of water: background

Applying neoliberalization to the water sector gets us involved in debates such as the commodification of water, and the application of water pricing.

4.7.1. Modernization

As we saw in earlier chapters, the realisation of the modern hydraulic-hydrological paradigm was often considered an important part of the post-World War II development-and-modernization agenda. Major water supply projects were developed by states to supply agricultural and drinking water needs, as well as to provide electricity. Dams were often highly visible and (literally) concrete symbols of this, constituting and representing the taming of nature's unruly waters by human hand; Jawaharlal Nehru famously described them as "temples of modernity" in the 1950s (Linton 2010:51).

Less visible, but equally important, was the development of an urban water supply infrastructure, which permitted the development of the modern Western hygienic paradigm, based on plentiful amounts of water piped into homes. This infrastructure had become increasingly well-developed in Western cities from the mid-nineteenth century, and developing world states sought to emulate this as part of their development, as they faced many of the same problems as the West had. As in the West, the primary water infrastructure was largely under state or municipal control, and therefore in principle, states had the instruments with which to implement the desired improvements in water provision (includes issues of water quality, quantity, coverage, and reliability).

4.7.2. Urbanization

However, even as rapidly-developing states sought to develop their urban water supply infrastructure, they had to contend with often very rapid rates of urbanization. As Latin American states had often relatively weak governance and would have struggled to meet their goals even without this, the water issues raised by rapid increases in peri-urban informal settlements were often more-or-less ignored. Supply efforts were focussed on core urban areas, particularly wealthier areas, and other areas supplied haphazardly or not at all. In many cases, at the edges of the formal supply network, there developed large-scale private tapping of the network. Elsewhere, households were dependent on other means of satisfying their water needs, typically through small-scale private water vendors able to access the formal network. In short, the picture was one of state provision in urban centres and small-

scale private provision outside them, along with simply direct household access to (increasingly polluted) water sources.

4.7.3. Environmental governance issues

Privatisation and neoliberalisation in water is linked with other issues such as commodification of water (defining water as an economic good). As Bakker (2003) points out, the application of neoliberal principles must be understood in two domains: allocation and distribution of water. Allocation relates to water access, particularly with limited water resources and competing uses (e.g. different farmers in an area), whilst distribution relates getting water resources to end users. The focus in this thesis is on distribution, but commercialisation of water allocation may be an associated process (Ahlers 2010:219-220).

4.8. Privatisation and neoliberalisation in water

4.9. The Water Conquest

The 1980s saw a wave of neoliberalisation in Latin America. Water provision was not in the vanguard, however - it was not until well into the 1990s that the involvement of private water corporations in Latin America's water supply became a trend.

This trend was driven by the general IFI support for neoliberalisation, and conditionalities for IFI loans which gradually extended into the water sector. Private water corporations saw a land of opportunity, while states saw a source of investment and modernization (and the rod of the IFIs helped them to see it).

IFIs here are primarily lending institutions such as the IMF, World Bank, and Inter-American Development Bank (IDB). But the general promotion of neoliberalization also proceeds through other international institutions and inter-governmental agreements, such as trade agreements (Hall and de la Motte 2004). See McCarthy (2004) on "trade agreements as neoliberal environmental governance", and Hall and de la Motte (2004) for examples of IFI conditionalities in lending (loans contingent on privatization, often by splitting loans into multiple parts, with latter parts contingent on IFI approval of privatization progress) - e.g. the World Bank in Cartagena, Colombia, and the Inter-American Development Bank in El Salvador.

These processes also affected the water sector. From the early 1990s on, the international financial institutions (often supported by World Bank and IMF conditionalities) promoted “the decentralization of management, a greater reliance on pricing and thereby full-cost recovery, increased participation by all stakeholders in the water sector, and treating water as an economic good” (Ahlers 2010:218). This replacement of technocratic public sector solutions with technocratic private sector solutions involved the redefinition of water from public good to commodity. This was partly justified by the changing demand and supply context (falling per capita water availability with expanding demand falling quality, and the higher costs of tapping more marginal water resources) (Ahlers 2010:219). But at root it was driven by the general neoliberal logic that the state sector had failed, and systematically lacked the incentives to operate efficiently.

Harvey (2003)'s discussion of "accumulation by dispossession" (a variation of Marx's "primitive accumulation") helps provide a basis for understanding privatization of natural resources, including water, as a new form of enclosures of commons (Swyngedouw 2005). It also helps to understand how privatization strategies fit into the neoliberal capitalist model, which is structurally constructed to require continuous expansion.

4.10. The water technocrats: from public to private

The struggle against water commodification may be directed against both public and private initiatives (Castro 2008:74). This is often understood as an issue of transparency and democracy, or "citizenship" as Castro frames it (see Chapter 6).

However, to some extent privatisation in the water sector can be merely a paper transfer of a technocratic hydraulic bureaucracy from one owner to (the state) to another (usually a private corporation), and may leave the poor no better off. Whilst state sector water systems are in principle accountable on a democratic basis via the electoral system, in practice they may appear as faceless and unaccountable bureaucracies (Budds and McGranahan 2003). Privatization is unlikely to improve on this; as Estache, Gomez-Lobo et al. (2001) put it, "If pre-privatization policy on expenditure incidence was poor, unless something is explicitly done, it will be weak post-privatization as well. Privatization is not a substitute for responsible, redistributive welfare policies." As Karen Bakker (2003) points out, privatization often introduces new forms of governance which can carry decision-making further away from communities. This typically takes the twin form of regulation (designed and often implemented and enforced nationally or even supranationally), and of decisions being made within a corporate setup where influences may come from a multinationals

headquarters, and at times may also be mediated fairly directly by management from equity and credit markets.

On the other hand, measures to explicitly incorporate participation of the relevant communities in decision-making may improve the lot of the poor; these are themes to be returned to in later chapters.

4.11. Effects of privatization

There is a range of evidence of the effects of water privatization, and despite some contradictory claims, overall privatization has generally failed to do better than the state at extending services to the poor (Budds and McGranahan 2003). Esteban Castro (2007) argues that this is partly because "pro-poor" rhetoric was a later addition to neoliberal water policies in the face of substantial resistance from civil society, and that there was little theoretical and historical evidence to suggest the private sector would be able to be generally more "pro-poor" than the state. In addition, he argues that one of the effects of water privatization has been "deepening existing inequalities of power resulting in the weakening of state, local government, and civil society capacities to exercise democratic control over private water monopolies in most developing countries." Spronk (2010) argues that “The debate on 'efficiency' should therefore be re-centred to consider 'social efficiency' and the negative effect that privatization has on citizenship rights.”

Privatization has also often been associated with price rises (Castro 2008), which may have a substantial negative impact on the poorest connected to the network, even when attempts are made to design pro-poor pricing policies (e.g. via rising block tariffs).

One study on the links between water privatization and public health in Latin America, Mulreany, Calikoglu et al. (2006), concluded that "the public sector could deliver public health outcomes comparable to those of the private sector, as measured by access rates and decreasing child mortality rates." At the same time, privatization might "encourage a minimalist conception of social responsibility for public health that may hinder the development of public health capacities in the long run."

4.12. Resistance and other difficulties

In the 2000s the leading international water companies increasingly withdrew from Latin America, finding the terrain too inhospitable and unprofitable (Hall and Lobina 2007), partly

as a result of increasing civil society opposition inspired in part by negative experiences elsewhere. Ahlers (2010) notes how the 2000 conflict over water privatization in Cochabamba, Bolivia, became emblematic of the wider resistance to water privatization in Latin America and beyond. “It not only established an empirical case around which global anti-privatization mobilization could rally, it called attention to water as a basic right and a public good.” (Ahlers 2010:214).

Cases like Cochabamba, Bolivia (Driessen 2008) (Spronk 2007) and Buenos Aires, Argentina (Castro 2008) exist where there was strong public resistance to privatization; but there are also many others where water privatisation was opposed such that it didn't happen in the first place (Hall, Lobina et al. 2005).

Whilst much has been written about civil society opposition to privatization, of which the Cochabamba case is the most well-known, and Uruguay's embedding a ban on privatization in its constitution in 2004 (Taks 2008) perhaps the most effective. However, "municipal socialism" also exists in Latin America, in part as reaction to national-level neoliberalization. The example of Caracas/Libertador in the 1990s, under the administration of the Radical Cause (Goldfrank and Schrank 2009), is a significant one, which is further explored in Chapter 5.

4.13. Conclusion

The previous chapter focussed on the socionatural process of construction of urban water needs and of the means to meet them, and concluded by emphasising the intensely political nature of the process. This chapter sought to look at the effects of this process on the construction and maintenance of the Venezuelan state, as an example of how the state process (the continuously-constructed and defended claim of legitimate authority) is maintained – and at critical times, fails. The modern Venezuelan state developed during the twentieth century based on oil revenues, and part of the manner of its development was the effective conversion of oil flows into water flows, mediated via financial flows. The Guri Dam serves as a notable example, as it involves another conversion: the control of water flows into flows of electricity.

The hydrosocial cycle described above is emphatically not a static entity. It is a series of inter-related processes which reproduce social and physical systems - but the reproduction is not perfect, and both the social and physical moments of the hydrosocial cycle process can

and do introduce changes in it. The two issues I focus on here in this regard are the processes of urbanization and of marketisation (commoditisation and privatisation).

Urbanization in the Latin America in the twentieth century has contributed to the development of a water supply and sanitation problem as infrastructure has failed to keep up with population movement and growth, particularly in the "peri-urban" areas of often informal settlements around the core of major cities (Bahri 2001). In the face of these pressures and the economic problems associated with the oil and debt crises of the 1970s and 1980s, the traditional model of state provision increasingly appeared inadequate, and its replacement with a private model appeared a logical extension of neoliberal policies. From the early 1990s on, the international financial institutions (often supported by World Bank and IMF conditionalities) promoted the application of the "Washington Consensus" to the water sector, increasingly adding "pro-poor" rhetoric as civil society opposition to such policies was taken on board. In the 2000s the leading international water companies increasingly withdrew from Latin America, finding the terrain too inhospitable and unprofitable (Hall and Lobina 2007), partly as a result of increasing civil society opposition inspired in part by negative experiences elsewhere.

These policies of neoliberalization functioned in part as a promotion of a capitalist expansion of "accumulation by dispossession", in which water is increasingly commodified[24] in ways that can generate tensions and contradictions for the reproduction of both the social and economic facets of the socioeconomic system (Roberts 2008). These trajectories of the hydro-social within state formation exposed tensions and processes of resistance while generating the potential for alternative models of water management and the relations of the state. In the next chapter, I examine the evidence for the emergence of - as well as the future direction of - such alternatives.

