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## Power, Water and Money: Exploring the Nexus

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We are witnessing something unprecedented: Water no longer flows downhill. It flows towards money (Robert F. Kennedy Jr.)

What we call man's power over nature turns out to be a power exercised by some men over other men with nature as its instrument (C.S. Lewis, *The Abolition of Man*, 1947)

## **Introduction: Water and the MDGs**

Providing safe and clean water to communities is not exactly rocket science: the basic technologies and engineering principles are known and mastered (although there is always scope for improvement of course), management systems understood, aquatic bio-chemical and physical processes well comprehended. Despite the relative technological and managerial ease of providing clean water for all and of evacuating and treating wastewater, it is remarkable that more than one billion people worldwide are still suffering from inadequate, unreliable (both in quantity and quality) and/or difficult access to clean water and almost two billion from unsatisfactory sanitation. While the humanitarian and socio-economic costs of inadequate water and sanitation services are well known, progress in alleviating water problems remains excruciatingly and unacceptably slow. The annual number of premature deaths or the persistence of debilitating conditions actually suffered by the poor of the world as a result of inadequate water supply far outweigh even the most pessimistic predictions of the human consequences of global warming. Yet, it would be remarkably easy to remedy this. With the possible exception of very arid regions, conditions of problematic water access have little, if anything at all, to do with water availability or absolute scarcity. It usually is a problem of access and equitable distribution of the available resources. What needs to be understood better, therefore, is not how to bring water to people, but, rather, why it is that some social groups do not have adequate access to water and sanitation, while others do.

While the MDGs are committed to a significant increase of the number of people that have improved access to clean water and adequate sanitation, particularly to the poor, it can now be confidently predicted that, unless a significant effort is made from the part of national and trans-national institutions, conditions will only have improved marginally, if at all, by 2015. Despite rhetorical commitment and political support, eradicating water poverty meets with significant barriers and difficulties.

This background paper will address a relatively neglected aspect of the water problem. In particular, attention will be paid to the relationship between social power and water circulation and water access. In other words, it will be argued that access to or exclusion from access to water is largely determined by relative power positions of individuals and social groups vis-à-vis each other. In other words, we argue that a focus on 'the poor' is not necessarily particularly helpful in assessing and understanding processes of access to or exclusion from access to water and sanitation. The key question is to understand why some groups in particular social and geographical location have unlimited access to water while others have no or

unsatisfactory access. Throughout the paper, selected case studies will substantiate and illustrate the key arguments. We shall pay relatively little attention to the problematic conditions of water access for many people around the world and the difficulties encountered in changing this condition. This is sufficiently known (Gleick 1993; UNHSP 2003). This paper's focus is on the social power relations that produce decidedly uneven conditions through which socio-spatially stratified water access conditions are actively produced and maintained.

We shall consider the terrestrial part of the hydrological cycle as fundamentally a hydro-social cycle (Swyngedouw, Kaika, and Castro 2002). The water flows embodied in the networks that function as conduits for this cycle would narrate many interrelated tales: of social and political actors and the powerful socio-ecological processes that produce urban and regional spaces; of participation and exclusion; of rats and bankers; of water-borne disease and speculation in water-industry related futures and options; of chemical, physical and biological reactions and transformations; of the global hydrological cycle and global warming; of uneven geographical development; of the political lobbying and investment strategies of dam builders; of urban land developers; of the knowledges of engineers; of the passage from river to urban reservoir. The rhizome of underground and surface water flows, of streams, pipes and networks is a powerful metaphor for processes that are both social and ecological (Kaika and Swyngedouw 2000). Water is a 'hybrid' thing that captures and embodies processes that are simultaneously material, discursive and symbolic. Water networks connect the most intimate of socio-spatial relations, inserts them into a mesmerising political-economy of urban, national and international development, and is part of a chain of local, regional, national and global circulations of water, money, texts and bodies. In this sense, water embodies bio-chemical and physical properties, cultural and symbolic meanings, and socio-economic characteristics simultaneously and inseparably. These multiple metabolisms of water are structured and organized through socio-natural power relations – relations of domination and subordination, of access and exclusion, of emancipation and repression – which then become etched into the flow and metabolisms of circulating water. This circulation of water is embedded in and interiorises a series of multiple power relations along ethnic, gender and class lines (see (Swyngedouw 1996a)). These situated power relations, in turn, swirl out and operate at a variety of interrelated geographical scale levels, form the scale of the body upward to the political-ecology of the city to the global scale of uneven development. The capturing, sanitizing, and bio-chemical metabolising of water to produce 'urban' drinking or agricultural irrigation water simultaneously homogenizes, standardises, and transforms it into a commodity as well as into the real-abstract homogenized qualities of money power in its manifold symbolic, cultural, social, and economic meanings.

The report consists of the following parts:

- 1) Water Access and Water Security: the Facts
- 2) Water Power: a Political Ecology Perspective

- 3) Water and Social Power: A review
  - a) Water and the State
  - b) Water, Money, and the City
- 4) The Politics of Exclusion
- 5) The Shifting Political-Economy of Water: Politics of Exclusion and Struggles for Access
- 6) Cracks in the Mirror: the Contradictions of Water Privatisation
- 7) Strategies for Achieving Universal Access to Clean Water.

## **1. Water access and water security: the facts**

A general overview will be provided of the conditions of uneven access to water resources, primarily (but not exclusively) in urban contexts. This part will be kept short and factual, primarily to provide the context for the analysis presented in the paper. The main objective of this part is to show that, except under specific conditions, there is no absolute scarcity of water, but rather that access to water is socially unevenly distributed.

It is of course well known that a large number of the world's population lack access to water supply and sanitation. World Health Organization data show indeed that 1.1 billion people have no water supply and almost 2.5 billion lack basic sanitation services. Moreover, as Table 1 shows, this condition has only improved marginally during the 1990s in relative terms and has basically stagnated in absolute terms. Moreover, the data are almost certainly underestimated, particularly with respect to water and sanitation data for urban areas. There is a high percentage of urban residents who do not have in-door piped water and are consequently dependent on other means for accessing water such standpipes, wells, and, most often, informal private water vending. This makes the urban water problem particularly acute as both quality and quantity of water is limited on the one hand and cost (both in terms of time and of price) is very high on the other.

Moreover, as will be discussed in greater detail below, the unreliable or difficult access to water has very little if anything at all to do with absolute scarcity of water. This is abundantly clear with respect to urban areas. With a few possible exceptions, all major cities produce a sufficient volume of potable water to satisfy more than satisfactory human health and sanitation conditions. As Table 2 shows, average per capita water consumption in Latin American cities is high and is comparable to the average per capita consumption of water in cities in the developed world. In urban environments, therefore, there is no evidence of an absolute scarcity of potable or treated water. However, as Table 3 shows, the available water is distributed in a highly unequal manner. A relatively small percentage of the population consumes most of the available water. For people depending on water vending (usually water coming from the urban water system), their consumption share is very small indeed. Moreover, the water price charged by water vendors, which are always local micro-entrepreneurs, is invariably significantly higher than the water tariff of the 'official water company (see Table 4).

To the extent, therefore, that urban residents lack access to sufficient, clean, and affordable water is solely a question of relative scarcity as a result of uneven distribution. Since the existing distribution system is socio-technically constructed, this relative scarcity is totally socially produced and does not inhere in the absolute availability of water. The mobilisation of scarcity, therefore, serves primarily ideological and political purposes, but does not adequately reflect existing social inequalities in accessibility. In the penultimate section, a critique of the 'politics of scarcity' will be provided, with particular emphasis on the political role of mobilising 'scarcity' as a principle problem with respect to water resources.

**Table 1. Access to Water Supply and Sanitation by Region, 1990 and 2000**

<b>Region</b>	<b>1990 Population (millions)</b>		<b>2000 Population (millions)</b>	
	Total Population	Population Unserviced	Total Population	Population Unserviced
<b>GLOBAL</b>				
Urban Water Supply	2,292	114	2,845	174
Rural Water Supply	2,974	1,013	3,210	926
Total Water Supply	5,266	1,127	6,055	1,100
Urban Sanitation	2,292	415	2,845	402
Rural Sanitation	2,974	1,947	3,210	2,001
Total Sanitation	5,266	2,362	6,055	2,403
<b>AFRICA</b>				
Urban Water Supply	197	31	253	44
Rural Water Supply	418	235	487	256
Total Water Supply	615	266	784	300
Urban Sanitation	197	30	297	46
Rural Sanitation	418	212	487	267
Total Sanitation	615	242	784	313
<b>ASIA</b>				
Urban Water Supply	1,029	57	1,352	98
Rural Water Supply	2,151	718	2,331	595
Total Water Supply	3,180	775	3,683	693
Urban Sanitation	1,029	339	1,352	297
Rural Sanitation	2,151	1,655	2,331	1,619
Total Sanitation	3,180	1,994	3,683	1,916
<b>LATIN AMERICA and CARIBBEAN</b>				
Urban Water Supply	313	26	391	29
Rural Water Supply	128	56	128	49
Total Water Supply	441	82	519	78
Urban Sanitation	313	46	391	51
Rural Sanitation	128	78	128	66
Total Sanitation	441	124	519	117

Source: World Health Organization (2000) *Global Water Supply and Sanitation Assessment 2000 Report*. Geneva.

**Table 2. Average municipal water consumption in Latin American cities.**

City	Water consumption (lcd = litres per capita per day)	
	source: Anton	source: World Bank
Buenos Aires	630	
Havana	500	100
Maracaibo	475	
Córdoba	435	
Guayaquil	429	261
San José	423	
Monterrey	404	
Mexico City	360 - 527	
Lima-Callao	359	211
Curitiba	345	
Medellín	340	
Guadalajara	314	
Bogotá	304	
Santiago	300 - 555	286
Caracas	300 - 388	
Montevideo	289	
Quito	286 - 301	
Sao Paulo	270 - 293	
Salvador	266	186
Belo Horizonte	261	
Cali	237	
La Paz	177	73
Rio de Janeiro	188 - 684	299
Asunción	160 - 350	236
Barranquilla	148	
Cochabamba	130 <sup>a</sup>	43

Source: Anton (1993: 156); World Bank (1998: 278-279) <sup>a</sup> Crespo (2002: 122).

**Table 3. Relationships between proportion of water consumed and percentage of households, as well as total water production per capita in selected Latin American cities.**

City	Percentage of population	Percentage of water received	Water produced per capita per day (liter)
Mexico City <sup>a</sup>	3	60	386.2
	50	3	
Guayaquil <sup>b</sup>	40	3	220.0
Lima <sup>c</sup>	43	88	368
	57	12	
	25	1.9	
Barranquilla <sup>d</sup>	30	5	
Santiago <sup>e</sup>	19	38	226
	19.4	9.1	
Cochabamba <sup>f</sup>	27	50	

Source: <sup>a</sup> Illich (1986: 1); <sup>b</sup> Field work; <sup>c</sup> Espinoza (1988: 4); <sup>d</sup> Bernal (1991: 153-154); <sup>e</sup> calculated on the basis of Icaza and Rodriguez (1988: 62); <sup>f</sup> Crespo (2002: 121).

**Table 4. Price multiples and water prices charged by water vendors, mid 1970s-1980s and 2001 (unless otherwise indicated).**

City	Country	Multiples of water charged by Public Water utility <sup>a</sup>	Water price <sup>b</sup> U.S.\$/m <sup>3</sup> 1988
Port au Prince	Haiti	17-100	
Tegucigalpa	Honduras	16-34	
Lima	Peru	17	20-50 intis
Barranquilla	Colombia	28	2.00
Mexico City	Mexico	40-114	400 pesos
Guayaquil	Ecuador	200-300	2.11-3.16
Quito	Ecuador	27	1.70-2.00
Barquisimeto	Venezuela		1.00-1.40
Cochabamba	Bolivia		1.40

Data for 2001<sup>e</sup>

Baranquilla	Colombia	10-12	5.50-6.40
Guatamala City	Guatamala	7-10	2.70-4.50
Lima	Peru	8-10	2.40
Guayaquil	Ecuador		3.20
Cochabamba <sup>c</sup>	Bolivia	5	2.40 (2002)
El Alto <sup>d</sup>	Bolivia	16	3.30 (2000)

Data from McIntosh and Yñiguez (1997)<sup>f</sup>

Bandung		14	3.60
Bangkok			28.94
Dhaka		10	0.84
Karachi			1.14
Kathmandu		11	2.61
Manila			2.15

Source: <sup>a</sup> World Bank (1989: Table 3.2.,p 70).

<sup>b</sup> Vásconez (1991: 51)

<sup>c</sup> Crespo (2002a: 111 and 117)

<sup>d</sup> Komives (2001)

<sup>e</sup> Solo (2001: 2)

<sup>f</sup> McIntosh and Yñiguez (1997), cited in UNHSP(2003: 71)

Data for Barranquilla (date 1989) from Bernal (1991: 154), for Mexico City (date 1983) from Bataillon and Panabièrre (1988) and for Guayaquil from field work (1993); Data for Quito's multiple (in 1987) from Vasconez (1988a) and for Lima's water price (date June 1987) from Espinoza and Oviden (1988: 57).

Access to water for consumption for rural residents is equally highly problematic and uneven. There are a variety of reasons for this. Under particular geo-climatic conditions, local or regional problems of scarcity may arise. Most of times, however, the cost of infrastructure and the average cost of supplying clean water to sparsely settled communities are prohibitively expensive. The latter holds of course true both for public and private service provision. Rural water supply is almost invariably subsidised and the introduction of market principles in rural water supply systems is even more difficult than in urban environments. The fixed capital investment cost is high while potential returns and profit are rather low, uncertain, and unreliable.

Both these examples suggest already that the problem of water access and water control is primarily a question of purchasing power, available capital, and the direction of capital investment. Or, in other words, access to water is invariably articulated through the money nexus and, consequently, to the social power relationships through which money and capital are organised and distributed

If anything, the relationship between social power and water access is even more acute for agricultural systems that are dependent on hydraulic infrastructures and irrigation. As large-scale hydraulic infrastructures are invariably built and organised through the state, there is close relationship between capital investment, state power, and the distribution of and access to irrigation waters. In addition to the obvious conflicts between different water uses and between local residents and dam constructions with their inevitable displacements of people, the subsequent distribution of the irrigation waters is also reflective of social power relations. Not only do dams and irrigation channels radically change earlier flows of water (and their uses) but also produces new uses, new structures of access, and new forms of water distribution. Water access and water security are profoundly transferred by irrigation schemes. While access and use is massively improved for some, it is often made worse for others. The grand hydraulic works that produced California's agricultural success is a case in point as is the hydro-modernisation that characterised the rapid economic development of Spain during the second half of the 20<sup>th</sup> century. Indeed, none of these changes are power neutral. We shall return to this theme as well in the remainder of this paper. But first, I shall outline the conceptual framework that will guide the remainder of the paper.