[24] Although Alex Loftus points out that separating the commodified from the non-commodified is not necessarily meaningful: “Indeed, as well as being impossible, it makes little sense to try and separate a pure non-capitalist world from a tainted capitalist world of commodity production and exchange.” Loftus, A. (2007). "Working the Socio-Natural Relations of the Urban Waterscape in South Africa." International Journal of Urban and Regional Research **31**(1): 41-59.

5. The State and Water in Venezuela

I seek to show how the response in Venezuela to political, economic and environmental crisis saw a reconfiguration of state-society relations, partly to bypass the existing clientelist state and partly as an attempt to develop a new model of "protagonistic democracy" which is a form of radical democracy. I argue that whilst its implementation has been flawed for a variety of reasons, as a response to the crisis it made sense in Venezuela, and a similar project could be a response to crises found elsewhere. Efforts to decentre and re-invigorate democracy should be part of twenty-first century politics, both for their own sake, and to better respond to a range of crises. Only through such measures can the ongoing neoliberal efforts to depoliticise and technocratise decision-making and place it beyond the political control of the demos be effectively countered.

The chapter is structured as follows: the second section revisits theses from previous chapters on the nature of social and political change, and in particular examines what we mean by "political". It sets up a thesis that radical change is associated with some form of crisis which forces a re-examination of the basis of a socio-political regime. The third section applies this to the recent case of the breakdown of the traditional party system in Venezuela and the emergence of the "Bolivarian Revolution".

Later sections highlight the links between environmental and political and economic crisis. The final section offers conclusions, including some comparisons and contrasts between the recent global financial crisis and the Venezuelan economic crisis of the 1980s and 90s, placing the latter in the context of the "pink tide" of left governments in Latin America.

Since 1998 Venezuela has seen a process of political and social change known as the "Bolivarian Revolution". This thesis looks at that process, and examines the socio-political struggle it involves, using the peri-urban water sector to illustrate. It understands the process of change ("el proceso") as a response to the collapse of the legitimacy of the prior "pacted democracy". This chapter provides background on Venezuela and applies the thesis to the Venezuelan case.

As we saw in previous chapters, radical contingency means knowing that socio-political systems are *really* susceptible to change (and not just hypothetically). This recognition, that significant change really can happen, comes out at moments of crisis, particularly when there

is sufficient organisation and leadership, and some minimally coherent alternatives to the status quo.

5.1. Background

5.1.1. Beginnings: Venezuela before oil

Venezuela was colonised by Spain in the sixteenth century, as part of the Spanish conquest of the Americas. Initial interest was driven by stories of "El Dorado" (the city of gold), as the early Spanish interest was primarily in exporting the precious metals gold and silver. Failing to find the riches discovered elsewhere in Latin America, as well as few Indians to exploit for labour, the Spanish Empire came to largely ignore Venezuela (Karl 1987:74). It remained a backward agricultural economy at the time of the Latin American wars of independence in the early nineteenth century.

These wars of independence weighed heavily on the future Venezuela: besides great property damage and the collapse of much of the colonial bureaucracy that did exist, it lost nearly 40% of its population Karl 1987:74). This set the scene for decades of *caudillismo*, with regional strongmen, often commanding relatively small militia, taking office by force. With so little state infrastructure, the central customs house, the state's primary source of revenue and the most important source of wealth in the country, was a key target. (Customs duties are a traditional source of revenue for weak states, as natural or artificial transport bottlenecks provide relatively efficient means of taxation.) The state exercised little control outside the capital, and the power of the local *caudillos* was almost feudal. In effect, for decades a situation persisted in which "roving bandits" could not establish themselves permanently as "stationary bandits", in the distinction due to Olson [1965]. In Latin America, only Mexico has a comparable history.[25] Only at the turn of the twentieth century, in extensive and costly conflicts under President Cipriano Castro, was the country fairly well unified.

Developmentally, the Spanish Empire's focus on extraction of resources from Latin America had coloured the Venezuelan elite's view of how to run their economy. Politically, the 1902-3 Venezuela Crisis (which saw German, British and Italian ships enforce debt repayments

[25] This history contributed to Venezuela's political culture and structure a sense of clientelism based on strongly centralised rule. Where Lord Hailsham once called the British Government an "elective dictatorship", the occupant of Venezuela's Presidency in the democratic era carried a sense of being an "elective caudillo".

arising from loans incurred to wage internal war, in an incident that led to the coining of the term "gunboat diplomacy") embodies the weakness of the Venezuelan state at the turn of the century. So does the outcome of the crisis: debt repayment was enforced by an agreement to pay a percentage of Venezuela's customs revenues – the weakness of the Venezuelan state meaning that customs were still its primary source of revenue.

5.1.2. From El Dorado to black gold: 1917-1958

At the turn of the twentieth century, then, Venezuela differed little from many other Latin American countries outside the more industrialised Southern Cone – except, perhaps, for being a little more backward. It had little experience with democracy, low urbanisation (85% rural, only six cities with population over 20,000) and very high inequality in land ownership (2 million landless peasants out of a population of 2.4 million).[26] It was slightly poorer than average (with PPP per capita less than half the Southern Cone),[27] and highly dependent on agricultural exports, particularly coffee, cocoa and cattle.[28]

It was thus already a "nature-exporting country" (Coronil 1997) when, in the early twentieth century, it discovered in its territory a far more valuable form of nature to commodify and export: oil. Oil began flowing in 1917, and by 1925 reached 41.6% of exports, and 91.2% by 1935. Despite the most generous arrangements with oil companies in Latin America, these oil flows translated into substantial flows into state coffers: by 1929-30 oil-derived revenues contributed more to state revenue than the traditional main source, customs duties (Karl 1987:79). Oil revenues would form the foundation for the modernization of Venezuela under a number of dictatorships (until 1958, a 3-year period of democracy in the 1940s aside), as well as in the subsequent democratic period.

In short, the discovery and rapid exploitation of oil in the early twentieth century would prove transformative. Under the dictatorship of Gomez, oil provided a source of revenue to the state that would make the seat of power a genuine force. Oil enabled Gomez to unify the country as never before, and to begin to exercise government as never before. Even with prodigious corruption, oil flows out of Venezuela's body of nature saw substantial sums flow into its body politic. This made the seat of power even more fought over than before.

[26] Karl (1987:76)
[27] Maddison, using 1990 PPP$: Venezuela GDP per capita 1900: $821. Latin American average $1100, Uruguay, Chile, Argentina all over $2000 per capita, and the US and UK over $4000.
[28] Venezuela, a century of change, By Judith Ewell

The insertion of Venezuela's oil into the system of international trade placed great levers of wealth at the command of the Caracas-based national government. Out of this grew what Fernando Coronil called "the magical state" – and a country that had always been economically structured around extracting and exporting natural capital became an economy and polity shaped dramatically by oil. Yet the role of oil in modernising can be overstated too – and the oil industry made deliberate efforts to present itself as an essential agent of modernization and development (Tinker-Salas 2009: 240).

An expression frequently heard later in the twentieth century was that the state should "sow the oil" – to use the proceeds of oil exports to plant the seeds of industrialisation. Yet a case can be made that the traffic flowed much more strongly in the reverse direction: it was the oil which watered the seeds of the clientelistic, personalistic caudillo-state inherited from Venezuela's nineteenth century travails. One way in which it did this was through "Dutch Disease" effects, which severely undermined the traditional agricultural export base of the economy through the overvaluation of the Venezuelan bolivar. The value of agricultural exports dropped by two thirds from 1928 to 1944 (Karl:198:81, citing Aranda 1977:109), and agriculture's share of GDP collapsed from one-third in the mid-1920s to less than one-tenth in 1950 (Karl 1987:81, citing Karlsson 1975:24). Efforts to support agriculture with oil-derived state funding merely tied agriculture into a dependent relationship with the developing petro-state.

Despite the large increase in state revenues, it took an economic crisis caused by World War II (disrupting oil and other exports) for a national consensus to develop on what one leading intellectual, Arturo Uslar Pietri, dubbed "sowing the oil". Previously, the developing urban and commercial elite retained a largely liberal vision of a minimalist state, with limited industrial and social policy. A much more interventionist state was understood as a bulwark against economic problems, but also against the radicalism and internal unrest such problems might provoke.

The consensus to enhance the role of the state, predicated on the state's ability to extract revenue primarily from oil exports, led to the institutionalisation of what Fernando Coronil called "the magical state" – a state that has a deep structural asymmetry in its ability to give to its population, and its ability to collect taxes and enforce its authority. It became, in effect, a machine for the distribution of oil rents, and Venezuelan economy and society became fashioned around, and heavily dependent on, the maintenance of this flow of oil rents. It became an extreme example of the "resource curse".

This consensus would last throughout a range of democratic and undemocratic regimes. One of the ways it manifested was in the encouragement of rapid urbanisation, through both internal rural-urban migration, and immigration from Europe and from Latin America. Venezuela saw the fastest urbanization in Latin America, going from 72% of the workforce in agriculture in 1920 to 44.1% in 1950 (Karl 1987: 281, citing Karlsson 1975:34). After the second world war, there was substantial immigration from southern Europe (Spain, Portugal and Italy in particular), and in the 1970s and 1980s large numbers of Latin Americans, particularly from neighbouring Colombia.

This rapid urbanisation created enormous demand for basic needs in urban centres – particularly the capital, Caracas. Public investment in housing and other basic infrastructure always lagged demand, particularly after the oil boom broke in the early 1980s. Throughout the 1940s, 50s and 60s, however, the oil wealth was used noticeably to support a clientelist system, which included the modernization of Caracas in particular, in terms of housing and infrastructure.

5.1.3. Fourth Republic (1958 - 1998): Venezuela Saudita, and Perdita

After 1958 Venezuela formed a "pacted democracy" which sought to stabilise Venezuelan democracy by creating various unifying clientelist structures that brought the major political parties together, and sought to keep the military an apolitical force. This had short-term benefits, but long –term costs: "Democratic institutions were grafted on to an existing system which featured clientelism, strong pressure groups and a culture which was relatively tolerant of corruption" (Philip 1992: 461). This pact excluded the more radical changes sought by left currents in the leading political party (Accion Democratica, AD) and others, as well as excluding the Communist Party of Venezuela entirely, despite its role in the resistance to the prior dictatorship. This led to guerrilla warfare against the state in the early 1960s, but by the end of the 1960s the former guerrillas were largely reincorporated into the political system. Around the same time (at the 1968 election) a split in AD enabled the election of a President from another party (COPEI), and AD and COPEI then collaborated to help make COPEI the primary opposition party to AD.