## 2. Water Power: A political ecology perspective

Before addressing the question of social power as it articulates with water distribution and access, attention will be paid to the theoretical/conceptual apparatus that permits formulating resource questions in terms of social, political, and economic power relations. Drawing on a wide range of literatures related to political ecology, this section will chart how political-ecological analysis inserts the matter of social power within resource uncertainty (see also (Keil 2000); (Peet and Watts 1996); (Swyngedouw, Kaika, and Castro 2002); (Heynen, Kaika, and Swyngedouw 2005)). Political ecology considers socio-ecological metabolisms to be inherently part-political processes and, consequently, an integral part of any political or social project. Political visions are, therefore, necessarily also ecological visions; any political project must, of necessity, also be an environmental project (and vice versa) (Harvey 1996):

1. Environmental and social changes co-determine each other (Norgaard 1994). Processes of socio-environmental metabolic circulation transform both social and physical environments and produce social and physical milieus with new and distinct qualities. In other words, environments are combined socio-physical constructions that are actively and historically produced, both in terms of social content and physical-environmental qualities. Whether we consider the making urban parks, urban natural reserves, the production of water supply and sanitation networks, irrigation landscapes, or skyscrapers, they each contain and express fused socio-physical and techno-natural processes that contain and embody particular metabolic and social relations.
2. There is nothing a-priory unnatural about produced environments like cities, genetically modified organisms, dammed rivers, or irrigated fields. Produced environments are specific historical results of socio-environmental processes. The world is a Cyborg world, part natural part social, part technical part cultural, but with no clear boundaries, centres, or margins.
3. The type and character of physical and environmental change, and the resulting environmental conditions, are not independent from the specific historical social, cultural, political, or economic conditions and the institutions that accompany them. It is concrete historical-geographical analysis of the production of concrete socio-natures that provides insights in the uneven power relations through which particular environments become produced and that provides pointers for the transformation of these power relations.
4. All socio-spatial processes are invariably also predicated upon the circulation and metabolism of physical, chemical, or biological components. Non-human 'actants' play an active role in mobilizing socio-natural circulatory and metabolic processes (Latour 1999). It is these circulatory conduits that link often-distant places and ecosystems together and permits relating local processes with wider socio-metabolic flows, networks, configurations, and dynamics.
5. Socio-environmental metabolisms produce a series of both enabling and disabling socio-environmental conditions. These produced milieus often embody contradictory tendencies. While environmental (both social and physical) qualities may be enhanced in some places and for some humans and non-humans, they often lead to a deterioration of social, physical, and/or ecological conditions and qualities elsewhere.
6. Processes of metabolic change are, therefore, never socially or ecologically

neutral. This results in conditions under which particular trajectories of socio-environmental change undermine the stability or coherence of some social groups, places or ecologies, while their sustainability elsewhere might be enhanced. In sum, a political-ecological examination reveals the inherently contradictory nature of the process of metabolic circulatory change and teases out the inevitable conflicts (or the displacements there-off) that infuse socio-environmental change.

7. Social power relations (whether material or discursive, economic, political, and/or cultural) through whom metabolic circulatory processes take place are particularly important. It is these power geometries, the human and non-human actors, and the socio-natural networks carrying them that ultimately decide who will have access to or control over, and who will be excluded from access to or control over, resources or other components of the environment and who or what will be positively or negatively enrolled in such metabolic imbroglios. These power geometries, in turn, shape the particular social and political configurations and the environments in which we live.
8. Questions of socio-environmental sustainability are fundamentally political questions. Political-ecology attempts to tease out who (or what) gains from and who pays for, who (or what) benefits from and who suffers (and in what ways) from particular processes of metabolic circulatory change. It also seeks answers to questions about what or who needs to be sustained and how this can be maintained or achieved.
9. It is important to unravel the nature of the social relationships that unfold between individuals and social groups and how these, in turn, are mediated by and structured through processes of ecological change. In other words, environmental transformation is not independent from class, gender, ethnic, or other power struggles. Socio-ecological 'sustainability' can only be achieved, therefore, by means of a democratically controlled and organised process of socio-environmental (re)-construction. The political program, then, of political-ecology is to enhance the democratic content of socio-environmental construction by means of identifying the strategies through which a more equitable distribution of social power and a more inclusive mode of the production of nature can be achieved.

### 3. Water and Social Power: A review

It is plainly extraordinary – and something requiring explanation as well — that in the proliferating and abundant literature on water problems and the ‘water crisis’ relatively little if any attention is paid to one of the most trivial of truths, i.e. that water flows to power. Only in the most exceptional of circumstances, caused by unexpected events, do powerful social groups of individuals lack access to water. It is of course equally undisputed that ownership of, or control over water and its distribution and allocation are formidable sources of social power. Karl Marx already recognised in *Capital* that the owner of a waterfall possessed a ‘free gift of nature’ that would improve his or her position in the competitive game. Social groups with sufficient social, political, economic, or cultural power do not die of thirst or see their crops go without water. In many instances, controlling water generates considerable social power, while the latter permits re-enforcing or extending this control. In other words, social power and the control of nature are mutually constitutive.

In this section, we shall explore how the relationship between water and social power has been theorised and the insights that can be derived from it. Indeed, the analysis of the relationship between water and social power has a long, rich, and variegated history. Of course, the vital question of course is to examine the various ways in which the socio-hydrological cycle constitutes a flow not only of H<sub>2</sub>O, but also one that is saturated with all manner of power relations. We have to examine the various forms of power that become etched within the hydrosocial circuitry and how these, in turn, solidify uneven social power relations including mechanism of access to and exclusion from access to water. While it is evidently the case that water is transported through technical infrastructures like networks of pipes, pumping stations, purification plants, dams, irrigation channels and the like, supported by all manner of engineering and technological know-how, and financed by often sophisticated financial instruments, this eminently socio-technical edifice that constitutes the terrestrial part of the socio-hydrological system expresses the various and multiple social power relations through which technology, knowledges, and capital become fused together. It is to the analysis of these power relations and how they have been understood over the past century that our attention will now turn.

The first theoretically sophisticated analysis of the relationship between social power and water is Karl Wittfogel’s thesis on political power hierarchies in Hydraulic Societies, a thesis fully developed in his seminal book ‘Oriental Despotism’ (Wittfogel 1957). Skilfully combining an analysis of conditions of aridity with its irregular distribution (in time and over space) of water, of the required socio-technical structures of irrigation if development is to be sustained, and of political power, his analysis has become a canonical entry point into excavating the relationships between social power and water. He argued that, in ancient empires like those of China or Egypt, sophisticated irrigation based societies developed that exhibit an extraordinary degree of stability, a strict hierarchical social and political organisation characterised by a despotically ruling divine ‘emperor’, surrounded by an elite stratum of bureaucrats and scientists, a military arm to maintain (or expand) territorial integrity, a small army of tax collectors, and a peasant population whose socio-ecological sustainability is dependent on an intricate, detailed, and sophisticated irrigation engineering and regulated water distribution system that demands some form of centralised control and organisation. It is exactly the required socio-ecological transformation of arid environments by means of water engineering that produced

such hierarchically organised, ‘despotic’, form of society and government. Although very sophisticated in his analysis, and recognizing that not all societies living under arid or semi-arid conditions necessarily develop despotic forms of social organisation with an all-powerful political elite and a disempowered and politically excluded peasantry (which nevertheless depended on the hydraulic management and engineering of the elites for its sustainability), Wittfogel’s analysis was very much received as one that assumed a necessary link between water management and authoritarian political regimes. And of course the despotic forms of water engineering and control characterising not only ancient political regimes, but also ‘modern’ ones, like the USSR and China, seemed not only to fit Wittfogel’s argument, but they were also successfully discursively mobilised in the cold-war rhetoric of post-war geopolitics. Wittfogel’s analysis has become seminal in analysing the relationships between irrigation water, other large-scale hydraulic infrastructures, and uneven social power relations (see (Donahue and Johnston 1998)).

However, when during the 20<sup>th</sup> century and, in particular, during the inter-war period, many developed and developing countries began to embark on national trajectories of large-scale modern ‘hydro-structural’ (Arrojo Agudo 2000) development articulated around large dams, gigantic river re-engineering schemes, major water transfer projects, and large scale land reclamation and irrigation engineering schemes, the spectre of Wittfogel’s analysis was also mobilised to theorise and understand hydro-social power relationships under modern capitalist forms of development. For example, Donald Worster in *Rivers of Empire* takes an explicitly Wittfogelian perspective to theorise the ‘conquest of the West’ in the USA (Worster 1985). The US Corps of Engineers and the Bureau of Reclamation became, according to Worster, these powerful elite and ‘despotic’ bureaucratic institutions that combined political and technological power to push through and implement a particular hydro-social project and associated development model:

“The American West can best be described as a modern hydraulic society, which is to say, a social order based on the intensive, large-scale manipulation of water and its products in an arid setting. ... The hydraulic society of the West is ... increasingly a coercive, monolithic, and hierarchical system, ruled by a power elite based on the ownership of capital and expertise” (Worster 1985: 7).

He showed how mobilising the flows of water was predicated upon acquiring political and economic power, while, once control over water established, these institutions further consolidated and re-enforced their political and socio-economic power basis. Simultaneously, alternative visions or projects became marginalised and sidelined. These Hydraulic Modernisation dreams re-organised access to water, re-configured structures of entitlement and distribution and re-choreographed relative social power positions in and through the re-engineering of the water flows. Of course, many conflicts erupted in and through the implementation of these projects, expressing the power configurations associated with such state-based hydro-structuralism.

In a similar way, the transformation of the Californian waterscape or the political-economic power struggles and conflicts associated with bringing sufficient volumes of water to Los Angeles to permit its continuous growth and expansion have been analysed from such vantage point. They became canonical examples of how control or ownership of water, the mobilisation of water’s flows, political and

economic power comes together and produce simultaneously unequal power relations between different social groups. The interests of land speculators, urban developers, land managers and water bureaucrats fused together throughout Los Angeles's 20<sup>th</sup> century history (immortalised, for example, in Roman Polanski's movie *Chinatown*), consolidating or re-enforcing their economic and or political power through mobilising, controlling and engineering ever larger watersheds, and, in the process, of course, water access, water rights, and water control were re-assigned and re-distributed (see, for example, (Davis 1990); (Gottlieb 1988); (Gottlieb and Fitzsimmons 1991); (Hundley 1992); (Nadeau 1997); (Reisner 1990)). Neither Los Angeles's fast urbanisation nor California's spectacular hydro-agricultural development (see Walker, 2005) could have developed without changing water distribution, water access and, of course, socio-ecological power relations. Older existing water rights were questioned, groups with weaker political and economic power sidetracked or marginalised, and water moved around on a large scale. The intricate relationship between water, power, and the social order that had originally been identified in 'oriental' societies found a fertile terrain in understanding the power dynamics that govern hydro-development in the 'West'. As Joaquin Costa, a Spanish intellectual already remarked at the beginning of the 20<sup>th</sup> century, "to irrigate is to govern".

These and many other examples illustrate that water and social power are indeed closely intertwined. Although I do not suggest that developments in the developed and the developing world follow the same pattern (see below), their hydrosocial configurations are centrally constructed through political and social power and conflict, configurations that produce simultaneously regimes of access and of exclusion, and produce the registers and frames for water entitlements. They suggest that engineering practices, technological system, and political regimes are not socially neutral. They embody particular social and economic visions, are associated with social elite formation, and are vitally important arenas for gaining or maintaining social power. In contrast to Wittfogel's central thesis, it has now been commonly accepted that there is no necessary link between aridity or relative scarcity of water and authoritarian political and economic power relations. However, a variety of social power relations do operate around the power/water nexus. It is commonly accepted, for example, that complex hydro-engineering systems that required a detailed technical and social division of labour and sophisticated management structures at the level of entire river basins or watersheds are accompanied by large, hierarchically organised, bureaucratic organisations, whose top cadres have considerable political, social, and cultural, power, and who are usually well networked with other centres of private and or state power. This perspective will permit addressing two interrelated issues. First, we shall consider the relationship between the state, the configuration of the state, and hydro-social development. Second, we shall analyse the relationship between water, money, and ownership, i.e. the central nexus around which water is articulated in the contemporary development process.

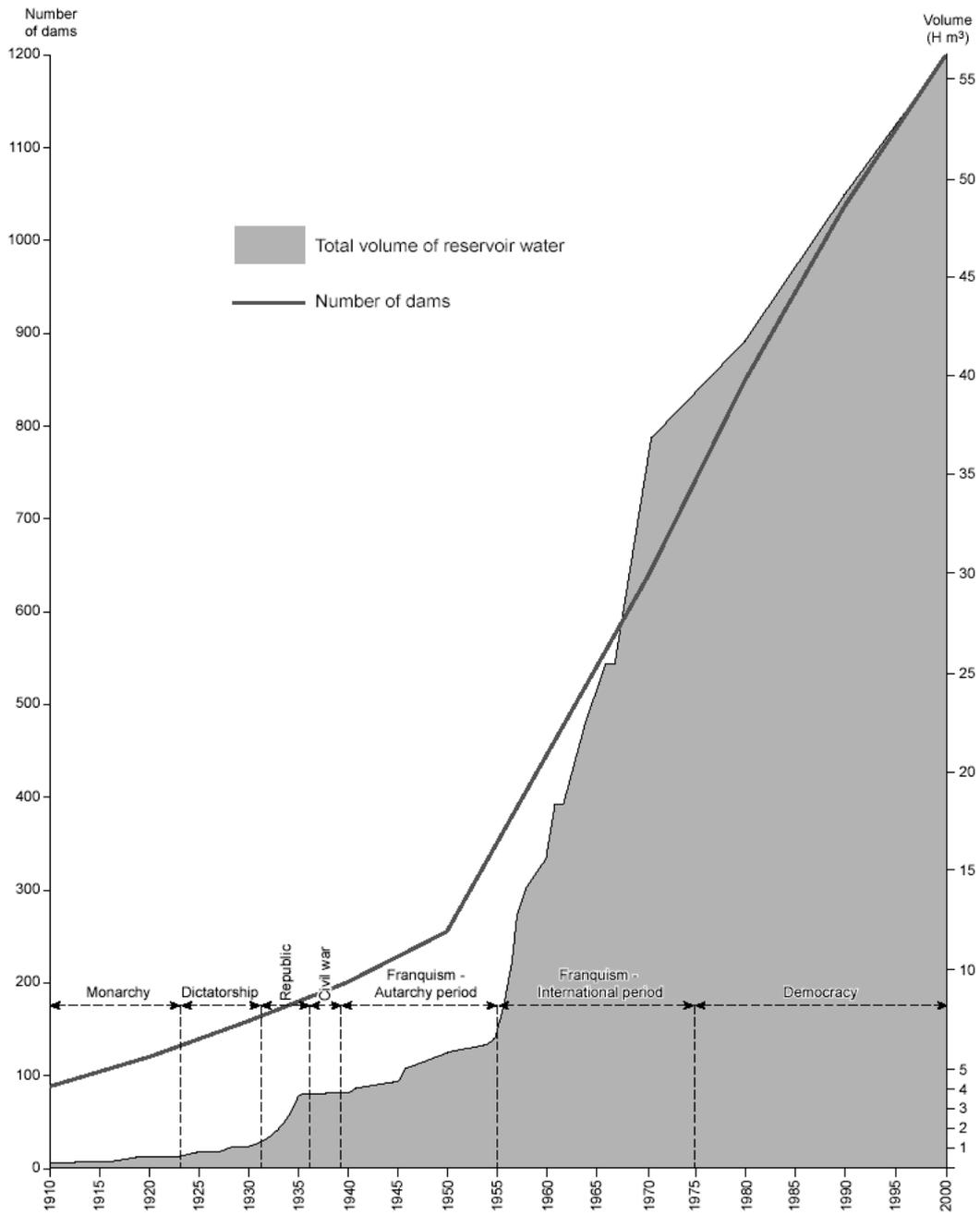
### **3.1. Water and the State: The Case of Spain**

The relationship between the state on the one hand and water access and water rights on the other is much broader than the question about ownership, public policy or management. As the above already suggested, there has been historically a close connection between the nature of the state and the dynamics of the hydraulic regime.

Yet, the relationship between state development models on the one hand and the mobilisation of water resources has been systematically neglected in considering the modalities of water access or water distribution. This section will exemplify how development models, state policies, and social power relations become reflected in and organised through the water resource allocation and distribution system. This, in turn, will permit to frame the relationship between state model, water access, and social power. A case study example of Spain will illustrate the changing hydraulic models developmental states have pursued and their effects on the geometry of social power relations.

From the turn of the 20<sup>th</sup> century onwards, economic development became increasingly articulated through the state and state institutions. In many countries, a close correspondence developed between national state elites and national economic elites who identified their interest with national interests, leading to the development of hegemonic national-hydraulic development models; models that were replicated in many of the world's regions (McCully 1996; Ward 1997). Indeed, the mobilisation of natural resources in a particular developmentalist fashion became an integral component of this modernising developmental logic (Bakker 2003). To the extent that water was identified as a potentially major resource for irrigation or energy purposes, a powerful political-economic elite emerged around its mobilisation and transformation. In the process, particular power geometries developed and became consolidated, relations that produced, simultaneously, an interconnected group of elites and a series of mechanisms of water exclusion and water stratification. In fact, as stated above, the elites never go without water, while water becomes also a potential basis for elite formation (Cans 1994; Kaika 2005). Invariably, the hierarchical bureaucratic state organisations through which this hydro-technical edifice became constructed and maintained shaped and produced also a stratification of access to and exclusion from water.

While many examples from around the world (India, Russia, China, Brazil, South Africa) could be cited, a classic example of this is Spain's hydro-structural modernisation during the 20<sup>th</sup> century and the particular power geometries that accompanied this process. I shall take this case as an exemplary case of the development of a particular articulation between state power, social power, and water engineering. The production of the modern Spanish waterscape started at the turn of the 20<sup>th</sup> century when a distinct discourse and rhetoric of modernization emerged. This modernization drive, which permeated through the whole of Spanish society, would generate the anchoring framework for key social, political, cultural and technical debates and practices until the present day. The modernizing desires of broad strata of Spanish society attempted to construct hegemonic, and apparently socially and politically progressive, visions through the social production of nature. Indeed, the history of Spain's modernization has been a history of altering, redefining, and transforming the very physical characteristics of its waterscape, a process that accelerated from the late nineteenth century onwards. At that time, Spain – belatedly, somewhat reluctantly, and almost desperately – launched itself on a path of accelerating modernization. Today, the country has almost 1200 dams, more than 800 of which have been constructed during the 20<sup>th</sup> century (see Figure 1). Not a single river basin has not been altered, managed, engineered, and transformed (del Moral Ituarte 1998). Throughout the 20<sup>th</sup> century, water politics and water-related social struggle and conflict have characterised the progressive modernization of the country. Water policy continues to be one of the most controversial and contested terrain in contemporary Spain (Swyngedouw 2006).



**Figure 1. Dam construction and Reservoir Water in Spain, 1910-2000**

From the turn of the 20<sup>th</sup> century onwards, water rapidly became a prime consideration in national political, socio-economic and cultural debates. Whilst other European imperialist countries were consolidating their geographical imperial expansion overseas at the end of the nineteenth century, the traditional Spanish elites found themselves in a highly traumatic condition with the loss in 1898 of their last colonial possessions, Cuba, Puerto Rico, and the Philippines, after a disastrous “War of independence” (Carr 1995) (Figuro and Santa Cecilia 1998). Faced with a mounting economic crisis, growing social tensions, a rising bourgeoisie in the North, and an antiquated and still largely feudal social order in the South that was lamenting the imperial defeat, Spanish emerging progressive cultural, professional, political, and intellectual elites were desperately searching for a way to revive or to “regenerate” the nation's social and economic base. This drive to revive the nation's “spirit” became known as ‘el regeneracionismo’ (Fusi and Palafox 1989). Emerging from growing discontent from the 1870s onwards, regeneracionism became associated with a movement, the “Generation of ‘98”, a loose group of intellectuals and modernizing elites that were particularly concerned with reviving and modernising Spain in the context of the twin drama of internal disintegration and the loss of external imperial power.

In the absence of an external geographical project as the foundation to modernization, the Spanish modernizing elites concentrated on a national program that would be equally geographical but founded on the radical transformation of Spain's water resources (Gómez Mendoza and Ortega Cantero 1987). This national geographical project would revolve around the hydrological/agricultural nexus. Spain's “perturbed hydraulic imbalance” became the axis around which both the socio-cultural and economic malaise was explained, and where the course of action resided. It permitted progressive elites to raise social problems (class struggle, economic decline, mass unemployment) as important issues without formulating them in class terms. This, in turn, enabled the formation of an initially weak, but gradually growing, coalition of reformist socialists, populists, industrialists, and enlightened agricultural elites into a hegemonic block with a modernist vision of Spain's future - an alliance aimed to defeat the traditionalists and keep revolutionary socialists and anarchists at bay. Although coalitions, objectives, and means would change over time, the hydrosocial basis for modernization would remain the guiding principle for this hegemonic vision that would become the pivot of Spain's development until the end of the fascist Franco regime (Swyngedouw 1999).

This project to remake Spanish geography as a part of modernization combined a decidedly political strategy, a particular ideological vision, a call for a scientific-positivist understanding of the natural world, a scientific-technocratic engineering mission, and a popular base rooted in a traditional peasant rural culture. Plenty of evidence can be found for this in the work of Joaquin Costa and in that of his contemporaries (for a review, see (Ortí 1984)). The revolution in the state - but certainly not of the state - effected through a politics of spatial and environmental transformation, would centre around the defence of the small peasant producer-cum-landowner, state control and ownership of water, educational enhancement, technical-scientific control, and the leap to power of an alliance of small-holders and the new bourgeoisie that hitherto had been largely marginalized by the aristocratic land-owning elite and their associated administrators in the state apparatus. At the same time, the focus on restoring or, in fact, expanding land-ownership through “internal colonization,” fostered growth in and concentrated the efforts of an “organically” organized state that brought together reformist intellectuals, some worker movements,

and the nascent industrial bourgeoisie in a more or less coherent vision of reform against the traditionalists (Ortega 1975). The sublimation of the many tensions and conflicts within this loose alliance of reformists, when accomplished through a focus on re-organizing Spain's hydraulic geography, served the twin purpose of providing a discursive vehicle to ally hitherto excluded social groups without defining the problem purely in class or other conflictual social terms. This organic and anti-revolutionary (in social class terms) reformism in which the state would take centre stage to organize the socio-spatial transformation would, after the failed attempts to initiate reform during the first few decades of the twentieth century, provide a substratum on which the later falangist, organicist and fascist ideology would thrive.

In sum, the regeneracionist agenda(s) firstly maintained that the restoration of wealth in Spain should be based on the knowledge of the laws and balances of nature; secondly, this restoration required the correction of defects imposed by the geography of the country and particularly its “imbalances in its climatic and hydraulic regimes” (Gómez Mendoza and Ortega Cantero 1992); and, thirdly, this enterprise of geographical rectification could, because of its range and importance, only be carried out by the central public authorities. The hydraulic mission was seen as the solution to the social problems facing Spain at the turn of the century. Failing this, social tensions were bound to intensify and struggle, if not civil war, would be the likely outcome. Ironically, of course, the voluntarist, powerful, and autocratic hydraulic engineer pursuing a program of imposed reform foreshadowed the fascist (falangist) ideology. The latter would gain momentum from the early nineteen twenties onwards, first with the dictatorship of Primo de Rivera and, later with Franco. The failure of the hydraulic politics in the early decades of the twentieth century announced what the ‘progressive’ elites had feared and desperately tried to prevent. Although the debates at the turn of the century indicated a desire to regenerate Spain, conservative forces prevented its actual implementation and social tension intensified, further destabilizing an already highly fragmented and divisive society.

The centralizing fascist regime that emerged from this turmoil after the civil war of 1936-1939 could finally push through the production of a new hydraulic geography, a new nature and a new waterscape, something the regeneracionists of the turn of the century had so desperately advocated, but failed to accomplish. As Figure 1 shows, the great expansion of dams and reservoirs, both in number and capacity, took off particularly during the second half of General Franco's rule (see (Swyngedouw 2006)). Over the 35 years of his rule, the number of dams grew from about 180 in 1939 to over 800, the reservoir capacity expanded exponentially. In addition, by the time he died, the backbone for a nationally integrated system for inter-river basin transfers, that would permit considering the hydrosocial cycle as an integral and unitary national cycle (Hernández, 1994: 15), was under construction (the 1,000 Hm<sup>3</sup> Tajo-Segura water transfer).

There are clearly two phases in the making of the fascist hydro-social landscape. The first period, between 1939 and 1955, characterised by a sustained rhetoric of the urgent need for expanding irrigation through the construction of state led grand hydraulic works but with few real achievements. While 106 new dams were built between 1941 and 1955, the capacity of reservoir water only rose from about 4,000 hm<sup>3</sup> to 8,000 hm<sup>3</sup>. The acceleration of the remaking of Spain's hydro-social network would have to wait until a repositioning of the geo-political relations and their associated political economic networking and flows of capital, expertise, and steel would take a radical turn after 1953. As geo-political alliances with the US were restored and investment and aid capital began to flow back into Spain, the ambitious

hydraulic vision could be finally realised. This moment would indeed prove to be a 'watershed' in terms of permitting the realisation of Franco's hydro-vision for Spain. After the mid fifties, there seemed no limit on the 'progress' made to produce a radically different Spanish waterscape, one that would find its ultimate realisation in the construction of the first large inter-river basin transfer scheme. Between 1955 and 1970, 276 dams were built with reservoir capacity skyrocketing to 37,000 hm<sup>3</sup> by 1970 and to 42,000 by 1980. Mega-dams built during this period massively increased the regulatory, hydro-electrical and irrigation capacity of Spain. In his speech to commemorate the 20<sup>th</sup> anniversary of 'Our Movement' and 'The Victory', Franco himself insisted how his "great hydraulic and irrigation works are changing the geography of Spain". The backbone of the national system would be the first large inter river basin water transfer scheme, the Tajo-Segura project. It does not come as a surprise, then, that towards the end of Franco's life, he was seen as the great master dam builder. The Chairman of the Spanish and International Commission on Large Dams saluted Franco, in 1971, in a speech presented to him, as "the great builder of great dams and an example, unique in the world, of a statesman who creates the hydraulic foundations for the progress of his people" (Torán 1971). Franco had indeed directed and overseen the complete socio-hydraulic revolution of Spain. Of course, this achievement depended crucially on the loyal support of a series of powerful interlocked national and international 'networks of interests' and coalitions (Melgarejo Moreno 1995) (Swyngedouw 2006). They often overlapped partially, were occasionally antagonistic, and required careful massaging and 'managing' within an overall 'Falangist' programme and ideology.

The revolutionary geographical re-ordering of Spain, articulated through the remaking of its hydraulic technonatural configuration, mobilised discursive, symbolic, and material processes and enrolled H<sub>2</sub>O in a specific manner. This assemblage was made possible and held together by the re-making of national and international scalar networks of power. These networks effectively marginalised or repressed those who dissented. During Franco's regime, any kind of opposition, even of the mildest kind, resulted invariably in serious bodily consequences (imprisonment, exile, forced labour, torture, even execution). Franco's project literally produced a unitary national territorial complex, a feat predicated upon eliminating dissenting political voices, regionalist impulses and alternative configurations. While the final quarter of the 20<sup>th</sup> century showed a perplexing reshuffling of the social and political relations of and in Spain, the Franco legacy of course proved resilient to change as vested interests and existing power geometries tried to hold on to their powers. The Hydraulic engineers and bureaucracy, and the agricultural and Southern elites wished to perfect the system initiated by Franco, but, of course, the actors around the hydrosocial nexus began to multiply as democracy took root after 1978. The voices of regionalists, the actions of environmentalists, the financial might and regulatory order of the European Union are increasingly entangled with newly enrolled actants such as birds, wetlands, sediments, and local cultural rights, demanding new and different forms of water organisation and forcing new networked arrangements, around which radically different socio-environmental and technonatural projects crystallise (see, for example, (Fundación-Nueva-Cultura-del-Agua 2005)).

In Franco's hydrosocial vision, the political and the technical, the social and the natural, become mobilised through and etched in spatial arrangements that shape shape distinct social and technonatural landscapes (that produce many of the strawberries, tomatoes or salads consumed in the rest of Europe or the landscapes of recreation on the Spanish costa). They are simultaneously heroic achievements

expressing a modernising desire, the legacy of a brutal authoritarian regime, and the pain and suffering of millions of unnamed workers and peasants. It is also on this edifice and in the interstices of their enduring power assemblages that presently a range of new socio-ecological movements, innovative political visions, new institutional arrangements, and alternative socio-technical projects are debated, framed, envisaged, and struggled for. More importantly, Spain's example illustrates how state power, the mobilisation of particular elite interest, and hydrosocial development fuse together in particular ensembles of power, predicated upon the control and transformation of the terrestrial hydrological configuration.

While this example suggests the relation between state power, political project, and hydraulic interventions and transformation, a relationship that is present in most countries around the world, the fundamental axis around which the water nexus is organised -- as exemplified above by the role of US capital flows to Spain -- remains of course the availability of and access to capital. This is what we shall turn to next.

### **3.2. Water, Money and the City.**

Ultimately of course, the power question is structured primarily through the money nexus. This is particularly true in urban contexts where money is the main intermediary in transacting and regulating the exchange of water (Goubert 1989). The money/water nexus will be explored using a variety of urban examples from around the world. 'Thirsty Cities' are a growing problem in Third World contexts (Anton 1993). Nevertheless, the complex web of the "Metabolism of the Cities" (Wolman, 1965: 179) surely relies on an incessant flow of water through the veins of the city. It is not surprising, therefore, that intense social and political struggles around water characterise the world's urbanisation processes.

It is, of course, fairly trivial to say that the urbanization process is predicated upon myriad socio-ecological transformations that affect the geographies of places both nearby and far away (Cronon 1991). This intense socio-environmental transformation is required to 'sustain' the dynamics of contemporary urban change, resulting in the formation of various new environments -- from concrete urban landscapes to aquatic eco-systems around reservoirs. The process of urbanization is both a historically specific accumulation of socio-environmental processes and the arena through which these transformations take place. Water has always possessed powerful connotations and conveyed important symbolic messages. 'Naturalness', virginity, healing and purification have often been associated with water, while water spectacles have in many ways testified to the power and the glory of various kinds of (urban) elites (Moore and Lidz 1994). For example, the cultural links between female nudity and the tap water of the bathroom began to be formed in the second half of the 19th century, as the sprinkling of water from an intricately engineered network of pipes over the naked (female) body within the intimacy of the private bathroom became part of the fantasy of sexual intimacy (Illich 1986). Simultaneously, water became a commodity, expressing the social relationships within the space through which it circulated and to which it gave form and content. The biological necessity of water ensured that urbanisation was predicated upon organizing, controlling and mastering its socio-natural circulation. For example, in Mexico City, 60 per cent of all urban potable water is distributed to 3 per cent of the households, whereas 50 per

cent make do on five percent. In Guayaquil, 65 per cent of the urban dwellers receive 3 per cent of the produced potable water at a price that is at least two hundred times higher (20,000 per cent) than that paid by the low volume consumer connected to the piped urban water network (Swyngedouw 2004). The mechanisms of exclusion from and access to water manifest the power relationships through which the geography of cities is shaped and transformed ((Bennett 1995).

Cities first became dependent on water flowing through aqueducts that pierced the city wall, or from wells penetrating the earth. Nine major aqueducts, with a total length of over 400 kilometres, supplied approximately 400 litres of water per capita per day to ancient Rome, which had a population of approximately a million by 100 A.D. However, one fifth of this water was assigned to the emperor, whilst another two-fifths fed the city's 591 fountains and dozen public baths. In contrast, in 1823, London, Frankfurt and Paris had 3 litres per capita per day, a figure which had only risen to approximately 40 litres by 1936 (Mumford 1961); a volume less than that found in many cities in the colonial or post-colonial world at that time.

### *3.2.1 The invention of circulation and the power politics of the body*

The concept of 'water circulation', with water following a given path into, through, and finally out of the city by the sewers remained foreign to western urban imaginations, spatial representations and engineering systems until the 19th century. Modern urbanization, highly dependent on the mastering of circulating water, is linked with the representation of water as a circulatory system. By the mid 19th century some British architects begin to speak of the inner city using the same metaphor of circulation, and in 1842 Sir Edwin Chadwick formulated the ideology of circulating waters effectively for the first time (Chadwick 1842). In his report, Chadwick imagined the new city as "a social body through which water must incessantly circulate, leaving it again as dirty sewage". Water ought to 'circulate' through the city without interruption to wash it of sweat, excrement, and waste. The brisker this flow, the fewer stagnant pockets that breed pestilence there are and the healthier the city will be. The 'bacteriological city' of the late 19<sup>th</sup> century (see (Gandy 2004)) turned the attention of the elites to the fate of the urban poor. Turning the total city into a hygienic space became a necessary condition to sustain the elite's health. Unless water constantly circulates through the city, pumped in and channelled out, the interior space imagined by Chadwick can only stagnate and rot.