Throughout the 1940s, 50s and 60s, the oil wealth had been used partly to support a clientelist system, which included the modernization of Caracas in particular, in terms of housing and infrastructure. However, the background of oil wealth that enabled this system paled in comparison to the explosion of oil income in the 1970s and into the early 80s; in 12

months in the early 1970s, oil revenues quadrupled, and the incoming AD President Carlos Andres Perez boasted that he would achieve fifty years' development in five (Myers 1998: 507).[29] Expectations ran so high that Perez borrowed freely on international markets (at a time when international banks were eager to recycle petrodollars at low rates). Some critics compared Venezuela's oil wealth with Saudi Arabia's, dubbing it "Venezuela Saudita". In a form of the resource curse, Venezuelans would come to see the corrupting effects of oil as "the Devil's excrement" (Coronil 1997: 353).

5.2. Crises

5.2.1. The Economic

With the collapse of oil prices in the 1980s, Venezuela's failed attempts to "sow the oil" and diversify effectively hurt all the more (Coronil 1997). In response to lower oil revenues, Venezuela continued to borrow internationally (Myers 1998). In 1986 Venezuela signed a costly debt renegotiation; debt service under Jaime Lusinchi (1984 – 1989) consumed 50% of export earnings (Coronil and Skurski 1991: 293). By the late 1980s, this was unsustainable, and led to an attempt to cut state spending and institute neoliberalism.

A more or less continuous economic crisis saw real GDP per capita fall to 1963 levels by 1998, fully a third below the 1978 peak (Kelly and Palma 2006: 207). Expectations failed to adjust: from 1920 to 1980 Venezuela had had the highest annual growth rate and lowest inflation in the world. In 2000, 82% of Venezuelan people thought it the richest country in the world - but in 2000 GDP per capita was the same as in 1950 (Naím 2004: x-xii).

Since the system of political patronage was predicated on bountiful economic wealth, this economic crisis eventually precipitated a prolonged political crisis. This emerged dramatically in 1989, as Carlos Andres Perez, elected for a second time on promises of recreating the plenty of his 1970s presidency, turned to the IMF and a neoliberal economic package. The resulting protests and their violent repression (leaving anywhere from hundreds to thousands dead), known as the *Caracazo*, (López Maya 2003) form a significant part in the Venezuelan political trajectory away from *puntofijismo*.

[29] The period 1974 to 1989 saw 80% of Venezuela's twentieth-century oil income; and most of this was in the first decade of the period.

With the economic crisis deepening (partly because neoliberal deregulation of banking, without adequate supervision, contributed to the 1994 banking crisis which cost a fifth of the 1994 GDP), the political crisis deepened too.

By around 1997, then, the economic crisis was as dramatic as ever, and the then government's turn to neoliberalism again deeply unpopular – though the turn was not as deep as in other Latin American countries, and certainly not as strong as its advocates wanted (Naím 2001). The 1990s in Venezuela also saw one of the world's largest increases in inequality.[30] The economic crisis had gradually become political, deeply undermining the entire basis of Venezuelan democracy.

5.2.2. The Political

For a decade before Chavez' election, as the economic crisis deepened, Venezuelans sought a return to the glory days of the 1970s. In 1988 they chose Carlos Andres Perez as AD candidate (despite President Lusinchi's support for Octavio Lepage, Perez won 66% of the vote in the AD primary), and then elected him President for a second time. Promises of a return to CAP's first period in office were quickly dashed, however, as he turned to neoliberalism, partly as a result of being forced to turn to the IMF over debt payment problems (Bradley). The resulting riots turned into the infamous "Caracazo", with unknown numbers of dead at the hands of police and military. The shock to the political system was palpable; whilst police and military violence against criminals and insurgent groups was routine (including some false positives, like the El Amparo massacre), such public and indiscriminate use in the capital, on such a scale, was unprecedented.

Two military coup attempts followed in 1992, both motivated not by a desire to institute military government, but to seize power from a corrupt government and corrupt state. Both failed, but the impeachment of Perez a year later for corruption hardly lessened the sense of crisis. In this context the 1993 election was the closest for 25 years, ultimately seeing a return to the past with Rafael Caldera.

In 1993 a survey found 59% of respondents supported the failed February coup (Myers and O'Connor 1998: 198), on the basis that the resulting military rule would be a brief interim measure before being replaced by a new democratic government (Myers 1998: 513). The result was what amounted to "hero worship" in some quarters for Hugo Chavez, after a "true

[30] Miguel Szekeli and Marianne Hilgert, "The 1990's in Latin America: Another Decade of Persistent Inequality," Working Paper, Interamerican Development Bank, 2000 – cited in Naím, M. (2001). "The Real Story Behind Venezuela's Woes." Journal of Democracy **12**(2): 17-31., p31

bombshell" of a speech in which his declaration that the movement had failed "por ahora" (for now) contributed to a sense of political crisis (Levine 1994: 168-9) which did not abate until after CAP had been impeached for corruption and Rafael Caldera won the December 1993 election. Caldera's reaction to the February coup – calling for the resignation of Perez – contributed to the atmosphere of crisis, and not a little to his election victory (Philip 1992: 456). The pardoning of those responsible was part of Caldera's electoral programme, and when elected he kept his promise.

Less noted, in this period of instability, was the rise of the party La Causa Radical. Its candidate came close to Caldera (the election being so close, he still came fourth), and allegations of fraud denying him victory persisted, and a failure to contest them contributed to later splits. LCR also captured the largest municipality of Caracas in 1993, and the state of Bolivar in 1995 (with former coup participant Arias Cardenas' win an early sign of how such participation was viewed by the electorate). LCR was almost the left party that Venezuela then needed; but it had been around too long to be fresh, and had too weak a base to either mount large national electoral campaigns, or even provide enough political support for when it made it into government (in Caracas - (Goldfrank 2004)).

Caldera's subsequent turn to neoliberalism, under the guidance of ex-guerrilla Teodoro Petkoff, further weakened faith in the establishment. By 1997, the presidential race became all about political outsiders – and accepting endorsement from AD or COPEI proved fatal for one candidate and problematic for another.

5.2.3. The Social

With over half a century of oil wealth defining the country, it is hardly surprising that in 2000 82% of Venezuelans thought it the richest country in the world; (Naím 2004: x-xii) and indeed by some measures it may have the world's greatest oil reserves. Yet the reality is that in 2000 Venezuelan GDP per capita was the same as in 1950 (Naím 2004: x-xii). Part of the story is the dramatic increase in urbanisation: in 1950 46% of Venezuelans lived in settlements with more than 2500 people, by 1971 it was 78%, and by 1990 it was 85% (Myers 1998:509). Concomitantly, the proportion of the labour force in agriculture fell from 35% in 1960 to 13% in the early 1980s (Buxton 2009).

Two decades of economic crisis had seen massive increases in poverty, large increases in crime, collapse in public services, a major banking crisis, and inflation reaching almost 100% in one year in the mid-1990s. Successive governments in the late 1980s and early-to-

mid 1990s had promised a return to the glory days of the 1970s, only to deliver, sooner or later, a programme of neoliberal economic reform that did little for the economy (even contributing to the banking crisis) and worsened social conditions. Some of this was from pressure from the IMF, and from Venezuela's difficulties sustaining payments on international debt; some from home-grown and partially US-trained economists. Where in the past, corruption had been a bearable cost, in the economic crisis environment it became more of an issue; but really effective measures to tackle it were hard to come by.

The extent of the social crisis can be seen in the poverty figures: by 1996 the number of households living in general poverty jumped to 77.1%, of which 45.1% lived in critical poverty (Buxton 2009).[31]

5.3. Response to Crisis: The Fifth Republic (1998 – present)

5.3.1. Revolution (and Revolution Intensified)

The political scientists Glynos and Howarth have advanced a particular poststructuralist approach to critical explanation, drawing partly on the work of Laclau and Mouffe (1985) and Pierre Bourdieu's dispositions (Glynos and Howarth 2007:104). As they put it, "a dislocatory experience such as an economic depression may thus reveal the contingency of taken-for-granted social practices, highlighting the fact that the existing system represents only one way of organising social relations amongst others". Indeed, such dislocatory experience may do more – "there may emerge a radical political subjectivity and ideology that seeks to transform social relations along fundamentally different lines" (Glynos and Howarth 2007:104).

Underlying this concept is a notion of social practices or social relations as "the ongoing, routinized forms of human and societal reproduction... largely repetitive activities ... [or] what we might term a series of sedimented practices – which have been inscribed on our bodies and ingrained in our human dispositions" (Glynos and Howarth 2007:104). This has affinities with Bourdieu's notion of disposition and with some conceptions of social capital. It can also be linked with the concept of everyday practices as for example in Scott's *Weapons of the Weak* (Scott 1985).

[31] Poverty had already risen from 27.6 per cent of households to 58.9 per cent between 1977 and 1989. Over the same period, critical poverty increased from 7.4 per cent of households to 26.9 per cent (Buxton 2009, citing Maingon 2005).

However, whilst “social practices and the identities they sustain tend to conceal the inherent contingency that inhabits social systems” (Glynos and Howarth 2007:105), at times the possibility of change asserts itself. Such dislocation can create *political* practices which seek to change norms, institutions, practices or even regimes; which political practices inevitably produce a reactionary response on the part of those whose interests lie (or who think their interests lie) with the status quo. Ultimately, such political practices may under certain conditions become hegemonic, displacing the previous social practices.

5.3.2. Radical contingency and Venezuela

Is Venezuela such a case? The answer is a qualified “yes”. There can be no doubt that the dislocatory experiences of the economic and political crisis of the late 1980s and early 1990s create the political space for something radically *new*. Yet a major aspect of what the Venezuelan public wanted from that *new* was, paradoxically, a return to the Venezuela of old – of the glory days of the 1970s when oil wealth flowed even more generously than it had before. A genuine commitment to radical change then, is perhaps surprisingly shallow in Venezuela even among those who have most to gain. This partly because the partyarchy system (Coppedge 1994) of the “Punto Fijo Pact” democratic era, which preceded Chavez, had done such a good job of co-opting and squeezing out politically radical alternatives. Left parties such Movement for Socialism and Radical Cause never gained much traction outside limited local bases; a genuinely political consciousness as found in many other Latin American countries, such as Argentina, was thinly spread in the population. Nonetheless, Chavez’ Bolivarianism was and is more than merely a personal ideology made public vehicle to office. It has deep nationalistic and left roots, including in the “La Patria Buena” philosophy of protest singer Ali Primera, which circulated widely in Venezuela in the 1980s among Chavez’s future political base.[32] (Marsh 2010) Thus whilst it maybe that the “radical political subjectivity” is at root a relatively unsophisticated claim by the majority *demos* to reclaim the political centre – as captured in the Chavista slogan “Venezuela - ahora es por todos” – the widespread activation of this subjectivity (enough to secure recurring majorities in Chavez’ elections) is surely attributable to the prior dislocatory experience. Whilst it is tempting to focus in this regard on key public events (which no doubt did have major shock effects on popular consciousness), the role of personal experiences should not be underestimated. Throughout the 1980s and 1990s many Venezuelans fell into poverty (or

[32] “This philosophy combined elements of Marxism, Liberation Theology and the philosophy of Bolívar (the Independence hero who struggled for a united Latin America) with popular wisdom to create a revolutionary, humane and anti-imperialist ideology which he and other New Song artists expressed directly to the Venezuelan public at mass music events. La Patria Buena did much to revive popular interest in the actions and philosophy of Bolívar and other Independence heroes and revolutionary figures of the 19th century" (Marsh 2010)

worse poverty), and saw their relatives and friends affected likewise. Basic public service issues like the inability to sustain a reliable supply of piped water to homes in the disorganised and ever-expanding poor peri-urban barrios became symbolic of the established order's failure. For the better-off, rising crime rates, leading to a further withdrawal into gated communities, were emblematic – even though crime, often enough condoned or even perpetrated by a deeply corrupt and institutionally incompetent police, struck the barrios the hardest.

5.3.3. Twenty-first Century Socialism

The conventional view of democracy grounds it fundamentally in the legitimacy deriving from popular representation: that is, in representatives chosen by and accountable to the *demos*. Yet as Saward (2008) points out,[33] it's been well argued that this is fundamentally not about some reified quality of legitimacy being conferred by an election; rather, it is part of a continuous process of *legitimization*. This takes on some of the qualities of theatre, as the demos of the theatregoers elects its actors, who it then observes for a set period, while the actors provide a performance based on what they believe the audience wishes to hear. It may be that the sets, props, and scripts (besides the theatre itself) are virtually fixed, and beyond the effective control of the actors or the audience.

As Wilpert (2007) points out, prior to 2005 Chávez spoke only of "Bolivarian Revolution", not of "socialism". (Harris 2007) and (Buxton 2009) argue that the years of opposition (2002 coup, 2002-3 strikes and 2004 recall referendum) were a key factor in this radicalisation. These struggles served to illustrate that accommodation with the previous establishment was not to be reached easily.

In the remainder of this chapter, I focus on the Venezuelan water sector, and in particular on the local water committees and their role in "El Proceso". Local water committees in Venezuela's urban and peri-urban areas are a key part of "El Proceso". El Proceso (The Process) is the participatorily democratic process of political, social and economic transformation which constitutes both the ultimate aim of Venezuela's Bolivarian Revolution, and its everyday implementation. This contradiction creates a dialectic in which El Proceso is constituted socially and politically through the everyday actions of ordinary Venezuelans, and in which it creates the conditions for its reproduction and expansion through those actions, not least by acting through and transforming the state. Thus a new

[33] "Rodney Barker's convincing account of legitimation: '. . . what characterizes government . . . is not the possession of a quality defined as legitimacy, but the claiming, the activity of legitimation'; Legitimating Identities (Oxford: Oxford University Press, 2001), p. 2." – Saward (2008:3:footnote 9)

political, social and economic reality emerges from the everyday practices of socio-political power, which are grounded in the historically and geographically situated social capital processes of Venezuela's poorer communities.

Chávez' Bolivarian process involves a distinctly spatialised politics, with different peri-urban areas in Caracas having different engagements with Bolivarianism, particularly in aspects depending more heavily on community participation, which include community water and sanitation projects through a system of local water committees or "mesas tecnica de agua" or MTAs[34] (Allen, Dávila et al. 2006; Allen, Dávila et al. 2006). These are particularly developed in Caracas, where half of the three million inhabitants live in popular *barrios* with poor or no water and sewerage systems (López Maya 2008). In my 2009 fieldwork, I visited Caracas and Barquisimeto.

5.4. Venezuela water

As discussed above, Venezuela's water sector must be understood in the wider context of state reform in the late 1980s and early 1990s, where alongside a substantial neoliberal agenda (which helped raise poverty levels from 46% to 68% between 1988 and 1991 (Lander and Fierro 1996:65)), the introduction of direct election of state governors and local mayors (López Maya 2008:7) was accompanied by a gradual decentralization of public services to regional and local government (Penfold-Becerra 1999).

The underfunding of the water sector, which had struggled to keep pace with urbanization particularly from the 1950s onward, faced even more severe underfunding in the economic climate of the 1980s and 1990s. Maintenance of this system fell to very low levels, and pipe bursts became extremely common. Extension of the system was hardly on the agenda.

Attempts were made in the 1990s to privatise water systems - including a World Bank-supported project for Caracas in 1993. These were largely unsuccessful.

5.5. Water committees

MTAs (local water committees) originated in Caracas in the early 1990s, under the municipal government of Aristóbulo Istúriz (1993 - 1996), notably in the Antímano and El Valle neighbourhoods (Arconada Rodríguez 2005:188). A variety of participatory

[34] In the literature there are a number of translations of the Spanish term (literally, 'technical water tables'), so I use the Spanish abbreviation.

experiments took place at municipal level in the early-to-mid 1990s, particularly in municipalities under the control of the La Causa Radical party (Bravo-Escobar 2007), of which Istúriz was a member. La Causa split in 1997, with the largest faction (Patria Para Todos) becoming an important part of Chávez's 1998 electoral alliance (Gott 2005: 132). It is worth noting that a substantial movement of community organisations in Venezuela dates back at least to the 1970s, and indeed it was their increasing attempts to gain political representation in the context of the 1980s economic crisis which brought about the decentralization legislation (Ochoa Arias 2000:168).

By October 2004, nearly 2000 MTAs – now with a solid legal foundation[35] – had been established in Venezuela – nearly half under the ambit of Hidrocapital, the state water company which covers Caracas and surrounding regions (Arconada Rodríguez 2005:137). Under the evolving "Bolivarian" system of participatory development, MTAs represent the water sector in a system of neighbourhood committees, which since 2006 are organised into Communal Councils (Lerner 2007). The Councils in urban areas each cover around 200-400 families and represent an alternative system of local government (previous attempts to incorporate participation into local government having been stymied (Fuentes 2006)). This participatory development approach is intended to be not merely a mechanism for efficient public management, but to effectively transfer power to communities (Lacabana and Cariola 2005:135).There were over 30,000 Councils at the end of 2007 (López Maya 2008:32), and they dispensed $1bn in funds in 2006, out of a national budget of $53bn (Lerner 2007).

Like other Venezuelan neighbourhood committees, MTAs are staffed by volunteers and self-organised by local communities, which evaluate their own needs. In one typical MTA visited by the author in January 2006, the priority was upgrading existing water systems (illegally constructed, providing poor quality and quantity of water) with a view to later upgrading (or where necessary, constructing) the sewerage systems, once sufficient water is available to flush them. The new systems have wider-bore high-quality PVC pipes, and legal water connections with household water meters. The meters are provided to assess leakage and usage, as in poorer districts households are charged a flat-rate social tariff (2005 data) of around 5000 Bolivares per month (around US$2.50). To achieve these improvements, the MTA works together with the relevant state water company – in Caracas, this is Hidrocapital – and receives grant money for equipment and raw materials from the government. The work of upgrading and installing water and sewerage systems is carried out by MTA volunteers (even storage of equipment and materials is in space lent by local residents), with technical

[35] Under the 1999 Constitution and especially the December 2001 Ley Orgánica para el Servicio de Agua Potable y Saneamiento, LOPSAPS. In fact the entire water sector was in institutional and regulatory crisis for much of the 1990s (Lacabana and Cariola 2005:124).

and planning support from Hidrocapital, which also supervises the accounts and checks the work carried out. The MTA has a target for the water project of upgrading the water system in 57 alleys per year; achieving this target, which it looked set to do, would enable access to government money for the next phase of the plans, to upgrade the sewerage system. Management of the construction works is carried out by an executive committee of the MTA, which meets weekly and is kept up to date with the aid of a digital camera to document progress; a local community centre/school provides access to IT facilities. The wider MTA (around 100 people, representing the 2-300 families covered by the MTA) meets less frequently, focussing on longer-term planning. Once constructed, physical maintenance of the system is carried out by cooperatives linked to the MTA, under contract to Hidrocapital: customers call Hidrocapital regarding problems, which contacts the relevant cooperative. Because of the importance of the relationship between the MTAs and Hidrocapital, a *Consejo Comunitario de Hidrocapital* – a council with representatives from the MTAs in Hidrocapital's territory – meets to report on developments, coordinate planning, and ensure a good working relationship between the company and the MTAs.

Some of the problems (as well as successes) associated with these systems of institutionalised co-production are elaborated by Margarita López Maya, for example: "In general, the participants acknowledge that in their barrios there are a lot of difficulties, there is a lot of apathy when it comes to participating, with a reduced number of activists who tend always to be the same ones." (López Maya 2008:19). In addition, despite a special emphasis by participants on the non-party-political nature of the community councils and especially of the MTAs (unlike some of the other Bolivarian participatory organisations), "[t]he government tended to favour a conception of the [community councils] as part of the 'socialist' State and not of the society, thus tending to subject this and other initiatives to the imperatives of the official party and its project." (López Maya 2008:22). Setbacks may also come from other, more socionatural sources – for example from torrential rains sweeping away parts of vulnerable hillside neighbourhoods (along with their new, participatorily-developed 800m Bolivares water system), leading to the *barrio* being demolished by the local government as "high-risk". The *barrio* in question (La Pedrera in Antímano, Caracas) was shown in a 1994 academic report to be particularly difficult terrain which would require particularly well-planned and high-quality construction; neither successive governments nor Hidrocapital took serious steps to take such issues into account (López Maya 2008:25). This illustrates that weaknesses in one area (water) cannot easily be separated from their wider socionatural context.