This representation of urban space as constructed in and through perpetually circulating flows of water is conspicuously similar to imagining the city as a vast reservoir of perpetually circulating money. In fact, Chadwick's papers were published under the title *The Health of Nations* during the centenary commemoration for Adam Smith (Chadwick 1887). Like the individual body and bourgeois society, the city was now also described as a network of pipes and conduits. The brisker the flow, the greater the wealth, the health and hygiene of the city would be (Vigarello 1988). Just as William Harvey redefined the body postulating the circulation of the blood, so Chadwick redefined the city by 'discovering' its needs to be constantly washed. And of course, Baron von Haussman, the engineer who masterminded the reorganisation of Paris' cityscape also successfully mobilised the metaphor of 'circulation' to impress and convince the city's leaders of the necessity of his grandiose project (Gandy 2004); a project that would permit all sorts of flows, from sewage to people and commodities, to move more swiftly through the city. Later, David Harvey would analyse the circulation of capital and its urbanization as a perpetuum mobile

channelled through a myriad of ever-changing production, communication, and consumption networks, driven by a motley crew of financial speculators, profit seeking capitalists, visionary urbanists, and enlightened elites striving to modernise and 'civilise' urban life (Harvey 1985).

The image and practice of water, now disciplined and harnessed in circulatory urban water systems, was profoundly transformed. Defecating became a sex-specific activity for the first time in history towards the middle of the 18th century, as separate latrines for men and women were set up – but only for special occasions (Corbin 1994). At the end of that century, Marie Antoinette had a door installed to her lavatory, thus turning the act of defecation into an intimate function (Illich 1986). The degree to which it is practiced in private also signals a certain social status and an embracing of superior civic morality (Vigarello 1988). On 15 November 1793, the French revolutionary convention solemnly declared each man's right to his own bed, thus enshrining the right to be surrounded by a buffer zone protecting the citizen from the aura of others. The private bed, stool and grave became requisites of a citizen's dignity. Children began to learn that hygiene and sanitary activities are a solemn, private process (Goubert 1989), again indicating a profound re-definition of the self and the body in the 'utopian' urban space.

The toilette of the whole city was undertaken in parallel with the privatisation of body relief and the attempt to retrench people's auras, reducing each other to an odourless point in the new civic space. This culminated in the modern design principles of Le Corbusier, heralding clean air, ventilation, pure water and treated sewage (Kaika and Swyngedouw 2000). Water became a detergent of smell, as one could move up the social ladder only through eliminating body smells. It was not until the 19th century that soap became associated with body laundry and the social repression of smell became an element in the class struggle of the elite in search of 'cultural capital' to distinguish themselves from the 'smelly' commoners. Shortly afterwards, perfume and the 'domestication of aura' (Illich 1986) became employed in the act of seduction, no longer merely covering body smell, but artificially providing secondary sexual characteristics to the new 'human' body. Like so many other characteristics -- including work, health, and education -- smell, too, is henceforth conceived as an abstract quality that is 'naturally' polarized into a female and a male type: she smells of violets and roses and he of leather and tobacco. The toilette came to mean a tub bath, and around 1880, the industrial production of enamel paints replaced expensive copper with iron or zinc vessels and brought the tub within reach of simple families (Wright 1960). 'Toilette' retired behind closed doors (together with perfuming, shitting, and shaving), and began to involve the flow of tap water to carry soapsuds and excrements to the sewer (Goubert 1989). When the first urban water system in Guayaquil was installed, for example, the urban elites brought finely decorated lavatories and washing bowls from their trips to Europe to testify to their newly acquired sanitised civic conditions. Lower classes and indigenous people visited the houses to marvel at these symbols of a new elite urban order. The total bathroom was not installed overnight. It is revealing that the place in which the modern body is integrated into the circulation of city waters is called the 'bath'-room. The choice of this term indicates that the identification of nature and the nude, which Ingres, Courbet, Degas, and Renoir had painted as taking place in rivers, under waterfalls or in an 'oriental' hamam, was actually performed in the intimacy of the toilette (Illich 1986: 66). Public space became increasingly hydrophobic and the public body in the western city desperately tried to cover itself to protect it from

public waters and public gazes alike. Indeed, as (Vigarello 1988): 216) attests, ‘the exclusion of others became an obligatory element in the cleanliness of the elite’,

In sum, the increasingly commodified domestication of water announced the withdrawal of the urban elite body and bodily hygiene from the public or semi-public sphere and its retreat into the privacy and intimacy of the bathroom and the toilet. The hydrophobic public spaces were replaced by hydrophilic private spaces as bodily encounters were relegated to specially designed places. This, in turn, redefined the body and bodily relations. Nudity and exposing the naked body to the ‘elements’ became improper and uncivilised. The new sanitised and de-odorised (washed) urban body in a sanitised urban public civic space redefined both class and gender relations. Images of (predominantly female) sexuality began to revolve around the secrets, intimacy and eroticism associated with the bathroom, the toilet and the sprinkling of domesticated water over the naked body (Corbin 1994). Of course, the newly de-odorised urban body, embodying quite literally a new civic, modern-urban ideal, carried by an urban bourgeoisie that was becoming quickly self-confident of its new role, became re-odorised in new ways, expressing cultural distinction and power differentiation (Bourdieu 1986). But this new urban civic body also separated the sanitised bodies of the new urban elites from the peasant reeking of manure and the sweaty proletarian. Class and gender relations became impregnated with smell and odour and the body aura became an element in cultural and social differentiation and power relations. Domesticated and purified water was seen as ‘good’ water, external and ‘public’ water as ‘bad’ water, but also as waters that could be used as a reservoir for waste (Kaika and Swyngedouw 2000).

Urban waterworks signalled this new class and gender differentiation. The mechanisms of exclusion from and access to *unlimited* quantities of potable water were cemented into the water engineering system itself and remain like this until this very day. In Third World cities, for example, the colonial or early post-colonial elites, clustering around the water reservoirs, had and have unlimited access to water, which in addition to the above cultural distinctions, turned this into significantly longer life expectancy and into valued symbols of cultural capital and social power. In many developing cities today, permanently irrigated tropical gardens separate the often militarised urban oases in the gated communities of the elites from the urban desert that surrounds them, fountains in the courtyards testify to their social position. Images of the smelly peasant and un-hygienic indigenous population re-enforce the position of water as an integral element of social power in the city and part of the process of the urbanization of nature. Nevertheless, water-related illnesses and deaths remain the major cause of infant mortality for most of the world's population. In short, the urban ecological conquest of water and the fusion of water circulation with the urbanization process, its commodified domestication and related processes of access to and exclusion from access brought water squarely into the realm of urban social power.

### *3.2.2 Social power and water control*

The domestication of water and the privatisation of bodily hygiene were predicated upon and paralleled by an increasing commodification of water. The urbanisation of water necessitated both ecological transformation (capturing water from underground aquifers or distant watersheds, engineering its flow, negotiating geo-political relations, transforming its chemical and biological properties and so

forth) *and* social transformation. Indeed, the very homogenisation and standardisation of 'potable' urban water propelled the diverse physical, chemical, and biological 'natural' flows and characteristics of nature's water into the realm of commodity and money circulation with its abstract qualities and concrete social power relations. 'Potable' water became legally defined and standardised. Bio-chemical and physical treatment (adding or extracting substances) was required to homogenise water according to 'scientific' politically and socio-culturally defined norms that were enshrined in binding legislation. Homogenisation, standardisation, and legal codification are essential to the commodification process.

The urban conquest and commodification of water brought H<sub>2</sub>O squarely into the sphere of money and cultural capital and its associated power relations, and redrew socio-natural power relations in important new ways. The use of water cleansing the body and the use of water for the 'toilette' of city spaces go hand-in-hand. The urbanization of water through vast engineering systems of potable water production, conduction and distribution became an inherent element underpinning the urbanization of society in the 19th and 20th century. The modern city had become a rhizome of networks and conduits.

The 'modern' engineering systems through which water is mastered and becomes commodified demand large capital investments with installations that have a long life span (sometimes 50 to 100 years) and an immense infrastructure system that guides the circulation of water in an interconnected way over a large scale, often covering entire regions (Montano and Coing 1985). It is clear that such a system requires some form of central control and a co-ordinated, combined but detailed division of labour (see (Worster 1985)). In addition, the quantity, quality, and regularity of the circulating waters are determined by the weakest link in this detailed technical and social division of labour. Sufficiently large amounts of capital have to be amassed and sunk into the construction of s fixed infrastructure systems with long turnover times and relatively low returns. Circulating capital had to be captured and organised in fixed physical infrastructures that would permit the 'free' circulation of clean water (as well as of the waste waters). The early private capital based urban 'watering' initiatives were gradually replaced by primarily state-funded investments in public water works, managed by large public or mixed public-private companies (Lorrain 1995)(see below).

In addition, the processes of water production, conduction, and distribution are necessarily spatially structured, shaping and being shaped by urban and regional physical and social geographies. Producing and providing water is essentially and necessarily a deeply localized activity, while transporting bulk water is a difficult -- and costly -- process. This double tendency of modern water systems towards centralization and central control on the one hand and the necessarily localized character of all parts of its circulation process on the other, works itself out in very contradictory and conflicting ways as will be documented in our case-study of Guayaquil below. Although geo-climatic conditions such as the availability and type of natural water resources and pluvial regimes, as well as settlement patterns, are of a great importance for the organization of water management systems, these physical characteristics cannot be separated from the organization of human relations. Indeed, the relative scarcity of usable water will only influence the mode of water management to the extent that social groups will enter into competition for its utilisation and that relations of co-operation and relations of power will translate themselves into specific institutional, managerial and technological systems (Anton 1993). (Montano and Coing 1985) summarize this succinctly:

‘The management of water is, therefore, always the result of the social relationships which crystallise around its appropriation and its usage. It varies in function of both the geo-climatic constraints and the relationships of power between users’.

The social struggle around water is evidently the result of the deeply exclusive and marginalizing political, economic, and ecological processes that drove the expansion of the city. The urbanization process is predicated upon the mastering and engineering of nature's water, with the ecological conquest of water as a necessary pre-requisite for the expansion and growth of the city. At the same time, the capital required to build and expand the urban landscape is also generated through the political-ecological transformation of the city's hinterland. Indeed, the capital required to build water systems, particularly in the developing world, has to be generated by means of producing exportable goods in exchange for hard currency. The city's growth, and the process of water urbanization are closely associated with successive waves of ecological conquest and the extension of the urban socio-ecological frontier. Local, regional, and national socio-natures are combined with engineering narratives, economic discourses and practices, land speculation, the geo-politics of water, and global money flows. Investments in bottled water companies, speculation in water-industry related financial instruments and global/local hydrological cycles fuse together in the production of hybridised waters and cyborg cities. Water circulation and the urbanisation of water thus become deeply entrenched in the political-ecology of the local and national state, the international divisions of labour and power, and the local regional and global hydrological climatic cycles.

In short, the urbanisation of water and the social, economic, and cultural processes associated with the domestication of water brought access to nature's water squarely into the realm of class, gender, and cultural differentiation and made water subject to an intense struggle for control and/or access. The commodification of water, in turn, placed the circulation of water directly in the sphere of money circulation, which consequently made access to water dependent on positions of social power, both economically and in terms of gender and culture. Although the particular geographical and institutional configurations vary significantly from city to city and from country to country depending on the particular combination of physical and institutional factors, the 20th century urbanization process and the accompanying expansion of water use significantly affected the spatial choreography of urban water circulation (Graham and Marvin 2001). For each expanding city, the physical-territorial basis on which the successful watering of the city rests needs to expand as the city grows, in quantitative as well as in qualitative terms. Either new untapped water reserves have to be incorporated in the urban water cycle or existing water supplies tapped more intensely. In the case of aquifer water, this leads either to a problem of generalized over-pumping which outstrips the natural recharge capacities of aquifers or to a gradual decline in the quality of aquifer waters (as, for example, in the case of Mexico city (see (Castro 2006))). The geographical expansion of the ecological footprint of urban water not only transforms places and environments far removed from the city, but also intensifies conflicts with other users over limited water supplies. From the vantage point of the early 21st century, there is increasing evidence that the sustainability of urban development was bought at the expense of an expanding water frontier and of geographically widening the sphere of impact of the

urban water cycle, leading to socially conflicting and socio-ecologically unsustainable practices of expanding resource extraction and intensified struggle for control or access.

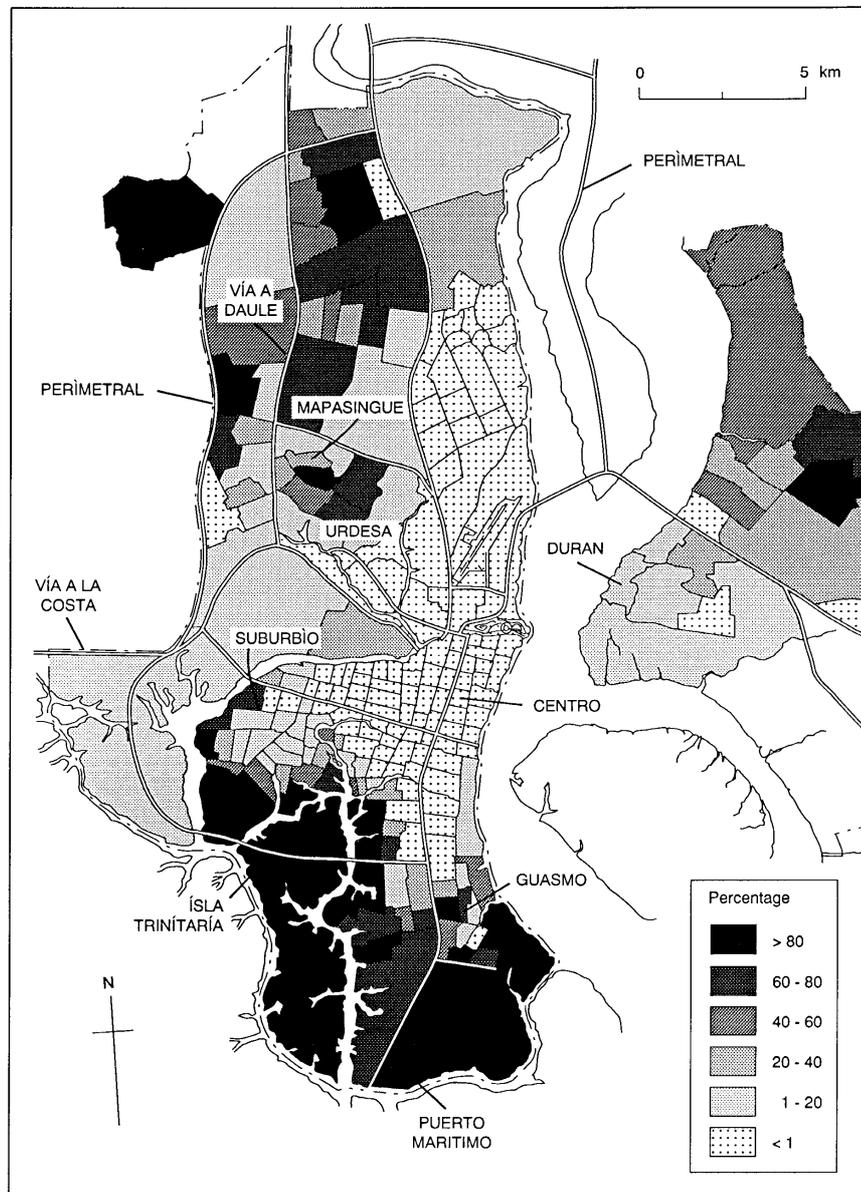
### 3.2.3 *An example: Guayaquil, Ecuador*

In what follows, we seek to document and analyse the historical geography of water control in the context of Guayaquil's urbanization process in order to unravel the relations of power that are inscribed in the way the urbanization of water/nature unfolded. We shall indicate how the urbanization of water and the capital required to build and expand the urban landscape itself are dependent on the political and ecological transformation of both city and countryside. In short, the political and ecological history of Guayaquil's urbanization process will be written from the perspective of the need to urbanize and domesticate nature's water and the parallel necessity to push the ecological frontier outward as the city expanded. We shall further explore how the circulation of water is embedded in social power relations that operate through and are expressed in the combination of political and ecological processes. Indeed, we maintain throughout the story that the political/social/economic cannot be separated from the ecological in understanding the urbanization process. Particularly in cities that have a problematic water supply condition, mechanisms of exclusion from and access to water lay bare how the transformation of nature through urbanization is infused with relations of power.