5.6. Conclusion

Water committees (MTAs) are a significant element in Venezuela of how a new political, social and economic reality emerges from the everyday practices of socio-political power, grounded in the historically and geographically situated social capital processes of Venezuela's poorer communities. MTAs have been substantially successful where they have been organised from below, and less so when strong incentives from the national government have brought MTAs into being with limited local support. Besides the concrete water outcomes, MTAs have been a way in which local communities have been first, able to organise and develop transferable organizational skills; second to bypass local governments that have often been captured by local elites with a history of using state resources in a corrupt or clientelist manner. One of the dangers of this process is the creation of new forms of clientelism, which a general emphasis on developing political awareness and capability may help to combat.

I sought to show in this chapter how the response in Venezuela to political, economic and environmental crisis in the 1980s and 1990s was a reconfiguration of state-society relations, partly to bypass the existing clientelist state and partly as part of the attempt to develop a new model of "protagonistic democracy" which is a form of radical democracy. I argue that whilst its implementation has been flawed for a variety of reasons, as a response to the crisis it made sense in Venezuela, and a similar project could be a response to crises found elsewhere. Efforts to decentre and re-invigorate democracy should be part of twenty-first century politics, both for their own sake, and to better respond to a range of crises. Only through such measures can the ongoing neoliberal efforts to depoliticise and technocratise decision-making and place it beyond the political control of the demos be effectively countered.

6. Water alternatives: co-production and participatory development in Latin America

An earlier chapter discussed how from the 1980s and 1990s onwards there were increasing pressures to transfer public sector water institutions to the corporate private sector, and various forms of public resistance to this (Hall, Lobina et al. 2005). One of the key points to arise from that discussion and previous chapters is that the traditional public sector and the corporate private sector share important characteristics, and in some regards can be considered to share the same *mode of power* in terms of how they relate to users. In both cases there is the same centrifugal force of technological advancement and attendant specialisation which tends to distance users from decision-making, as specialised workers (experts) tend to arrogate decision-making and support the development of a technocracy. In each case the technocracy faces similar tensions between satisfying end users and satisfying organizational demands and ultimately organizational stakeholders - although this is not to deny that the difference between voters and shareholders as primary stakeholders does matter. But ultimately the issues around aligning incentives and creating appropriate institutional cultures are perhaps surprisingly similar in a corporate public and a corporate private sector environment.

In this context, the issues of “governance failure” and "market failure" in terms of corporate private provision have a tendency to work together and create a demand for a "third way". Where this third way involves partnership between public and private sector, it changes little, and may merely compound the problems of both institutions. What is usually meant here is some element of what is often labelled "community", "public participation", and concepts in this vein, and this chapter will explore their potential to change how power is reproduced in the water sector, with reference to the previous chapter on state and water in Venezuela. This will be combined with some discussion of the materiality of water, which is critical to grounding these somewhat abstract issues in the concrete.

The chapter will examine two key concepts: "co-production" and "participatory development".

6.1. Co-production

The concept of *co-production* originated in the United States in the late 1970s from scholarly attempts to counter the then-current received urban governance wisdom of

"massive centralization" (Ostrom 1996:98), the supposed benefits of which rarely materialised in practice. The concept of co-production was conceived as "a process through which inputs from individuals who are not 'in' the same organization are transformed into goods and services." (Ostrom 1996). The co-production concept emphasised that public services were rarely produced in their entirety by a single government agency, with services split in various ways across a number of public and private entities. In addition, state agencies were not monolithic, and dependent for the execution of their responsibilities on the day-to-day praxis both of their individual agents and of their clients, and, often, of citizens more generally (Ostrom 1996:98-99). More concretely, in social services such as family planning and education which have as their aim the "transformation of the consumer" (Whitaker 1980:240), consumers of public services are acting as co-producers of those services. This extends also, however, to services such as policing and fire protection, where citizens may be taking part, individually or collectively, in the active or passive coproduction of public goods (Rich 1981:60-61).

Rich's concept of "collective active coproduction" (Rich 1981:74) is related to Joshi and Moore (2004)'s "institutionalised coproduction", and it is this which I wish to explore in the context of the urban water sector.

> *"Institutionalised co-production is the provision of public services (broadly defined, to include regulation) through regular, long-term relationships between state agencies and organised groups of citizens, where both make substantial resource contributions" (Joshi and Moore 2004:40).*

The concept of *institutionalised co-production*, then (which for reasons of economy I will refer to simply as "co-production"), is based on the idea that practices of co-production involve social actors actively and collectively working together with state actors to produce goods and services – especially public goods and public services traditionally produced (at least in the global North) by the state alone. This involves significant resource contributions by citizens (typically in terms of time, but not necessarily as physical labour).

However, as Nance and Ortolano (2007) conclude, the nature of community participation in co-production matters: active local community participation in decision-making and in mobilising community support is associated with successful projects, in a way that contribution to construction and maintenance work is not. In other words, successful co-production involves community participation which empowers communities, rather than

merely using their labour. This conclusion leads us neatly into the next section, which considers participatory development, and in particular the role of *the political* in it.

6.2. Participatory development

Where co-production theory and practice developed in the global North as a reaction to 1970s efforts at state development through strong centralisation, *participatory development* can be understood partly as the equivalent in the global South. Participatory development was a reaction to a mode of state-led development which, as Pritchett and Woolcock (2004) argue, involved “skipping straight to Weber” by imposing generic models of Western-style civil service bureaucracies without going through the processes of historical struggle that had adapted particular forms to work in particular places. The resultant “state failure” was a substantial factor in the push to two major alternatives – the market, and the community.

All of this takes place in a general context of a long-term attempt to depoliticise development (Ferguson 1990; Harriss 2002) – reducing poverty to a technical problem, and promising technical solutions. This long-term trend is partly an intentional facilitation of privatisation, and partly an organic reaction to technological change which encourages specialisation and enhances technocratic tendencies

Participatory development, then, promises much - and I shall expand on these promises somewhat. (Hoddinott 2002) for example notes that communities can provide local knowledge, which may reduce moral hazard or adverse selection problems. Communities involved in the design stage in particular may also help create policy interventions which more close align with the needs and wants of the local population, rather than what policy-makers imagine them to be.

6.2.1. Co-option of participation: from political challenge to empty symbol

Participatory development “ostensibly implies discarding mainstream development’s neo-colonial tendencies, Western-centric values and centralised decision-making processes.” (Kapoor 2005:1203). However, critics have charged it with having been co-opted from its

radical Freirean roots[36] through being "modified, sanitised, and depoliticised" (Leal 2007:543) and thus transformed into a vehicle for national state or international agency domination, even creating a "new tyranny" (Cooke and Kothari 2001) ultimately only different in rhetoric from the non-participatory developmentalism that preceded it (Ferguson 1990), or even the colonialism that preceded that (Cooke 2003).

The drive to the market (the "Washington Consensus") through a neoliberal agenda adopted by international financial institutions such as the World Bank and IMF was enabled by the 1980s debt crisis, which forced many countries into taking loans from them, with conditionalities attached. Leal (2007:540) argues that "it is clearly more than coincidence that participation appeared as a new battle horse for official development precisely at the time of the shock treatment of Structural Adjustment Programmes (SAPs) inflicted on the underdeveloped world by the World Bank and the IMF." The language of participation was used by the World Bank as a populist rhetoric to criticise the state and a general 'crisis of governance'; the solution was, as far as possible, to remove the state from the equation, rather than reforming it in a participatory manner. This included, for example, relying on NGOs "to help deal with the limitations of a [neoliberal] strategy that was generating political protest that challenged the very viability of the reform process." (Mitlin, Hickey et al. 2007:1706), and emphasising "urban governance" as a neoliberal counterpart to "corporate governance" (Moretto 2007:348-9). In the face of public "resistance" to the Washington Consensus, strengthened by a lengthening record of problems in key sectors such as water and energy (Hall, Lobina et al. 2005), the turn was ultimately made to a "post-Washington Consensus" (Öniş and Şenses 2005), mitigating the original's worst excesses without challenging the basic principles.

"The paradox of neo-liberal governance", as Miraftab (2004) calls it, is the use of parallel processes of symbolic inclusion and material exclusion. Thus, for example, when the World Bank imposes forms of participatory development as a condition of debt relief, this can and does easily produce a participation which functions as a legitimation of the neoliberal agenda also being imposed (Mercer 2003; Kapoor 2005). Participation as a 'buzzword' (Leal 2007) was thus often not merely co-opted as concept and praxis, it actually *enabled* further co-optation, both practically and ideologically. This is not, however, inevitable, and it is

[36] "What perhaps sets the ascendancy of participation apart from other co-opted development concepts are its radical roots. Arising from the emancipatory pedagogy of Paulo Freire, the Marxist-oriented school of Participatory Action Research (PAR), the principal objective of the participatory paradigm was not development – or 'poverty alleviation' – but the transformation of the cultural, political, and economic structures which reproduce poverty and marginalisation. 'The basic ideology of PAR', according to Mohammed Anisur Rahman
(1993:13), 'is that a self-conscious people, those who are currently poor and oppressed, will progressively transform their environment by their own praxis'." (Leal 2007:540)

possible for both the concept and the practice of participatory development to be reclaimed in a radical tone (Hickey and Mohan 2005).

6.2.2. Political capabilities and space for political action

In fact, as Glyn Williams points out, participatory development may "indeed be a form of 'subjection', [but] its consequences are not predetermined and its subjects are never completely controlled... [It may] open up new spaces for political action" (Williams 2004:557). To regain the radical tenor in the concept of participation, we must recall its emphasis on a "struggle for deep social transformation" (Leal 2007:546), in the context of a newly radicalised politics of justice (Hickey and Bracking 2005). The challenge is to find ways to make this concrete: Hickey and Mohan (2005:238), for example, argue that "participation should be conceptualized in terms of an expanded and radicalized understanding of citizenship." This could mean drawing on the "political capabilities" concept of Whitehead and Gray-Molina (1999:6), defined as "the institutional and organizational resources as well as collective ideas available for effective political action"[37] – a definition which recalls the discussion above on political collective social capital.

Moore and Putzel (1999) employ a similar concept, emphasising the importance of state openness to the effective political participation of the poor, enabling them to engage in struggles for rights and opportunities. On a related issue Hall et al (2007) note the importance of 'transparency' and knowledge, in the context of a well-functioning public sphere, to enable effective public participation.

A crucial part of this process, however, is the mobilisation of groups for collective action – which brings us again back to the need to develop political collective social capital. Thus Katharine Rankin (2002:17) argues that the "crucial task for development vis-à-vis the poor and disadvantaged is thus to bring them to collective consciousness of their subordinate location": only then can they actively challenge the social structure, whether overtly or through mechanisms such as Scott (1985)'s everyday resistance. At the same time, Patricia Wilson argues, the development of such a "transformational politics" through collective action requires individual "empowerment based on inner transformation", including the

[37] They argue that "an analysis of political capabilities requires a closer examination of the rules of political engagement as actually played, including the transformation or manipulation of rules over time. Critically, political capabilities involve the ability to create new rules, transform social preferences, as well as secure new resources as they become available." (Whitehead and Gray-Molina 1999:7)

adoption of a positive-sum view of power as generated through everyday practice, rather than a “thing” to be taken from someone else (Wilson 1996).

6.2.3. Design versus implementation stages

One of the ways in which the meaning of "participation" and "participatory development" and related terms has been subverted is by bringing in more role for citizens and civil society at the implementation stages of programmes and projects, but less so at the design stage. Bureaucrats then can retain their power, whilst relying on local voluntary contributions of labour, materials and money to ease fiscal constraints (Véron 2001). Ackerman (2004) notes this happening in the case of Mexico's Municipal Funds Program.

6.2.4. Accountability: Channelling flows of power

In moving beyond the public/private debate and "participation" as mere symbolism, we need to consider how social processes shape flows of power. (Ackerman 2004) argues that both traditional state approaches and "new public management" policies leave little role for "voice" (in the exit/voice paradigm of (Hirschman 1970)). On the other hand, the ability of market solutions to provide genuine power to consumers via "exit" is severely limited in natural monopoly sectors such as water, whatever one thinks of its role in others. Ackerman argues for going beyond the consultation or participation of organised civil society such as NGOs, and aiming instead for "the full inclusion of the citizenry as a whole in the core activities of government" (Ackerman 2004:458-9), in a process he labels "*co-governance*". (Other terms include "*co-management*" and "*community-driven development*".) Ackerman brings under this heading cases as participatory budgeting in Brazil's Porto Alegre and the operations of Mexico’s Federal Electoral Institute (which includes, for example, hundreds of thousands of volunteers to run polling sites). He also cites Mexico's Municipal Funds Program as an example of problems with instituting co-governance, as the attempt to develop participation and decentralization together effectively gave power to local bureaucrats. This provided the state of Oaxaca as an illuminating exception, with greater participation due to the state government's support and a rich history of community collaboration and self-governance.

Véron (2001:612), discussing the "new Kerala model" of the 1990s in India's Kerala state, notes that involving citizens and civil society through attempts at decentralized planning may have the consequence of empowering the most powerful vested interests at local levels. Hoddinott (2002) explores the ability of communities to engage in collective action, and how

without appropriate forms of social capital local elites may capture participation promises. Contingently, the willingness of communities to try to overcome collective action problems depends at least in part on the belief that such action will be meaningful: that true decision-making authority is being delegated. Chopra (2002), with an eye on India, makes a related point interpreting social capital as the foundation for creating modern institutions and state-society linkages across traditional divides.

Anyidoho (2010) re-imagines the nebulous concept of "community" using Etienne Wenger's concept of "communities of practice" (Wenger 1998), which grounds community in the notion of *practice* - the means through which individuals and groups engage in repeated behaviours situated within constraining structures and ideas, but leaving room for agency within the particular situation. Importantly, Wenger built the concept on the idea that life is full of continuous processes of constructing meaning, so that practice consists of three elements: joint enterprise, mutual engagement, and shared repertoire. Each of these elements helps to flesh out "community".

Swyngedouw (2005) argues that the development of these forms of participation creates a form of "governance-beyond-the-state" which develops new forms of governmentality in the state-civil society relationship which can create a "substantial democratic deficit" by "profound restructuring of the parameters of political democracy". Swyngedouw focuses on the kind of ad-hoc horizontal "ensembles" of market, state and NGO actors increasingly prevalent in policy-making at national and international level in particular. At international level in particular these arrangements take place in an "institutional void" in which there are "no generally accepted rules and norms according to which policy-making and politics is to be conducted" (Hajer 2003:175), cited in Swyngedouw (2005:1992). As a result, while in liberal democracy the formal basic rules of the system (one person, one vote) are clear, in ad-hoc horizontal ensembles the rules of who may participate and on what terms tend to be unwritten and unclear, and the exclusion of those whose interests are not represented by accepted organised "stakeholders "may not even be noticed. Even for those stakeholders which do participate, lines of representation both from below them and to structures above them are often vague, which may result in an empowerment of stakeholder representatives (and perhaps those who choose them within stakeholder organisations, an issue even more nebulous) rather than anyone else.

Bob Jessop's "destatization" (cited in Swyngedouw 2005) involves externalising state functions; up-scaling governance to international/supranational level; down-scaling governance to local level. It also involves the promotion of technologies of governmentality

through technologies of agency (actors internalising required behaviours) and of performance (benchmarking) (Dean 1999). Whilst the latter is more visible, the former can become a channel for apparent increases in individual freedom becoming merely an increase in responsibility which in decreases individual freedom of action. In short, efforts to empower can intentionally or unintentionally become efforts to "emresponsible", in parallel with the state reducing its responsibilities.

In the remainder of this chapter I focus first, on some of the alternatives to both conventional state provision and privatization, and then on the politics of these alternatives.

6.3. Water alternatives

Informal or small-scale water providers play major roles in cities in many developing countries (Moretto 2007). The heading covers a wide variety of forms, as it is essentially counter-posed to the "standard model" of a centralised water network reliably delivering abundant clean water to the home. One of the aspects to be noted here is the significance of reliability of supply: in poorer areas, it is common for connected households to experience intermittent supply, so that they need to invest either in means to combat this (water tanks), or to turn to informal solutions at times of failing supply.

For households without access to the "standard model", informal solutions tend to differ firstly, in technical terms, secondly, in organizational terms, and thirdly, in terms of price and quantity. In technical terms, they may be dependent on water being brought by tankers or portable water vessels; or on gaining access to public or private water sources and carrying the water home; or on illegal private connections to the network. In organizational terms, they may be dependent on small-scale private vendors, or on forms of social exchange (e.g. based on kinship or reciprocity). In terms of price and quantity, they are generally much worse off on both counts than households able to rely on the network. The World Bank has made some effort to encourage competition among water vendors (Moretto 2007), which can have a positive impact for users within the frame of the existing water service landscape.

As Bakker, Kooy et al. (2008) put it, there is a “question of whether household provision of networked water supply by monopolistic providers (whether public or private) is universally feasible given the current water supply policy norms.” In terms of water alternatives, some of the issues are technical, and using different technical solutions can be part of the answer. Examples include "simplified sewerage" (Mara and Guimarães 1999) and other pro-poor sanitation technologies (Paterson, Mara et al. 2007).

Communities may also sometimes organise their own sources of supply and networks based on them, but for various reasons this is often not practical in urban areas in the way it is in rural ones. More usually, alternatives to the standard model involve at least some cooperation with the state.

6.4. Co-production examples

The urban and peri-urban water sector, with its major infrastructure costs involving technical expertise, economies of scale and legal problems with land acquisition, is not perhaps an obvious sector in which to look for (institutionalised) coproduction (Ostrom 1996). However – despite the International Drinking Water Supply and Sanitation Decade (IDWSSD) of the 1980s – many informal peri-urban settlements in the South still lack water supply infrastructure, relying instead on expensive mobile water sellers (Swyngedouw 2004) or other forms of non-state provision (Sansom 2006). A lack of sanitation and wastewater infrastructure (including storm water drainage – Parkinson (2003)) is even more widespread, with reliance on public-health-endangering "flying toilets" (Njeru 2006:1055) or other forms of unsanitary waste disposal and drainage. This lack of infrastructure carries health implications, particularly for children (Bartlett 2003). Increasingly, there are moves to "alternative", decentralised water and wastewater systems (Parkinson and Tayler 2003), whether they provide household connections through co-production with the state, or community-managed water points and sanitation blocks in partnership with NGOs (Hanchett, Akhter et al. 2003).

One well-known example of community water supply is the system of *awami* water tanks in Orangi, Karachi. These tanks are supplied by the government (via the water board and a paramilitary force), but the distribution of water from them (residents collect the water manually) is run by local residents. Maintenance and repairs are also run by the residents. The tanks are considered a temporary measure, but the majority of residents are generally satisfied with their operation. Ownership of tanks varies, and government-owned tanks are maintained and protected by residents substantially less well than private ones (Ahmed and Sohail 2003). On the other side of the equation, Burra, Patel et al. (2003) discuss the role of community toilet blocks in India, as a means to extend sanitation to the urban poor. Cooperation with local government or corporations is still needed, to connect the blocks to the water and sewerage networks.

Perhaps the most significant alternative system to date (called "condominial sewerage", as the cost-sharing principle for connected residents is similar to condominial blocks of flats) was proposed by a Brazilian engineer, Jose Carlos de Melo, in the 1980s. This system of "simplified sewerage" relies on smaller plastic feeder lines at street level to connect neighbourhoods to larger conventional trunk lines, instead of large cast-iron pipes sunk beneath every urban street. The feeder lines reduced the cost of household connection to a quarter of conventional designs, and could be constructed and maintained by local residents (Ostrom 1996). Local participation in decision-making and implementation is integral to this approach, not merely cost-reduction. However the entire process depends on successful collective action both in a local community (to construct the feeder lines) and in a local government (to construct the trunk lines), as well as effective coordination between the two (Ostrom 1996). Long-term success certainly depends on negotiation of responsibility for maintenance, at least some of which may be beyond the technical expertise of residents, who may in any case be unwilling to take long-term unpaid responsibility for providing this service (Vargas-Ramírez and Lampoglia 2006:13). The system has contributed substantially to the expansion of sewerage in Brazil, where 13.6 per cent of the sewerage connections were condominial by 2000 (Vargas-Ramírez and Lampoglia 2006:11).

Isham and Kähkönen (2002), looking at rural community-based co-production water projects, find that communities with higher levels of social capital (more active community associations) produced more successful projects, although Schouten and Moriarty (2003), also focussing on rural areas, found community-based projects "have not been noticeably better at sustaining systems than what went before". As Ben Page (2003:496) points out, the emphasis on "community-based" systems may involve the "the invention of community", in a way that obscures local political conflicts. Similarly, Nance and Ortolano (2007), focussing on condominial sewerage in Brazil, tentatively concluded that the nature of community participation in co-production mattered. In particular, they found that active local community participation in decision-making on key issues and in mobilising community support was associated with successful projects, in a way that contribution to construction and maintenance work was not. Khwaja (2007) draws similar conclusions – only community participation in key non-technical decisions improves project sustainability (participation in technical decisions actually decreases it). Finally, where communities do mobilise through social movements, successful coproduction can also become a political strategy (Mitlin 2008), as communities are mobilised – developing their collective social capital in a political mode – and learn to make active demands of government (Ostrom 1996:109).