Guayaquil, Ecuador's largest and most powerful city located on the Pacific coast, suffers from a seriously socially uneven access to potable urban water, like many other cities in developing countries. 38% of its two million inhabitants do not have access to piped potable water, and depend on private vendors who sell water at a massively inflated price. Publicly supplied water costs approximately three cents for 1000 litres, while private water vendors charge three dollars. As a result, an intense social and political struggle, enacted at bodily, neighbourhood, urban, regional, national, and international scales, unfolds over access to and control over the city's water resources. The uneven power relationships that have shaped Guayaquil's urbanisation process are thus etched into the circulation of urban H<sub>2</sub>O (see (Swyngedouw 2004) (Figure 2).

Clearly, the urbanization process itself is predicated upon the mastering and engineering of nature's water. The ecological conquest of water is, therefore, an integral part of the expansion and growth of the city. At the same time, the capital required to build and expand the urban water landscape itself is, at least in the case of Guayaquil, generated through the political-ecological transformation of the city's hinterland and the successive incorporation of both expanding water volumes as well as new forms of socio-ecological metabolism. The city's growth has required a progressive geographical expansion of its water footprint. As more migrants flocked to the city, water systems had to move further away from the city in search of new or additional water resources. Simultaneously, the financing of these capital-intensive projects, whose technology was invariably imported from abroad, necessitated the generation of sufficient foreign currency and, consequently, a sound export-based economy. These capital flows were generated initially on the basis of cocoa (circa 1890 – 1930), followed by bananas (circa 1950-1970) and oil (after 1972). When the urban water condition reached catastrophic conditions in the early 1990s, globalised privatisation became the new strategy. With each successive phase, the configurations of power at the local, regional, national, and international level became transformed

and re-articulated. In what follows, we shall explore the historical dynamics of the urbanization process through the lens of this double ecological conquest.



Map II. 1. Percentage of dwellings served by water lorries, 1990.  
SOURCE: INEC, 1990.

**Figure 2. Distribution of Households that have no direct access to the water network (percentages), Guayaquil, Ecuador, 1990.**

At the turn of the 20<sup>th</sup> century, the city's political-economic elites mobilised around a growing pre-occupation with the presence and role of water in the city. This paralleled a changing socio-spatial class position and a reconfiguration of the state apparatus. After independence (1830) and particularly after 1850, the early post-colonial society underwent significant socio-spatial changes as Ecuador was gradually transformed into an agro-export economy. This Ecuadorian development model originated with the expansion of world demand for and trade in cocoa around 1860. Cocoa accounted for 90% of total exports by 1890, and in 1904 Ecuador became the world's leading cocoa exporter (Aguirre 1984) (Chiriboga 1988). The coastal socio-ecological complex, originally mainly characterised by small scaled and a largely self-contained peasantry, had given way to immense cocoa plantations involving a variety of forms of waged work. The forced and rapid formation of a wage-dependent class, combined with a fast de-peasantisation process, fed growing demands not only for wage labour in the coastal plantations, but also for auxiliary waged functions in the city. Between 1896 and 1920, Guayaquil grew from 50,000 to 100,000 inhabitants (Rojas and Villavicencio 1988).

The rise of the emergent Guayaquileño metropolis was predicated on the transformation of nature and the integration of a new cocoa-based agricultural ecology in the process of commodity production and rent extraction. Countryside and city were both restructured through this socio-ecological conquest, which inserted the central coastal region of Ecuador squarely into a worldwide money-circulation process and produced the city as the nexus for rent appropriation and distribution. At the same time, the spatial scaling of political power was also redrawn. Through these political-economic and ecological shifts, the urban merchant bourgeoisie, in alliance with coastal landowners and cocoa producers, now controlled the city and the countryside and began to aspire for more national political influence. The coastal political elite increasingly challenged the hegemony of the traditional highland (Serrano) landed 'aristocracy' (Guerrero 1980). Eventually, the coastal 'cocoa' elite managed to 'jump scale' and displace the highland aristocracy from the helm of the national state apparatus.

In 1900, Eloy Alfaro, liberal Guayaquileño politician and president of Ecuador, declared the urban water project and other sanitary infrastructure a work of national importance, to be financed largely by the national state on the basis of taxes levied on cocoa exports. Between that moment and the 1930s, the urban water system was gradually extended, following, but lagging behind, the pace of urbanization. It became evident that the water frontier needed to be pushed outward in search of new exploitable water reserves, in order to redress the imbalance. The growth and expansion of the city could only be sustained by incorporating ever-larger parts of nature's geography into the circulation of money and profit upon which the city's continuing prominence crucially depended. This incorporation of new 'natural' waters into the urban water circulation process then enabled the extension of the material scale of the urban network. By the early 1930s, Guayaquil had a fully operational water system, with almost full coverage and connections, and 24-hour supply, a great success at the time and one the city would never be able to repeat again.

This successful watering of the city was very short lived however. The urbanisation of water slowed down dramatically as political power relationships began to shift in decisive new ways, particularly after the crumbling of the cocoa economy. By the end of the 1930s, the highly successful and hegemonic bourgeois growth coalition that had launched Guayaquil on a path of dependent modernisation had fallen apart. The collapse of the cocoa economy produced the first cracks in the

hitherto firmly allied coastal-regional elite alliance of cocoa producers, merchants and financiers. The socio-ecological opening up of Africa for world cocoa production, phyto-sanitary problems resulting from monoculture practices, and a dwindling demand for cocoa from Europe during the First World War negatively affected prices, productivity, and production. Cocoa revenues fell by 21% between 1917 and 1926, and cocoa output fell by 45%. The urbanisation of water stuttered during this period. Changing socio-ecological processes in the urban region were thus, in a myriad of intricate ways, related to and expressive of fluctuations on the world's commodities exchange markets and the vagaries of the international monetary system. The disintegration of the cocoa economy threw many agricultural semi-proletarian workers into unemployment and poverty, fuelling a mass migration to the city. The city experienced rapid population growth (182% between 1925 and 1950), mainly through urban land-invasions and the construction of informal settlements by impoverished former cocoa workers.

While the urban population expanded, the urbanisation of capital dried up, including investments in collective infrastructure. The resulting slowdown in the urbanisation of water in the context of an expanding population led to an acute water crisis by the end of the forties. Water problems would never really go away again. On the contrary, exclusionary water politics and water speculation by vendors would increasingly characterise urban struggles, becoming integral to the rituals of everyday urban life. The turbulent but lean years of the 1940s were followed, however, by the banana bonanza decade of the 1950s. The United States' fruit corporations, their plantations devastated by Panama disease, moved their centre of operations from Central American and Caribbean exporters to Ecuador. It was a cheap location, and the Panama disease had not moved that far south. The subsequent spiralling demand for bananas converted the coastal area of the country (La Costa) into large banana plantations with their associated socio-ecological relations. Banana export receipts exploded from US\$2.8 million in 1948 to \$88.9 million in 1960, accounting for 62.2% of Ecuador's total exports (Grijalva 1990; Hurtado 1985). This 'banana-bonanza' was organised through a new political-economic and ecological transformation. The ecological frontier for agricultural export production around Guayaquil was pushed further inland, radically altering the scalar social and physical ecology of the urban-rural complex and incorporating ever-larger areas into the global circulation of money. Although smallholdings predominantly organised actual production, its commercialisation was concentrated in very few hands, combining a tiny regional-national comprador elite with U.S. global fruit-trading companies (Báez 1985). This banana colonisation prompted mass migration to the coastal areas, catalysing further rapid growth of Guayaquil, whose banana-dependent financial and service economy expanded rapidly (Carrión 1992). Between 1950 and 1974, the city's population grew from 200,000 to over 820,000.

In 1947, a new source for drinking water for Guayaquil surfaced as the next target to harness, the river Daule, but it would take until the 1950s banana boom before these plans could be realised. Together with its expanding role as a water source for irrigation projects in the region, the flow of the Daule was to be diverted, transformed and commodified. Banana-export earnings, combined with a reverse flow of money from the U.S., were welded together with the flow of Daule water to circulate through the veins of the city, reshaping its landscape. But thus material flow of H<sub>2</sub>O, combined with and running through physical and social urban space, was just one node in an articulated whole of processes operating on a regional, national and, indeed, world-wide scale: flows of transformed nature, commodities (bananas) and

money; transfers of capital; and the buying and selling of labour power. The city would be transformed once more, with the political-economy of urbanization deeply caught up in the progress of the urbanization of water. The improved credit-worthiness (bankability) of Ecuador led to increased international lending and a growing dependency of state utilities on external financing (see (Swyngedouw 1995)).

This new scalar configuration of the water/banana nexus came to an early end beginning in the early 1960s. In the 1950s, a new and more resistant Banana variety, the Cavendish, was developed, allowing the fruit companies to switch their operations back to the more favourably located Central American locations, closer to 'home', more reliable and under greater direct control of the U.S. state. This bio-engineered and phyto-technologically more demanding 'Chiquita' banana (León 1992) was heavily commercialised internationally and undermined the economic position of the traditional Ecuadorian 'Gross Mitchel' banana type. Only large Ecuadorian producers, connected to international merchants and fruit companies, were able to adjust ecologically and socio-economically to the requirements of the new cultivation, production and marketing techniques. Total banana export value fell from US\$ 88.9 million in 1960 to \$ 51.5 million in 1965, recovering (nominally) to \$ 94.3 million by 1970. This overaccumulation of bananas wiped out thousands of small and medium sized producers, who joined the ranks of the urban underclass (Báez 1985). The banana crisis again broke the coastal elite's partially restored power position. The state, in turn, was pushed to face the stagnant export position of Ecuador, as external debt rose rapidly.

The exploitation of Amazonia's huge oil reserves in eastern Ecuador after 1972 signalled a new wave of rent extraction and redistribution. Existing socio-spatial and scalar relations were overhauled once more, as the actors organising the petroleum-boom produced a new set of scalar configurations. The ecological conquest of fossilised nature beneath the Ecuadorian Amazonian rainforest was, and is, exclusively based on international petro-capital. In contrast to the two earlier waves of agro export-based integration into the international market place (cocoa and bananas), mainly organised through the intermediation of a domestic commercial and financial oligarchy, this time the national state assumed the role of key interlocutor in organising the global-local articulation of oil. Indigenous Amazonian peoples were legally dispossessed, as the state became the *de facto* and *de jure* owner of the country's 'natural' resources (Farrell 1989). This would, of course, put the state in the pole position in terms of organising the insertion of Ecuador into the global political economic framework, inevitably also turning the state apparatus into a major arena for social struggle. Oil revenues, partly monopolised by the state, triggered continuous political power conflicts over the control, appropriation, and direction of the new investments that now became possible. In addition, the oil-boom attracted considerable attention from foreign investors (mainly in services and banking). The majority of this private investment was increasingly attracted to the inland capital city of Quito, rather than Guayaquil, which had the advantage of proximity to key national and international power brokers.

This time, the expansion of the ecological rent frontier was directed eastward into the Amazon basin rather than in the coastal regions. Oil, quite literally, flowed to the coastal port (for export) over the Andes through a newly constructed oleoduct, becoming transformed into money and capital. Quito became the country's leading political and now increasingly international financial centre, leaving Guayaquil behind in its past, but now dimmed, glory. The oil rents appropriated by the state were reinvested, in turn, with an eye toward domestic industrialisation (Bocco 1987),

mainly in all sorts of infrastructure, from expanding port facilities, new freeways to airports, and a military built-up. Oil rents also served to augment the ecological basis on which the city's sustainability was predicated, including widening the scale and scope of water control. The pumping, treatment, and conduction capacity of Guayaquil's water system was increased substantially (reaching 1,500 million m<sup>3</sup> in 1995), taking ever more water from the Daule river and its tributaries. The expansion of the water system was largely financed from international loans, secured by promises of a continuing oil-boom, but a significant part of the urban population was deprived from easy access to potable water. The socio-economic crisis of the 1980s had led to a massive explosion of the city to over two million people, particularly in marginal estuary settlements and on the hills surrounding the old city. The lack of attention to water distribution and the absence of a piped network resulted in chronic problems of access to water for the urban poor and fostered a thriving private water economy.

This institutional water chaos, enduring problems with water delivery, and the socially produced 'scarcity' of water began to feed a discourse of liberalisation and privatisation in the early 1980s, with calls for a radical shift in water governance become increasingly loud from the early 1990s onwards. In addition, the neo-liberal policies that swept through Latin-America, combined with the structural adjustment policies and requirements for de-regulation as conditions for international lending set by the world's leading financial institutions produced a political, social, and economic environment that pushed, slowly and originally imperceptibly, for greater private sector participation and investment in the water sector. By the mid-1990s, it became abundantly clear that Guayaquil and Ecuador would follow the clarion call of the international political and economic elites. They set off on a course of privatisation, a trajectory that had now been hegemonically presented as offering the panacea for what had become a really intractable problem. Of course, there is nothing inevitable about privatisation, which is, in fact, a carefully orchestrated process by the State, usually in conjunction with international organisations that shapes the political, economic, and institutional conditions that eventually lead to a wholesale overhaul of the public services. In addition, selected media join the chorus to chant the virtues of privatisation and hail this as the panacea for all ills. Moreno Mendoza argues, for example, in *Vistazo*, a local magazine, how privatising water services will simultaneously deal with a recalcitrant labour force in the water company and solve the problem of informal 'tanquero' water vending in the suburban areas (Moreno Mendoza 1998).

A US\$40 million loan from the Inter-American Development Bank to the government of Ecuador specifically required the privatisation of the water company in order to 'improve the water and sanitation services to the city of Guayaquil'. In fact, the loan included provisions to grant a long-term concession to the private sector to "promote greater efficiencies of these [water and sewerage] services and investment in the system" (Inter-American-Development-Bank 1997). The loan was granted to enable the utility to undertake technical, legal, and financial studies to prepare bid specifications to award the concession. The water company would be reorganized to function as an oversight and regulatory agency (with a massively reduced work force), while the private sector would be responsible for operating the system. Only half of the loan (US\$ 19.8 million) was earmarked for financing high-priority rehabilitation work to prevent further deterioration of existing infrastructure. The loan has a 25-year term at a variable rate, in 1997, of 6.9 per cent, and local counterpart funds totalled US\$ 10 million. International bids were solicited, but despite the fact

that Suez-Lyonnaise and Thames Water (RWE) pre-qualified, International Water was the only company to bid. In January 2001, the utility confirmed that International Water had been awarded a 30-year concession to operate and administer the city's waterworks. A local subsidiary, Guayaquil Interagua C. Ltda., was established through an investment company (International Water Services B.V.) based in the Netherlands.

International Water (IWL) is a truly global company. It originated in the early 1990s as part of a series of partnerships between North West Water (NWW) (now United Utilities (UU)) and Bechtel (50 per cent), the US construction company. Bechtel purchased NWW's engineering division and created a joint water venture in the USA, US Water. International Water was created as a joint venture operating internationally outside the USA or the UK. UU sold their share to Edison Spa, an Italian company, in 1999, but remained as the agreed 'operating partner' for International Water. IWL is globally active, with operations in, among others, Melbourne, Mexico City, and Sophia. It was also the contractor in the 'failed' privatisation of Cochabamba's water supply system. All workers of the formerly public utility were dismissed and selectively rehired by IWL. After long negotiations Guayaquil Interagua agreed to contract most of the former employees, to provide training to those hired, and assistance and training for those who would not be rehired. Both training programs were funded by an Inter-American Development Bank loan, through its Worker's Transition Program. However, the company broke the agreement and contracted only about 20 per cent of former employees. Workers were taking legal action against the company (Acosta 2002). The World Bank's Multilateral Investment Guarantee Agency (MIGA) signed a US\$ 18 million guarantee in March 2001, offering protection for the investment against the risk of expropriation, war, and civil disturbance, and also covers a performance bond. This was the first time that MIGA had guaranteed a water project (Multilateral Investment Guarantee Agency 2002), and it provides financial security from risk for the privatised water concession of IWL. Of course, ultimately, this risk is also covered by the public purse. IWL had a disastrous experience in Cochabamba, Bolivia, where the privatised company was re-socialised after massive public protests, which took on a national significance and almost toppled the government, with a number of people being killed by the police (Gleick et al. 2002). After this, it became increasingly necessary for the World Bank and other organisations to insure private investments in the water sector against such 'eventualities' that might jeopardise the long-term profitability of the investment.