Participatory budgeting may be considered a particular form of co-production. Porto Alegre, Brazil is the best known example of participatory budgeting (Novy and Leubolt 2005). The city also applied this process to the water sector, through its municipal water company (Hall, Lobina et al. 2002).

6.5. The radical politics of water: the Latin American case

The basicness of water to everyday needs has created many traditions in which access to water has a symbolic significance. With this in mind, household water supply can be seen as emblematic of the social relations of a society: the quality and extent of satisfaction of this basic need serves as an indicator of the society's social, political, and economic relations. As discussed in Chapter 2, the production and reproduction of power relations must be understood partly through the everyday reproduction of social structures through the praxis of living - and this includes the social structures around water. The very basicness of water to human need can make it a route into political action: the hands-on practical actions needed to secure water supply for those without secure and reliable supplies bring contingency to the experiential foreground, and this can (in the right circumstances) translate into recognition of radical contingency. I shall argue that elements of this process can be seen in the Venezuelan case.

6.6. Water as a basic need (symbolic significance)

The basicness of water to everyday needs has created many traditions in which access to water has a symbolic significance. In modern terms this may be phrased as a "human right" of access to water, but the underlying concept of a universal right to water is deeply embedded in many cultural traditions, and this has to some extent been reflected in legal traditions as well. One example is the Spanish colonial water law, which had been influenced by Arabic water law (Castro 2004). More modern and global forms of expressing these views include the 1977 UN Water Conference declaration of everyone having "the right to have access to drinking water in quantities and of a quality equal to their basic needs". Such principles of course, are only enacted through concrete action - but the existence of such principles and declarations can encourage action.

Various movements to the commodification of water, including marketization in public sector water and privatization of water services, stand at least to some extent in contradiction to these principles (Castro 2008) - although various forms of provision exist to try overcome

these contradictions, such as social tariffs, block tariffs, or bans on cutting off households for non-payment of water bills.

There are also many forms of "common-pool resource management" systems which involve socially defined communal water rights; these rest in part on such non-market views of water, and attempting to impose marketisation and privatisation can lead to a backlash (Bakker 2008); Bolivia's "Water Wars" are a well-known example (Perreault 2006). Such commons-based approaches (in discussion of which it is easy to reach for concepts like "social capital") may in some circumstances also be more efficient.

6.7. Radical contingency and anti-reification

As discussed in Chapter 2, the production and reproduction of power relations must be understood partly through the everyday reproduction of social structures through the praxis of living. This praxis tends to obscure the *radical contingency* of those structures on the willingness of people to act in order to reproduce them. The recognition of radical contingency makes possible a different kind of politics; or, as Alain Badiou puts it, “The possibility of the impossible is the basis of politics.” (1993:78; cited in Hewlett (2006:381)). Yet, contra Badiou, the recognition of radical contingency is a work carried out in a variety of ways, not least in what Gramsci called a "war of position" as activists make "slow, ongoing struggles to convince others in the ideological realm" (Hewlett 2006:381). Indeed, without a political basis on which to make sense of radical contingency, individuals can easily feel helpless in the face of theoretically endless possibility combined with apparently endless practical obstacles. The reaction to a lack of clear political alternative can be disorganised and unfocussed violence, as seen in the 1989 Caracazo riots in Venezuela. The fact that the everyday reproduction of social structures depends on praxis can also provide potential for solidaristic and political acts of minor resistance through non-conformity (which we may refer to as "weapons of the weak", following Scott (1985)), which can affirm radical contingency through action. This potential interacts with Foucauldian ideas about normative apparatuses of rule and challenges to them (Allen 2004), which can be brought together with a pragmatist view of power where "stress is placed on the open, experimental nature of social action" (Allen 2008).

To some extent the contingency of water supply (access, continuity, quality, etc) can provide a particular prism onto radical contingency, compared to a life in which access to water is assured and given no thought. And certainly the hands-on practical actions needed to secure water supply for those without secure and reliable supplies bring contingency to the

experiential foreground. (This is perhaps a cousin to Lukács (1971)'s argument about the position of hands-on workers in the production process giving them a unique insight into both bureaucratic rationality and commodity fetishism, and though them are "able to see the socio-natural processes producing the reified reality of capitalism" (Loftus 2007:45).) Alex Loftus (2006) has applied John Holloway (2005)'s "account of the everyday resistances against 'fetishization as process'" to the waterscape of Durban, South Africa. Loftus (2007:41) suggests a possible "urban ecological politics of hope" emerging from "the quotidian act of ensuring a household has sufficient access to water", as "those working the socio-natural relations of Durban's waterscape actively develop distinctive, situated knowledges of the environmental politics of the city". I argue that elements of this process can be seen in the Venezuelan case, as well as Loftus' suggestion from experience in Durban that "the majority of participants (though not always the leaders) in such protests are women" (Loftus 2007:42). And in Venezuela, as in Durban, the point must be made that the transformation of quotidian struggle into political struggle is not accomplished easily or miraculously through struggle placement of participants, but through political debate and action rooted in situated knowledges (Loftus 2007:42).

Elaborating on the foregoing discussion and bringing it together with the Venezuela case, there are some significant points to be made. In Chapter 5 I sought to show how the response in Venezuela to political, economic and environmental crisis in the 1980s and 1990s was a reconfiguration of state-society relations, partly to bypass the existing clientelist state and partly as part of the attempt to develop a new model of "protagonistic democracy" which is a form of radical democracy. In some ways Chavez' Bolivarianism, despite deep nationalistic and left roots (including elements of Marxism and Liberation Theology) turns out to be a relatively unsophisticated claim by the majority *demos* to reclaim the political centre – as captured in the Chavista slogan "Venezuela - ahora es por todos". However, in its more radical moments, the philosophy of this project echoes Swyngedouw (2008)'s demand for a "foundation of and for the political ... that foregrounds the notion of equality as the foundation for democracy, for egaliberte as an unconditional democratic demand...". This is particularly visible in relation to water, the specific qualities of which as a basic need (see section 6.6) make it particularly suitable for the application of this egalitarian approach. The local water committees represent forms of co-production or participatory development which echo examples seen elsewhere, but within a political system experiencing an uncommonly high level of contestation both from forces broadly supportive of the government's Bolivarian project, and from forces deeply opposed to it. However, as in any political system, there is a tendency for those in control of the state to sooner or later re-assert tendencies to make the state the primary locus of legitimate political activity. In the case of

Venezuela, David Smilde argues that “[t]he government has moved from an original focus on harnessing existing forms of participation, to a strategy of sponsoring participation, to an attempt at centralization of participation, to the current policy of go-slow centralization.” (2008:3). The exception to this are the “Bolivarian Circles” which were sponsored early (in 2000), and now much weakened since their politicisation in the 2002-4 political crisis (López Maya 2008:28-9).

6.8. Conclusion

In moving beyond the public/private debate and "participation" as mere symbolism, we need to consider how social processes shape flows of power. Where communities mobilise through social movements, successful coproduction can become a political strategy (Mitlin 2008), as communities are mobilised – developing their collective social capital in a political mode – and learn to make active demands of government (Ostrom 1996:109). In order to prevent concepts of "participation", "empowerment", etc from being empty symbols in a particular context, there must be a real transfer of power, particularly in relation to decision-making. States are often reluctant to engage in such transfer and much more comfortable with seeking in essence to validate their decisions; real transfer tends to require a real political and organizational capability in order to demand it. This may also be necessary to guard against transfers of decision-making power becoming a decentralization that empowers local elites, rather than local communities more broadly.

The hands-on practical actions needed to secure water supply for those without secure and reliable supplies bring contingency to the experiential foreground. Loftus (2007:41) suggests a possible "urban ecological politics of hope" emerging from "the quotidian act of ensuring a household has sufficient access to water", as "those working the socio-natural relations of Durban’s waterscape actively develop distinctive, situated knowledges of the environmental politics of the city". I argue that elements of this process can be seen in the Venezuelan case. And in Venezuela, as in Durban, the point must be made that the transformation of quotidian struggle into political struggle is not accomplished easily or miraculously through struggle placement of participants, but through political debate and action rooted in situated knowledges (Loftus 2007:42).

7. Conclusion

And so this journey comes to end. The aim of this thesis has been to explore the reproduction of power, bringing together the analytics of political ecology and social theory and applying them in the material context of the water sector. The water sector in Venezuela has served as an illustrative example for how first, different forms of capital interact to reproduce a mode of power; second, that reproduction tends to produce a concentration of power; and third, how internal contradictions and external pressures can lead to changes in the mode of power. In particular, points of crisis produce new recognitions of *radical contingency* - the potential for the mode of power to be fundamentally altered - and thereby politicization and new forms of activism and resistance. The case of Venezuela is of particular interest here for the manner in which faith in traditional political parties in a democratic context collapsed so completely, due to a linked economic and political crisis, that a complete political outsider (Hugo Chavez) was able to take the reins of the Venezuelan state. Venezuela also serves to show continuities in the mode of power, even in the context of a "Bolivarian Revolution" whose rhetoric and ambition has far out-run the reality.

Overall, this thesis has substantially addressed the research questions described in the Introduction. In particular, in theoretical terms it has been able to develop an analysis of how the stability of established relationships of power within and between state and society is maintained and challenged, with the water sector as an entry point. In pursuit of that it developed a “socio-political ecology” which combines the methodology of political ecology with the theoretical framework of historical-geographical materialism and the concept of social capital. It has argued for the significance of points of crisis which produce new recognitions of *radical contingency* - the potential for the mode of power to be fundamentally altered - and thereby politicization and new forms of activism.

The thesis was less successful in addressing the empirical research question on the nature, effects and origins of the changes in Venezuela's water sector in the Bolivarian Revolution, and the implications for the Revolution's attempted reconfiguration of state-society relations. Due to complications in the author's fieldwork and changes in the author's personal life preventing a return to the field, the thesis had to rely rather more on secondary sources than was envisaged at the beginning of the project, and overall the thesis was unable to provide the level of detail on empirical matters that was intended, and which might have better served to illustrate the theoretical concerns.

I will now lay out a chapter by chapter summary (excluding the introductory Chapter 1): what each chapter did, and what it contributes to the overall argument, before moving to paths for future action and research.