In the privatisation contract, IWL offered to create 55,238 new connections in the first five years, achieve 95 per cent service coverage by year ten of the concession, and invest US\$ 520 million in the last 25 years of the period (Financial Times Information). It would be more than a miracle if they were able to achieve this. Operations of the private company started in April 2002. On 4 September 2002, it was reported that only 30 per cent of the customers pay their water bill. The price charged by the 'tanqueros' for a tank of 200 litres of water stands now at US\$ 0.80. After more than 100 years of some sort of public water supply, the Guayaquileño's are now drinking water supplied for profit. The water of the river Daule is now flowing through privately organised water systems that turn water into profits for globally organised private companies.

To summarize, the city of Guayaquil grew on the basis of successive ecological conquests and the appropriation of rents, from agricultural produce or the pumping of oil, through which money was continuously recycled and nature became

urbanised. The harnessing and urbanisation of water inserted water circulation squarely into the circulation process of money and its associated power relations and class differentiations. With each round of accumulation, the territorial scale of the socio-ecological complex changed and the scalar geographies of political power became re-articulated. A new configuration of elite would reorganise the socio-ecological configuration of the urbanisation process and shape the hydrosocial networks according to its own interests and logic. The socio-economic, political, and institutional nesting (from the local to the global) through which cocoa, bananas, and oil (either in a commodity or money form) flowed took new forms. In addition, the hydrosocial flow became transformed and restructured, and expressed and reflected the changing social, political, and economic power relations at a variety of nested and articulated geographical scales; urban, regional, national, and international.

## **4. The politics of exclusion**

The above political-ecological analysis of water provides the backbone to considering a series of further case studies. These cases will show how the fusion of political and economic processes produce particular hydrosocial conditions characterised by social power relationships that shape mechanisms of access and exclusion in systematic manners.

### **4.1. Guayaquil: State Power – Private Power**

The current highly unequal access to water for a large number of urban residents is directly related to the particular political-ecological history through which water became urbanised (see above). A multiplicity of power relations constituted a choreography of water access and exclusion that reflected the changing geometries of power. First, the historical origin of the water system already structurally embedded a process of subsidization. As it were the elites who, through taxes levied by the state (which the elites controlled given the limited democratic content of state power at the time) on their economic activities, paid for the construction and management of the early water system, they surely felt they should not pay twice for their water. While in recent years, subsidization has invariably been portrayed as an unsustainable practice that was primarily aimed at the poor, the water management model in most developing and colonial countries was in fact, from its very inception, a subsidized model for the elites and the rich. They were indeed paying for the services through taxation. The latter of course made the expansion of the system dependent on the relative success of the local economic elites within the international division of labour. When international geo-economic conditions were favourable, the water system expanded; when crisis hit, the system stalled exactly at a time that urban populations expanded rapidly and social polarisation intensified.

It is only from the mid 20<sup>th</sup> century onwards that water services begin to be extended to include the poor or non-serviced areas of the cities; areas that had begun to expand rapidly as the rural socio-economic fabric begins to disintegrate and large scale rural to urban migration starts. The subsidized model of water supply now becomes systemically dependent not only on state subsidies but also on external funding and international lending. Irrespective of the private or public nature of the water management system, similar processes can be found across the developing world. Latin-American urban water institutions are often faced with the problem of an operating situation that generates structural deficits. This is quite different from a subsidized model in that such a system would still run on a standard balanced account management. A system running structural deficits operates on ad-hoc, piecemeal and 'emergency' interventions, loans, and subsidies from the national state or international lending bodies (Swyngedouw 1995). From the very beginning, the high cost of urban engineering works required high levels of (usually external) financing, while the political-economic forces in the city demanded low water prices. In short, the combination of below-cost pricing and the substantial amount of unaccounted for water serves particular interests. These are further accentuated in a context of widespread and deeply rooted clientelist political traditions. Any attempt at reducing financial losses by increasing prices or improving accounting practices would be deeply unpopular among the upper classes. In addition, implementing such price policies might lead to social unrest in the popular settlements, while improved policing of illegal connections or a more repressive stance to water theft might

deprive those for whom this strategy is often the only possible means of securing affordable access to at least some quantity of potable water. Either way, precarious social balances need to be maintained if social cohesion is to be assured.

The precarious budgetary conditions of the water companies make them dependent on external sources of financing to make up for the deficit and/or to invest in new ventures. National subsidies or loans are rarely sufficient, so international financing is usually required to maintain or expand the system. The model of Third World urban water supply is based on external (international) financing, and this accentuates centralizing tendencies and favours large-scale engineering projects. In addition, the success or otherwise of such lending schemes is more than ever dependent on a successful and sustained export-based national economy. Consequently, the management and technology of urban water provision is deeply caught up in the political economies of national states, their entrance in and position within the global division of labour, and the strategies of the chief international private and public lending agencies.

The deadlock in tariff increases, the negative returns on water sales, the historical preoccupation with massive engineering structures for the production and transmission of water, the ideological bias towards providing unlimited quantities of water to industry and higher classes, the chronic shortages of water as a result of accelerating urbanization, the dependence on external finance, the technological bias inherent in international lending, and the vulnerability to the vagaries of the global economy – all these combine to result in a preoccupation with the production and transmission of potable water and a negligence of maintenance, accounting, distribution and consumption, not to speak of sewerage and the treatment of waste water. This, in turn, perpetuates the systematic exclusion of large parts of the population from access to the available water. These processes also enable private water distribution monopolies to prosper and to consolidate their power by means of water speculation and monopoly rent extraction.

The quasi-monopoly control held by these private water vendors over a key biological and social commodity allows for a massive concentration of social and economic power in their hands. This is most vividly illustrated by analyzing the water rents that can be extracted by the water vendors as a result of their exclusive access to potable water. First of all, there is an enormous discrepancy between the water price charged by the public water authorities for those that can enjoy the luxury of domesticated water and the price charged by private water vendors. In Guayaquil, private water vendors buy water from EPAP at 70 Sucre/m<sup>3</sup> and this is sold (in September 1993) for 4,000 to 6,000 Sucre/m<sup>3</sup> (800 to 1,200 Sucre for a tank of 55 gallons or 200 litre. In the case of Guayaquil, the multiple can be up to 300 in 1993 if compared with the basic tariff charged by EPAP-G for households using less than 15 m<sup>3</sup> of water each month. This alone indicates that poor urban residents have to pay up to 30,000 per cent (*thirty thousand per cent*) more for their water (of an inferior quality) than the higher income residents living in urban sectors served by the public water system. In the context of a minimum wage (for those who have the luxury of being formally employed) of 60,000 Sucre (US\$ 30) per month, an average family of four with one income earner on minimum wage, using about 100 litre of water a day, would spend US\$ 7.50 per month on purchasing water (or 25 per cent of its disposable income). According to the Master Plan, in 1979 an average family of four would spend 173 Sucre (US\$ 6.22) per month on water purchased from tanqueros. In

2002, the price to the consumer for a delivery of 200 liters had increased to US\$ 0.80 (although this officially set price is often arbitrarily increased by the water vendors). For an average family of four, using on average 25 liters per person per day, the total monthly cost amounts to US\$ 12.40 in 2002, a considerable cost for the majority of families living in the invasion settlements.

The increasingly acute water supply crisis gives the *tanqueros* a uniquely powerful economic position in the urban economy. They buy the water from the water company at a highly subsidized price. Until 1987, the price per cubic meter paid by the water vendors was 8.4 Sucre, a price that had remained unchanged since at least 1979 (EMAP 1980). In 1990, the price had risen to 15 Sucre/m<sup>3</sup> for domestic water and 70 Sucre/m<sup>3</sup> for industrial water. Because of fraudulent practices (selling water bought as domestic water to industry), the water price in the city was increased to 70 Sucre/m<sup>3</sup> for all usages in October 1991. Despite attempts by the governor of the province to set maximum prices for a tank of 200 liter (55 gallons), the private water vendors are able to increase water prices arbitrarily. In 2000, an attempt was made to establish 'official' prices, although these remain high for the customer. In September 2002, the *tanqueros* were buying water from the water company at US\$ 0.33 for 1,000 liters and selling it to the urban residents at US\$ 0.80 for a 200-liter (55 gallon) tank, a gross profit rate of almost 90 per cent.

Table 5 shows the recent evolution of the real water price asked by the water vendors expressed in current dollar terms. The prices listed are 'standard' prices, but these are frequently increased arbitrarily, for example under conditions of scarcity. Moreover, prices tend to go up in areas further away from the filling stations. For example, in Isla Trinitaria, prices tend to be 10 per cent to 25 per cent higher than elsewhere. A field survey in September 1993 indicated a price range varying from 800 Sucre in Duran, 1,000 Sucre for water from the Daule 8 1/2 filling station (for Bastion Popular and surrounding settlements) and 1,200 Sucre for water coming from the new filling station located at Via a la Costa km 10. Over half of the tank-lorries are filled up at this station. The price can go up to 1,500 Sucre for 200 liter in Isla Trinitaria. By 2000, after the dollarisation of the economy, the price was set at US\$ 0.80.

In sum, the position of the water supply system in much of Latin America is caught between the political-economic forces operating at the urban level, the struggle at the level of the State with respect to the allocation and distribution of resources, and the dependent position of these countries within the international division of labour. The above analysis does nevertheless suggest that the operation of the hydraulic system cannot be analysed independent from its organizational and institutional configurations and the relations of power that structure them. In short, the unequal access to water and the exclusionary practices of local water politics perpetuate and strengthen a system, which, in the end, is the result of a political-economic organization whose official aim is to eradicate the exclusionary practices it produced in the first place. The issues raised point to a key questions with respect to sustainable urban development in the Third World. The issue of sustainable urban development must raise the question of 'Whose water?' and 'Whose city?' needs to be sustained. The management of nature's water and the management of the 'urban' as a process of nature's transformation must ask questions about a just distribution of the available resources. And this requires a greater democratisation of exactly the socio-natural metabolic processes through which nature becomes urbanised.

**Table 5. Evolution of official and real water price (for a tank of 55 gallons or 200 litres).**

<b>Date</b>	<b>Official Price in Sucre</b>	<b>Real Price in Sucre</b>	<b>Exchange rate Sucre/US\$</b>	<b>Real Price in U.S.\$</b>
1976	2.50		27.45	0.09
13/08/79		4.00/8.00	27.80	0.14/0.29
07/09/87		60.00	193.8	0.31
14/07/88	60	80.00	436.2	0.18
24/04/89		120.00	569.2	0.21
05/07/89		150.00	600.0	0.25
23/05/90	150	200.00	821.5	0.24
20/03/91		250.00	1014.0	0.25
14/07/91	200	300.00	1119.0	0.27
31/08/91	250			
06/06/92		400.00	1477.0	0.27
11/09/92	400	700.00/ 800.00	1828.0	0.38/0.44
11/11/92	450			
22/04/93	550	800.00/1200.00	1895.0	0.42/0.63
June 2002				80 US dollarcents

Source: Newspapers, Field Work, Interviews, Plan Maestro.

#### **4.2. Mexico City, Mexico: Who says Scarcity?**

Mainstream accounts of water shortages in the Mexico basin have suggested that water stress is the result of poor public and economic policy, which has led to the undervaluation of water (National\_Academy\_of\_Sciences 1995). As the well-rehearsed argument goes, it is suggested that the undervaluation of water leads to excessive wastage. This argument has been the lynchpin for pro-privatization policy-makers in Mexico (Castro 2006). However the issue of scarcity in the Mexico valley is not one of absolute scarcity but rather is a highly socially constructed phenomenon with drastically polarized social implications. In poor neighbourhoods water consumption over prolonged periods of time is as low as 4 litres per person per day (pppd), while in wealthy areas consumption exceeds 100s of litres pppd (Castro 2004).

The argument that public water services is to be blamed for conditions of scarcity is seriously undermined by the fact that Mexico City has, like most other big cities in the global south, a long history of private water provision through informal water vendors which supply water to communities that are either not connected to the City's water system or are living with the repercussions of unequally constructed conditions of drought. Recognizing the historical private provision of water has significant implications for how one understands contemporary water debates in Mexico. On the one hand, recognizing the long history of commodified water provision, illustrates the deeply ideological nature of mainstream accounts of water

scarcity in Mexico as well as the erasure of the experiences of marginalized communities. On the other hand, seeing that it is generally wealthy communities that historically have received public water services, while also consuming a disproportionate amount of water, Mexico's 'scarcity' is revealed to be socially polarized distribution problem rather than being a 'natural' phenomenon (Castro 2004).

Water conflicts have been an ongoing feature of the Mexico City Metropolitan Area (MCMA). As a consequence of the socio-natural polarization of water distribution, throughout the 1980s community groups developed their own survival strategies through alternative funding schemes and drilling their own wells. However, in the late 1980s and early 1990s in a move of state repression aimed at consolidating Mexico's water system, the state government took over local wells. At the same time as these appropriations were taking place, the state continued tolerating clandestine wells managed as private businesses that serviced MCMA's poorest residents. In the 1990s the Mexican government implemented far-reaching reforms that aimed to consolidate state control of the water sector. Increasing state control of water was a prerequisite for its eventual privatization. In 1993, after lengthy negotiations with opposition parties, the Federal District granted concessions to four major consortiums, transferring responsibility for registry of users and extensive water metering and billing to private operators. This action was met by public protest and civil disobedience centred on non-payment, destruction of water meters and popular protests (Castro 2004). These tensions arose not only because of increased tariffs but also because public water provision in Mexico has historically been enshrined as a universal right in the constitution. As such, while water is supposedly a universal right essential to citizenship in Mexico, it is paradoxically at the same moment an increasingly commodified right (Castro 2006). The struggles over water in Mexico are representative of a tension that all capitalist states face, specifically a need to facilitate economic growth while also ensuring that the state's and capital's legitimacy remain intact. As the Mexican state tries to curb its policies to be in accordance with neo-liberal principles, the only thing that has changed for the marginalized people of Mexico is that they are now simply confronted with a new form of privatized water. Numerous tensions continue to exist as paradoxes of citizenship and scarcity continue to play an important role in the unfolding of Mexico's water politics.

### **4.3 Durban, South Africa**

Durban serves as an intriguing case study. It brings to light some profound paradoxes around the nexus of water, money and social power. On the one hand, the municipally owned and managed service provider, eThekweni Water Services (eTWS) has made moves towards an egalitarian distribution of water through the development of a free basic allowance of 200 litres of water per household per day. On the other hand, the city has inflicted surprisingly punitive measures upon those unable to pay for bills beyond this free basic allowance (Loftus 2004). At one point, as many as 1000 household disconnections were taking place within the municipality per day for non-payment of bills. Outbreaks of violence have not been uncommon, as disconnection bailiffs have targeted individual communities. Tear gas has been fired on several occasions and in one instance a disconnection bailiff was shot dead (Desai 2002). In what appears to be a more conciliatory position, the municipality has since

implemented a policy of restricting rather than disconnecting household supplies. However, the effects, and the attitude of residents towards such restrictions, are relatively unchanged.

The reasons for such a paradox are rooted in two features of Durban's arrangements for water provision. First, the municipality's bulk-water supplier, Umgeni Water, is a semi-commercialised entity, still under public ownership. This entity has encountered serious financial difficulties as it has sought to expand its profit-making divisions into new markets abroad and diversify its range of water services within South Africa. Whilst these commercial services are said to be ring-fenced from the public service provision of bulk-water, difficulties in the former have automatically been passed on to the latter. Curiously, Umgeni Water has been very effective at raising finance but very ineffective at finding profitable outlets for this investment. Debt servicing has therefore necessarily had to come from its most reliable source of income, bulk-water provision (Loftus 2005).