Chapter 2 laid out a “socio-political ecology” which combines the methodology of political ecology with the theoretical framework of historical-geographical materialism and the concept of social capital. The chapter argued that the world in fact consists of processes and we must categorise them in some way in order to think about them, and we may do so in terms of circulating flows of power. These flows actively constitute and continuously (re)produce the socionatural world. Since the world ontologically consists of processes, the production of things operates through the imposition of boundaries – both discursive and material. The same process of boundary imposition operates in the social world – in the reification of social processes which constitutes social things. These social boundaries, which in an ontological sense do not exist, have real effects, and in those real effects the things (permanences) they define gain a power which appears independent of the processes which constitute them. One of the best examples is “the state”, which must be understood as a 'social reality' emergent from the everyday practices (processes) of socio-political power. The socionatural world is then one continuously reproduced by flows of power and the conversion between different forms of power, including different forms of capital, such as social capital (understood as a socionatural process which constitutes one moment of a historically-geographically embedded capital process in which multiple forms are always implicated). This theoretical framework allows us to more easily access the concept of “radical contingency”, the recognition that the reproduction of the current system of power relations is not inevitable. This recognition is essential to a post-Marxist conception of “the political” as the process of institution or contestation of a social practice. Only by incorporating radical contingency can socio-political ecology fully marry analysis of social and political (that is, socio-political) processes with the analysis of ecological (that is, socio-natural/socio-politico-ecological) processes.

Chapter 3 argued that the hydrosocial cycle is a socionatural process which involves the continuous (re)construction of the now socionatural water cycle through the (re)construction of “water” demand, supply and scarcity. It describes how the meeting of urban water supply and sanitation needs (or failure to meet them) is the outcome of a historically and geographically situated socionatural process which constructs both urban water needs (through urbanization) and the meeting of those needs (by linking urban dwellers with the “natural” water cycle in various ways). This socionatural process involves distributional inequities, and involves the (continuous) reconstruction of the now socionatural water cycle.

This process, because of how fundamental water supply and sanitation is to human health as well as to industrial/economic processes, is intensely political. It is continuously contested at multiple levels.

The chapter also argues that household water supply is emblematic of the social relations of a society: the quality and extent of satisfaction of this basic need serves as an indicator of the society's social, political, and economic relations. It also illustrates, in a very concrete manner, the way in which human consumption requires the *continuous* extraction of resources from nature, and that the resulting resources are actively distributed to different members of society through a system which crystallises issues of power otherwise seen less clearly: flows of water represent, in effect, flows of power.

Chapter 4 brought together the state, water and power. It argued that a key aspect of the socionatural process which is the hydrosocial cycle is the dynamic social process which constitutes "the state", which contributes to the continuous (re)construction of the cycle and is in turn (re)constructed by it. The chapter also covered the neoliberalisation of water in Latin America, and how this involves in part a deconstruction and reconstruction of the state, whilst typically maintaining certain modes of (hydraulic bureaucracies). It argued that flows of power can be seen through flows of water, and examined the hows and whys of changes in the intersection of capital and state processes in the (re)construction of the hydrosocial cycle in Latin America.

Where the previous chapter, Chapter 3, focussed on the socionatural process of construction of urban water needs and of the means to meet them, and concluded by emphasising the intensely political nature of the process. This chapter looked at the effects of this process on the construction and maintenance of the Latin American state, as an example of how the state process (the continuously-constructed and defended claim of legitimate authority) is maintained – and at critical times, fails. The state process is legitimised through the meeting of water needs, but also helps construct those water needs by actions it takes (e.g. which encourage urbanization). Where the state is expected to provide, that provision is important to its legitimacy, and the failure to meet the expected quality and quantity of water undermines its legitimacy. The state process gets feedback (socionatural construction) from "society" and from "nature", which constrict and direct it, whilst the state process in turn modifies those processes. The chapter argued that because of the centrality of water to human survival and economic activity, flows of water are highly material representations of the everyday flows of power in a society, and applies this to gain insight into the state process in the Latin American context.

Equally, the chapter continued the theme of the previous chapter that because of the centrality of water to human survival and economic activity, flows of water are highly material representations of the everyday flows of power in a society. This focussed on the flows of capital attached to the management of physical flows of water. It looked at how in the final decades of the twentieth century and continuing into the present, there have been increasing attempts to commodify water. In Latin America, processes of neoliberalisation have seen corporations and global institutions attempt to support processes of commodification of water through intervention in local state processes. Context and meaning of, and resistance to, these processes were explored, and elite attempts to shift power from the political sphere to the economic sphere as a means to sidestep potential dangers of the waves of democratization in Latin America were examined.

Chapter 5 provides a general historical context on Venezuela and a discussion of empirical issues on water in Venezuela. It argues that the oil country Venezuela provides a case study of how a socio-political-ecological system can be both plastic and rigid in different ways and different aspects, in terms of the production and reproduction of power relations and the (re)construction of the hydrosocial cycle.

On the Venezuela case in general, the chapter covered the Venezuelan process of political and social change known as the “Bolivarian Revolution”. It takes a broad look at that process and the socio-political struggle it involves, taking into account the historical context in terms of Venezuela’s development from a poor, agricultural country to a modern highly urbanised oil state. It understands the process of change (“el proceso”) as a response to the collapse of the legitimacy of the prior “pacted democracy” of the 1958-1998 Fourth Republic. The chapter tried to show how the response in Venezuela to political, economic and environmental crisis saw the beginning of a process of reconfiguration of state-society relations, partly to bypass the existing clientelist state and partly to change the flows of clientelist benefits to different recipients; and partly towards the development of a new model of “protagonistic democracy” which is a form of radical democracy.

On the Venezuelan water sector, the chapter looked particularly at local water committees in Venezuela’s urban and peri-urban areas as a key part of “El Proceso”, the participatorily democratic process of political, social and economic transformation which constitutes both the ultimate aim of Venezuela’s Bolivarian Revolution, and its everyday implementation. Chávez’ Bolivarian process is seen to involve a distinctly spatialised politics, with different peri-urban areas in Caracas having different engagements with Bolivarianism, particularly in

aspects depending more heavily on community participation, which include community water and sanitation projects. Local water committees have been substantially successful where they have been organised from below, and less so when strong incentives from the national government have brought them into being with limited local support. Besides the concrete water outcomes, local water committees have been a way in which local communities have been able to organise and develop transferable organizational skills. One of the dangers of this process is the creation of new forms of clientelism, which a general emphasis on developing political awareness and capability may help to combat.

Chapter 6 looked at how other modes of power can be constructed in the water sector, referring back to Chapter 5 as an example. This includes particularly changes in the relationships between the state and local communities. It looked at aalternative ways of (re)constructing the hydrosocial cycle – alternatives to loss of control to capital, and alternatives to weak state processes. Where the previous chapter looked at processes of neoliberalisation, this chapter looked at alternatives to neoliberalisation as a means to providing water supply and sanitation, and presents some of the ways in which urban communities now access water. It looked at both *organizational* alternatives to traditional state provision and neoliberalization, as well as considering some of the *technical* issues. It focused on co-production (co-operation between state and community) and participatory development, as a means to address both governance failure and market failure. It considered examples from Latin America and beyond. It highlights, using Venezuela as an example, how the recognition of radical contingency makes possible a different kind of politics; or, as Alain Badiou puts it, "The possibility of the impossible is the basis of politics."

The chapter also shone a spotlight on the making and breaking of alternatives. It argued that waster's physical characteristics and role as a basic need give the failure to adequately meet those needs a particular socio-political significance, which means that water issues can more often involve radical contingency, though how much that spreads beyond water depends on context. The chapter argued that household water supply and sanitation is emblematic of the social relations of a society: the quality and extent of satisfaction of this basic need serves as an indicator of the society's social, political, and economic relations. It also illustrates, in a very concrete manner, the way in which human consumption requires the *continuous* extraction of resources from nature, and that the resulting resources are actively distributed to different members of society through a system which crystallises issues of power otherwise seen less clearly: flows of water represent, in effect, flows of power. Water can serve as a catalyst for, or window onto, *the political*. Some examples from Latin America are

considered, and the requirements for politics to transition into a wider political agency explored.

7.1. Conclusions: paths for the future

Both in the water sector and elsewhere, the political, economic and environmental crisis in Venezuela in the 1980s and 1990s created the conditions for a certain reconfiguration of state-society relations, partly to bypass the existing clientelist state to achieve specific material outcomes and partly as part of the attempt to develop a new model of "protagonistic democracy" as a form of radical democracy. Whilst its implementation has been flawed for a variety of reasons, as a response to the crisis these changes made sense in Venezuela, and a similar project could be a response to crises found elsewhere. The water sector in Venezuela serves as an illustrative example for how points of crisis can produce new recognitions of radical contingency - and thereby politicization and new forms of activism.

In terms of water outcomes, the experience of Venezuela's water committees shows, on the one hand, how co-production systems in peri-urban areas can produce concrete results in improving water systems, by giving local communities a voice and access to funds and technical support. On the other hand, it also shows that such systems depend on political support from government coming together with effective socio-political organization at local levels, and that whilst they may succeed in bypassing old forms of clientelism, they risk creating new forms, particularly in the long term. The experience also shows that the transition from problem-solving response to critical water issues to institutions sustainable for the long term remains problematic, and requires an institutionalisation and formalisation of relationships with government and related water organizations and lesser reliance on volunteering. This is partly because the material characteristics of water and wastewater limits the possibilities for provision and means that weaknesses in the water sector cannot easily be separated from their wider socionatural context.

In terms of political outcomes, the Venezuelan experience shows that in the right circumstances the resolution of water issues can be a spur for local community organization, which can create transferable organizational skills as well as a development of political engagement. These circumstances include a degree of local leadership and social cohesion, which often depends on longer traditions of political activism and more settled communities. The Venezuelan experience also shows the possibility of such political engagement going beyond the local level, and constituting a part of a wider political movement with a strong localist theme. This suggests hope for Purcell (2003)'s warning of the need "to develop new

notions of citizenship that extend the limits of politics and expand the decision-making control of citizens." Efforts to decentre and re-invigorate democracy should be part of twenty-first century politics, both for their own sake, and to better respond to a range of crises. Only through such measures can the ongoing neoliberal efforts to depoliticise and technocratise decision-making and place it beyond the political control of the demos be effectively countered.

In terms of future research, it is worth noting that future stresses such as climate change may have a significant impact on the material realities of water systems. These may have political consequences analogous to the chronic lack of investment seen, for example, in Venezuela in the 1980s and 1990s. The specificity of water must be acknowledged (Perreault 2006), in relation to material characteristics, socio-cultural significance, and economic function.

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