The second feature of Durban's waterscape is the omnipresence of infrastructures to measure and rationally order water provision at the household level. Many of the tensions generated over the provision of bulk-water are now embodied within this infrastructure. Thus, water meters, flow limiters and flow restrictors seem to have taken on an unusual power in regulating the rhythm of people's everyday lives. Residents in township areas, many of whom have been accustomed to an on-site supply of water available at all times, now find themselves facing arrears of up to R30,000 and are only able to access water at times dictated by an electronic flow limiter. A progressive block tariff in the municipality offers what is perceived as a measure of eco-social equity, in that consumers of higher volumes of water pay a higher Rand/kl charge. The result, however, is an ingrained bias against large households and a focus on a cold rationality in the distribution of water according to what are perceived to be biophysical as opposed to socially-defined consumption needs. The case of Durban thus shows the manner in which monetary power comes to be embodied in an infrastructure that limits rather than opens up access to water for all.

#### **4.4 Water Wars: The Experience of Cochabamba**

The establishment of a private water-service concession between Aguas del Tunari and the city of Cochabamba and the resultant social upheavals is perhaps the most notable water conflict arising from asymmetric hydrosocial power relations to date. However, the conflict must be understood in the context of historical socio-economic developments. With the rise of interest rates in the 1980s, which led to a ballooning national deficit and an economic downturn, Bolivia, under the tutelage of international monetary institutions, initiated a series of Structural Adjustment Politics aimed at stabilizing and 'modernizing' the economy. In the 1990s structural adjustments involved the implementation of a neo-liberal privatization agenda, which entailed either the outright sale of public enterprises or the establishment of public-private concessions (Marvin and Laurie 1999). The commodification of water in Bolivia's third largest city Cochabamba, was the capstone of this long period of pro-market reforms. In September 1999, under pressure from the World Bank, the Bolivian government awarded a 40 year concession, including both management and monopoly control of water resources to Aguas del Tunari (ADT), a consortium led by International Water Limited, a subsidiary of the U.S. giant Bechtel and Edison, a large

Italian energy company (Lobina 2000). The concession between the consortium and city reflected the larger power relations between international financial institutions, corporations, the pro-market Bolivian state, and marginalized urban and rural residents.

There were several pernicious outcomes that were the direct result of both the water concession itself, and the historical asymmetries in social power that animated its initial establishment. ADT was the sole bidder for the Cochabamba contract and as such was able to ensure that they would be guaranteed a profit return of 16%. This guaranteed profit margin translated into a water-rate increase of between 35% and a 100% in the cost of residential water installations (Crespo 2003). Considering that a significant number of Cochabamba's residents are among the poorest of South America's burgeoning urban populations, these rate increases were simply socially-economically unmanageable. The concession between ADT included the establishment of a private monopoly that granted the consortium the exclusive rights to water resources. Cochabamba and the surrounding region had a long-standing history of alternative systems for water supply based on cooperatives and local committees that generally served the city's poorest residents. These traditional water rights, fundamental to smaller water suppliers, were in an authoritarian fashion expropriated with the establishment of the water concession (Crespo 2003).

These measures served to further marginalize Cochabamba's poorest residents, and moreover, served to increase popular resentment against a long period of pro-market reforms that had failed to reduce social inequalities. As such, in January 2000, under the leadership of La Coordinadora de Defensa del Agua y la Vida (The Coordinator for the Defense of Water and Life) an alliance of trade-unions, environmentalists, peasant farmers and youth, protests erupted which sought to challenge the legitimacy of the concession and drive the multi-national corporations out of Bolivia. Clashes between protestors and the state escalated until on April the 8<sup>th</sup> 2000, Victor Hugo Daza Argadona was shot and killed by an army captain. It was only at this point that the Bolivian government took seriously the public outcry against commodified water provision and cancelled the concession with ADT and handed the control of water services over to La Coordinadora de Defensa del Agua y la Vida. The major players in the water concession left Bolivia, although Bechtel is now seeking \$25 million in reparations for lost profits at the International Center for the Settlement of Investment Disputes (Wagner, Orellana, and Shultz 2003). Owing to the highly secretive and exclusive nature of the arbitration court, it is unclear what the resolution will be. However, it is clear that adding a further \$25 million dollars on to the highly indebted Bolivian people will not help to alleviate poverty or increase inequitable access to water.

One of the key lessons coming out of the Cochabamba's experience with water privatization is that social power configurations and socio-economic relations are not static but rather fluid and contestable. Another lesson is that conflicts over water are not simply a matter of misaligned and mismanaged policies but rather are the result of historical asymmetries in socio-economic power.

#### **4.5 Lagos, Nigeria**

Dreams of privatizing Lagos water services have been on the mind of Lagos State Government since 1999; however, these dreams are now coming closer to becoming reality. Pro-private interests are quick to point to Lagos' burgeoning

populations growth as a justification for private sector participation. It is also suggested that the state run services are incapable of addressing such growth (World\_Bank 2004). Invoking population growth as a justification for privatization has effects similar to suggesting that 'scarcity' resides in nature (see below). In the case of Lagos, this hides the violent and fraudulent history that has left the city's infrastructure in such a dilapidated state (Gandy 2005).

Despite early consultation between civil society organizations and the Lagos State Water Corporation concerning private participation in water delivery services, in a typical move that illustrates the state's interest collude with those of private interests - the Lagos State House of Assembly introduced the Lagos Water Sector Law (LWSL) without any public consultation (Babalobia 2005a). The LWSL is essentially a move to establish the foundations for the privatization of existing infrastructure while doing little to help the impoverished majority that live without any piped water service provision.

Close study of the LWSL illustrates that the new law will do little to alleviate the extreme poverty that is related to inadequate existing water delivery systems. Perhaps one of the most pernicious stipulations of the new law is that it gives the redefined LSWC the power to collect water fees from primary schools while also allowing the corporation to terminate services if the schools default on payments. This obviously has dramatic effects in a region that struggles to pay its teachers. With much broader implications, the proposed water privatization scheme would ensure that water tariffs in the Lagos area are subject to international pricing mechanisms such that if the Nigerian currency devalues, additional debt-servicing costs will be passed directly on to consumers. In this situation, in a very concrete way the residents of Lagos are subject to the turbulence of global financial relations. The loans that LWSL is about to accept from the World Bank will be spent solely on improving existing infrastructure rather than extending service to the estimated 9 million people without piped water service provisions (Babalobia 2005b). As the state becomes more indebted, improved service provision is restricted to high profile areas while marginalized and poor communities will be left un-serviced. In this respect, the hydrosocial polarization that typified Nigeria's colonial and post-colonial history is now being propagated through current water policies tied to the global financial architecture.

As the LSWC continues its moves towards privatization under the tutelage of the World Bank, civil-society organizations that were originally excluded from discussions regarding Lagos Water Sector Law are working hard to ensure that their voices are heard. After initially walking out of talks with the World Bank upon discovering that the Bank was withholding vital information concerning the nature of the loans being extended to the LSWC, civil society organizations have managed to establish a Community Water/Utility Board (CWB). The CWB is intended to act as regulatory body overseeing the changing public/private nexus of water service provision and the implementation of the World Bank loan aimed at facilitating private participation. While the civil-society organizations have been unable to fully impede the privatization agenda, their participation in regional water affairs has been a marked accomplishment given that the public is generally excluded from the highly secretive negotiations between the global financial institutions and states (Akpan 2005). The outcome of the LSWC privatization agenda is unclear at present, and it remains to be seen whether CWB has the necessary teeth to regulate the tight linkages between corporate interests, the state and the World Bank. One thing that does remain clear is that for the 9 million people who are not connected to piped water systems,

debates over the privatization of existing infrastructure operate on a scale that does not quite capture the magnitude of hydrosocial exclusion experienced in Lagos.

#### **4.6. Manila, The Philippines**

Throughout the early 1990s the Manila's publicly run water and sewerage service provider, Metropolitan Waterworks and Sewerage System (MWSS) had a dismal record of providing adequate services to the city's 11 million residents. The MWSS was marred by corruption, indebtedness and erratic service provision, which led the then Philippine President Fidel Ramos to introduce the "Water Crisis Act". The "Water Crisis Act", which was sold to the public as a strategic response to the El Niño effect and the associated 'water shortages', gave the president authoritarian powers to push through his privatization agenda (Esguerra 2002). Ramos' appeal to the impacts of El Niño, in effect, occluded the social causes behind water shortages and poor service provision and shifted blame on to a 'natural' phenomena. In another strategic move aimed at paving the way for privatization, five months prior to accepting private bids on a water concession with the city of Manila, the Ramos government raised water rates by 38 % in August of 1996. The aim of this move was to win public support through increasing public water rates such that the private bids would be lower than existing rates (Landingin 2003).

In January 1997, two water concessions were established with two consortiums, Maynilad Water Services Inc. and Manila Water respectively, each composed of local corporate crony entrepreneurs and multi-national water corporations. The bids of each consortium were well under the actual operating costs of Manila's water system. However, this was an intentional move on behalf of each consortium; the aim was to secure the contracts with the intent of renegotiating the terms of the agreements afterwards. With the onset of the Asian financial crisis in 1997, the consortiums were faced with ballooning deficits denominated in US dollars and lower revenue generation. This scenario proved disastrous for both the consortiums and the residents of Manila. As the world's financiers facilitated the outflow of capital from South-East Asia, the Philippine currency lost half of its value against the US dollar. However, each consortium was in the long term protected against currency devaluations as the concession agreements allowed for the concessionaries to recoup their losses through increasing the tariffs to be paid by residents (Esguerra 2002). And sure enough, rates have sharply risen over the past 9 years. Maynilad water rates increased from 4.96 to 25.84 PhP per cubic meter in 2005, an increase of 436%. Manila Water's rates have increase 700% from 2.32 in 1997 to 15.65 PhP per cubic meter in 2003 (Hall et al. 2004). In addition to these massive rate increases, neither company has achieved the promised 24-hour water service provision, universal connections, reduced water loss, or delivered the \$7.5 billion in promised investment, all of which were part of the initial concessions (Hall et al. 2004).

On February 2003, Maynilad issued a statement terminating its contract with MWSS, citing the inadequate performance of the regulatory body, El Niño, and the Asian financial crisis as reasons for the failed contract. In the end, this appeared to be part of a strategy that set the stage for a massive government bailout that is currently being orchestrated. The Maynilad concession has been marred by a continuing trend geared at shifting the financial burdens of the corporately mismanaged water delivery on to the residents of Manila through increased water tariffs, government bailouts and

increased indebtedness to global financial institutions. From a corporate standpoint Manila water has done better, recording huge profits as it pushes the regulatory body into allowing increases in water tariffs (Landingin 2003). As suggested previously, these profits have placed further financial burdens on to the shoulders of Manila's residents.

## **5. The Shifting Political Economy of Water: Politics of Exclusion and Struggles for Access.**

Thus far, we discussed the various ways in which social power, money, and water intersect. Theoretical arguments were illustrated with historical and current case studies and with power conflicts and mechanisms that shape contemporary water politics in a number of cities and countries around the world. These examples are just a few of a proliferating number of cases. In the final two parts of this report, we shall summarize and explore some of the key issues related to current debates and practices associated with water delivery and water services worldwide. We shall pull out the key insights generated by the case studies described in this paper and elsewhere in the literature.

### **5.1. The public/private nexus**

Despite the current debates over potential or actual shifts towards privatisation (a debate that is often couched in terms of an inevitable and necessary adaptation of national policies to the requirements imposed by a new global and de-regulated world economic order), there is in fact a long history of changes in the urban water supply sector. Indeed, as discussed above through some of the case studies, since the early days of large-scale water delivery systems, they have always been characterised by shifting configurations of public-private partnerships. Neither is inherently better suited to provide water. The public-private debate is largely irrelevant. The key question is the power geometry through which water ownership, control, distribution, and access is organised.

Most international case studies demonstrate that the organisation of urban water supply systems can be broadly divided in four stages (Hassan 1998). The first stage continued up to the second half of the 19th century, when the majority of urban water supply systems (in the global North) consisted of relatively small private companies providing parts of the city (usually the richer parts) with water of varying quality (Goubert 1989). Water provision was socially highly stratified and water businesses were aimed at generating profits for the investors. This was followed by a period of municipalisation, primarily prompted by concerns over deteriorating environmental conditions, calls for a sanitised city (Cornut 2003), and dwindling returns for private operators. Profitability became subsequently a secondary concern and subsidies came from the general tax income (from either the local or the national state). This municipalisation was also supported by local elites whose health and environmental conditions were equally negatively affected by deteriorating sanitary standards in the city. It was during this era that water supply systems were consolidated, leading to a citywide standardised coverage of domestic water supply, coupled with a comprehensive sewage disposal system (albeit without treatment of sewage waters). Countries and cities in the developing world began to emulate, very often successfully so, the European model in the development of their own urban water works. The third phase started approximately after the First World War when the water industry, together with other major utility sectors (such as electricity and telecommunications), became part of a growing national concern (Bernstein 1955) (Littlechild 1986). The national state, with varying degrees of intensity of control, regulation, and investments, undertook a much greater role in public services provision (Parker 1997). Water infrastructure became -- together with other major infrastructure works and programs -- part of a Fordist-Keynesian State-led social and

economic policy. The investments in grand infrastructure works (dams, canals, networks, irrigation systems) were part of, on the one hand, an effort to generate and/or support economic growth, while, on the other hand, assuring a relative social peace by means of re-distributive policies (Gandy 1997). Three objectives were central to this Fordist period of expansion of water provision: the creation of jobs, the generation of demand for investment goods from the private sector and, finally, providing basic collective production and consumption goods (like water, food, education, housing) at a subsidised price for wage workers and industry alike. In some instances, water provision was nationalised (as in, for example, the UK and many developing countries). In other cases, although management remained under the auspices of municipal authorities, the state played an ever-increasing role, particularly in financing infrastructure projects (in, for example, France, Ecuador, Spain or Israel), but also by means of greater regulatory intervention. It was indeed also during this period that a variety of regulatory bodies (for social, economic, quality, or environmental regulation) were established, usually by and at the level of the national state. These institutional changes also assured that a particular constellation of 'stakeholders' (consumers, unions, etc...) would become involved. In short, the water sector became an integral part of the Fordist and corporatist state form.

During the fourth and most recent phase, roughly starting with the global recession of the 1970s, a period associated with the demise of state-led economic growth and the subsequent transition to post-Fordist or flexible forms of economic development and state guidance (Moulaert and Swyngedouw 1987), a major shift took place in the public/private interplay in the water sector. First of all, mounting economic problems -- in the context of high social and investment spending -- resulted in growing budgetary difficulties for the national (and often also local) state. This necessitated a reconsideration of the direction of state spending and resulted in reduced expenditures in the welfare sector and in supporting debt-ridden industrial sectors or expansive infrastructure programs (Ruys 1997). The low prices, the subsidised water investments, and the ageing water infrastructure, combined with a still growing water demand, put an ever greater pressure on state budgets; a pressure that ran counter to the above processes. This was particularly acute in the developing world. The borrowing bonanza of the 1970s, when western capital was desperately seeking outlets in the Third World to recycle overaccumulated capital (petro-dollars in particular) that could not find profitable investments in the crisis-ridden developed world, turned increasingly sour during the 1980s as the debt mountain rose (Corbridge 1993). Debt repayment problems combined with desperate attempts from Western financiers to safeguard their positions prompted a whole range of imposed 'Structural Adjustment' programs aimed at stabilising the international monetary order, but leaving states in the developing world with the unenviable task of cutting back on spending, privatising, and de-regulation. Second, the call for greater competitiveness as a means to re-dress the economic crisis of the 1970s and early 1980s prompted a quest for efficiency gains and greater productivity through cutting red-tape, labour-market de-regulation, and greater investment flexibility. This, in turn, was accompanied by privatisation tendencies as a means to pursue both of the above recipe-solutions to the crisis of Fordism. Moreover, the growing globalisation of the economy and the accompanying change in the nature of competition, the greater availability of private capital achieved by means of de-regulation and de-territorialisation of financial markets, and the imposition of strict norms (by super-national organisations like the EU, the World Bank, or the IMF) further accelerated the shift of the boundary between the public and private sectors in water management

more in favour of the latter. Third, the standard democratic, but corporatist (and often clientelist and crony-based), channels of government often infused by the presence and active lobbying power of social organisations -- most notably unions – proved to be a considerable barrier for implementing swift policy-changes. The political-economic configuration has, consequently, changed in important ways, resulting in new institutional arrangements (see below) that permit a more business- or market-oriented management that is more in tune with profit-making strategies (Ogden 1991) (Ogden 1995) (Jessop 2002). Fourth, the aging water infrastructure and the ever expanding need for new investment in the developing world to keep pace with a rapidly growing population required massive capital investment; something the state could not any longer marshal given the macro political-economic conditions. Fifth, the growing environmental problems and, consequently, the proliferating number of actual and potential conflicts in the management and regulation of the hydrosocial proved to be a serious challenge for traditional forms of organisation and implementation of water-related activities. Particularly in a context in which civil society-based environmental groups became more vocal and powerful, systems of governance had to become more sensitive to these issues. The internalisation of all these tensions within a fundamentally state-owned and state-controlled sector like water became increasingly difficult. Finally, and perhaps most importantly, investors began to search for new frontiers for capital investment. Water presented itself as a possible new source to mobilise and harness as it offered the possibility for turning H<sub>2</sub>O (again) into capital and profit. This privatisation of the commons through a strategy of ‘accumulation by dispossession’ (see (Harvey 2003) became increasingly central to accumulation dynamics as the standard routes of restructuring of existing capitalist-economic processes and investments in new products were not longer sufficient to absorb the ballooning volume of capital in search of profitable investment avenues. Indeed, water, together with other common pool goods like genetic codes, local knowledges, and the like, are rapidly becoming part of such accumulation strategies (Katz 1998). Capitalism has of course always been and will continue to be a system that attempts to break down all existing barriers and to incorporate everything into its own profit-seeking logic. Nature itself has long resisted full commodification, but in recent years, nature and its waters have become an increasingly vital component in the relentless quest of capital for new sources of accumulation. Of course, this privatisation of water does not take place in a vacuum, but involves centrally the transfer of ownership of water, infrastructure, and the like from the public sector, from local ownership or control, from forms of collective or socialised ownership to often globally organised private water companies. The new accumulation strategies through water privatisation imply a process through which nature’s goods becomes integrated into global circuits of capital, local common goods are expropriated, transferred to the private sector and inserted in global money and capital flows, stock market assets, and portfolio holdings. A local/global choreography is forged that is predicated upon mobilising local H<sub>2</sub>O, turning it into money, and inserting this within transnational circuits of circulating capital. Local resource systems become consequently part of the strategic checkerboard of global companies. As Table 6 indicates, the rush towards privatising water continues relentlessly and constitutes currently a global market valued at over 45 billion US\$. Needless to say, the appropriation of water by global market players is driven by considerations of competitiveness, profitability, ability to pay of customers, and strategic considerations. Humanitarian motivations such as providing water to the poor, improving life expectancy or health, and contributing to overall development

have become derived objectives; objectives that are explicitly stated in private management contracts, but often fail to materialise.

**Table 6. Water and Sanitation Privatisation.**

<b>Proportion of Water and Sanitation Services Privatised 1997 and 2010 projected</b>			
<b>REGION</b>	<b>% Privatised, 1997</b>	<b>% Privatised, 2010</b>	<b>Value of privatised market (US\$, billions)</b>
Western Europe	20	35	10
Central and East Europe	4	20	4
North America	5	15	9
Latin America	4	60	9
Africa	3	33	3
Asia	1	20	10

Source: Anton E.; data from [www.thewaterpage.com](http://www.thewaterpage.com) (accessed 5 September 2005)

The combined effect of the above processes and dynamics resulted in a more or less radical shift (and with varying degrees of intensity in different countries), both in practice and ideologically/discursively, from a state-led and –managed water sector to one that is or has to be more in tune with globalised market forces and with the imperatives of a competitive privatised economy. In other words, a new hegemonic meta-governmental discourse emerged in the water sector, which was articulated around fiscal prudence, competitiveness, privatisation, the commodification of nature and environmental anxieties (Hajer 1995). In some cases, actual privatisation has taken place (such as in the UK and in many cities around the world), in other cases (such as in Amsterdam, Brussels, Durban or Seville) publicly owned companies are increasingly required to act strategically, managerially, operationally, and organisationally as a private company. In addition, water businesses are now often part of global multi-location companies and/or part of larger, often global, multi-utility conglomerates.

## **5.2. The demand-supply-investment trialectic in a ‘competitive’ context**

In a context of commodification and demands for privatisation, the traditional state-led way of managing the triad of demand-supply-investment decisions becomes fundamentally transformed (see also below). If the profit motive, either for public or private companies, becomes the yardstick against which performance is measured and the price signal a key instrument for regulating the demand/supply nexus, the contradictions between these moments in the economic process take a rather different turn. In an external context, in which expanding demand is seriously discouraged for environmental reasons, while investment needs to be maintained to extent, replace, and update the network, the balance sheet equations for water supply companies become rather specific. With a given demand structure, and with increasing

investment, profitability (and hence the sustainability of market-led water companies) can only be maintained via either productivity increases (which are generally capital and technology intensive and almost invariably lead to a rising organic composition of capital and a reduction in the work force) and/or price increases. While the latter is possible, it remains politically sensitive and might lead to socially perverse effects. The social conflicts after the many privatization programmes are a case in point (see (Gleick et al. 2002)).

In a context of increasing demand and expansion of either total or per capita demand, the volume of profits can be maintained by means of an expansion of supply. In this context, it is interesting to note that the ‘productivist’ logic of water supply companies (see (Swyngedouw 1995)) continues unabated (despite mounting calls for a more restricted water use). Furthermore, given the long-term and capital-intensive nature of investments in water infrastructure, there is a rather weak incentive to engage in major long-term and capital-intensive investment programs. Put simply, there is a clear disincentive to invest in not directly profitable activities like leakage control in contrast to productivity enhancing investments. Finally, in a context of geographically limited supply and demand in which most companies operate, while simultaneously being exposed to a rapidly globalizing competitive environment, there is a tendency for privatised water companies to internationalise activities, either by taking over privatised water businesses elsewhere or by means of mergers, acquisitions and/or diversification into other sectors, or by selling their “know-how” overseas.

It is not a surprise, therefore, that the state or other parts of the public sector have to mediate these contradictions. In the UK, for example, Yorkshire Water proposed to collectivise the network part of the water supply system, while keeping the managerial part in private hands, while the Welsh water utility also moved away from private ownership to some mix of public and private management (Bakker 2003). In the case of Greece, the preparation for privatisation significantly involved splitting the water company into two parts, a publicly owned company that maintained the assets (technical infrastructure and network) and a privatised (up to 49%) water supply company that would manage the system (see (Kaika 2005)). It seems that this kind of public-private partnerships, in which the public sector is responsible for long-term fixed capital investments (and much of the costs associated with them) while the private sector organises the profitable part of the system (supply management) is the likely outcome of a privatised water business. The escalating infrastructure replacement and extension costs, their long turnover time, and long-term investment uncertainty result in a very low return and a general caution on the part of water companies to invest in such sunk capital equipment.

### **5.3. A Dangerous Liaison: Finite Resources and Produced ‘Scarcity’**

Because of growing awareness of the central importance of water for human development, water issues have risen high on the environmental agenda, while being simultaneously subjected to market logic. In fact, these two dynamics are mutually intertwined. Increasing attention is paid to demand management, mainly as a result of the growing environmental awareness and the risk of dwindling water resources (Bakker 1999b) (Haughton 1998). This has intensified the political and social debate

about the ‘scarcity’ of water (Nevarez 1996). As Kaika has pointed out, this discursive built-up of a particular water narrative and ideology, particularly noticeable during, for example, the drought-related crisis conditions in Athens in the early eighties, serves specific political and economic objectives and policies (Kaika 2003a). Similar tactics emerged in the summer of 2002 in Sicily, in the context of a local drought that intensified debate over the need for more infrastructure, a politics that re-enforced existing local power geometries, in which, for example, organised crime plays an important role (Giglioli 2006). A climate of actual, pending, or imagined water crisis, i.e. the discursive production of the immanency of a hydro-socio-ecological disaster, not only serves to facilitate further investment in the expansion of the water-supply side (as in the case of Athens, Guayaquil, Delhi, or Seville), it also fuels and underpins drives towards commodification (see also (Bakker 2000) (Haughton 1998). As the price signal is hailed as a prime mechanism to manage ‘scarcity’, the discursive construction of water as a ‘scarce’ good becomes an important part of a strategy towards commodification, if not privatisation. In this context, strange and often unholy political alliances are forged between advocates of a market perspective on the one hand and parts of the environmental movement on the other (Swyngedouw, Page, and Kaika 2002). To the extent that the latter’s concern about the increasing, but socially constructed, scarcity of water has become more effective in mediating this message to the wider public, a greater willingness-to-pay and the acceptance of the market mechanism as the preferred signal to allocate socially the resource become seen as more acceptable, if not presented as the only alternative available. While environmentalists keep on insisting that water is a scarce and finite good and, consequently, needs careful handling, the private water sector and governments at all geographical scales embrace this discourse of ‘scarcity’. A market economy of course requires ‘scarcity’ to function. Without ‘scarcity’, a market-based solution or mechanism would simply not work. If need be, therefore, ‘scarcity’ will be effectively ‘produced’, socially engineered (Davis 1998). Moreover, this ‘manufactured’ scarcity is invariably presented as residing in nature, even up to the point to ‘blaming’ social conflict over water on nature (see Figure 3). Clearly, urban water riots have nothing to do with an absolute scarcity of potable water in the city, but everything with an uneven distribution between rich and poor, between the powerful and the powerless.

In fact, water is one of the least finite resources in the world. It is plentiful and virtually non-exhaustible. There may be local or regional limits and problems with quality (itself usually negatively affected by human use and pollution) and reliable availability, but there is no evidence of global shortages of water. An environmental ideology that persists in representing water as inherently ‘scarce’ invariably nurtures a commodifying and privatising logic. In fact, the World Bank, the European Union as well as private companies celebrate this continuous recycling of the idea of ‘water’ as a scarce good. It provides an excellent legitimating device for pushing through neo-liberal and market-driven policies, and serves particular social and economic power positions. Indeed, markets thrive on real or imagined ‘scarcity’. Many environmental organisations with their real concern for important green issues find themselves in an unholy but objective alliance with those political and economic forces for whom the privatisation of nature is a mere ploy to maximise accumulation, deregulate markets, and chase new profits. Moreover, it takes attention away from the political nature of ‘scarcity’ as socially and politically ‘produced’ and focuses instead on the available technological fixes.

# Indian drought sparks riots and poisoning

INDIA'S WATER troubles won't go away. The north-west of the country is still struggling through the worst drought in a century with the help of massive relief from government.

Poor villages on the outskirts of Delhi have seen riots, with police pelted with stones by local people protesting at the severe water shortage.

Meanwhile, in the northern hill state of Assam, excessive reliance on contaminated ground water has resulted in an epidemic of fluoride poisoning. A report by the chief engineer in the state's public health department shows that many villagers in the tribal district of Karbi Anglong have been crippled for life.

At low levels fluoride strengthens the bones, but in the water pumped up by Karbi Anglong's tube wells it is pre-

BY PETER POPHAM  
in Delhi

sent in quantities ranging from 5mg to 23mg per litre – the permissible limit is 1.2mg.

The report says the problem was detected last year in the Tekelangiun area of Karbi Anglong. More than 600 people out of 2,300 surveyed were found to be affected. The symptoms of fluoride poisoning are severe anaemia, stiff joints, pain, mottled teeth and kidney failure leading to premature death.

The council has sent water tankers to some of the affected areas, and 85 hand-operated tube wells with high fluoride content have been painted red to warn of the danger.

Karbi Anglong adjoins Shillong, which is often afflicted by drought despite being one of the wettest places in the world.

Figure 3. Blaming urban water scarcity on nature (extract from *The Independent*, March 2004)

The management of the hydrosocial cycle and, in particular, the management of demand operates largely via a combination of campaigns aimed at raising public awareness about water savings on the one hand, and attempts at reducing water consumption by means of a variety of technological fixes on the other (Kallis and Coccossis 2001). Generally the cost effectiveness of water saving devices depends both on the price of the technology and the price of water. In a context of low water prices, water-saving devices are often not cost-effective. Although it is still disputed what the aggregate effect is on water savings (most studies indicate a slow-down in the growth of water demand, but not a reversal of upward trends), the technological fix for water-related problems requires significant investments. Privatised water companies remain reluctant to invest in such technologies (given the cost implication), while public subsidies might be seen as a subvention to the private sector (in the case of a privatised water sector) or run against the dominant ideology of full cost recovery (in case of public companies). Despite availability, therefore, of a wide range of water-saving devices and technologies, uptake remains limited and is not likely to have a major impact in the near future. More importantly, the displacement effects (in terms of the environmental implications associated with the development and production of new technologies) is almost invariably completely

ignored and not part of the environmental audit. Yet, it is abundantly clear that environment-friendly technologies when applied in one sector might have adverse effects in terms of the environmental effects of their own production process. A total environmental audit would be required in order to assess the net environmental benefit derived from a technological fix.

## **5.4. The Global Water Nexus**

### *5.4.1 Globalisation through Shared Control*

The supply of water is increasingly embedded in processes of economic globalization. Whether publicly or privately owned, water businesses are expanding their operations geographically and they have become involved in an international competitive process. In the case of privatized companies, furthermore, their capital structure is also becoming increasingly internationalized. For example, after the UK government sold its 'golden share' in December 1994, it opened the way for a frenzied spree of mergers and international takeovers. Many UK water companies are actively acquiring water operations elsewhere in the world, while British companies have been subject to takeover from foreign competitors. For instance, Thames Water (London's water supply company) was acquired in September 2000 by the German multi-utility RWE. The part-privatization of the Athens water company turned EYDAP into a stock market listed company and, hence, subject to the vagaries of national and international capital markets. At a global scale, an accelerated process of concentration and consolidation is taking place that is rapidly leading to a fairly oligopolistic economic structure of water utility companies, with two (French) companies controlling about 70% of the global privatized water market (Hall 1999) (Hall 2001). Aside from the difficulties of regulating global companies (particularly with respect to environmental and social standards, investments, maintenance and infrastructure upkeep), this trend raises the specter of increasing geographical strategies around investments and about the spread of activities, the flow of water-capital, and the portfolio of holdings.

Indeed, the 'market' does not exist as a playing field without the actors making it work. The small number of global water companies produces an oligopolistic form of market organisation. As Table 7 shows, only a handful companies control the water market. In fact, two French companies (Ondeo (Suez) and Vivendi) take an overwhelming share of the water market, with Thames Water (part of the German multi-utility RWE) and SAUR trailing far behind in respectively third and fourth place. The dominance of the French is related to their long-term preferential access to the French water market. This gave them a competitive edge in international markets once they became more deregulated and were prepared for the privatisation onslaught. Moreover, The French tradition has always combined state investment in infrastructure with private management of water delivery services. This strategy is evidently more profitable for the private sector and French companies have successfully exported this model. The Anglo-Saxon model is rather based on full privatisation (infrastructure and delivery) and the export of this model has resulted in several failures or under-performing utilities.

The four top companies are invariably involved in basically every urban privatisation scheme in the world. Moreover, for big projects, it is not unusual for the big four or five to share the spoils and either to manage water systems jointly or to

carve up the concession into two geographical areas, each controlled by one of the global players. For example, in Budapest, Vivendi has a joint venture with RWE Aqua, and in Sidoarjo, Indonesia, RWE runs one part of the system while Vivendi controls the other half. These joint ventures and joint bids for contracts further erode whatever limited ‘competition’ exists in the market. The market for privatising urban water is far removed from the competitive ‘environment’ that neo-liberal pundits hail as the saviour of ailing economies in the third world. Needless to say, such oligopolistic control provides considerable leverage for the corporate mandarins when negotiating terms with local or national states.

**Table 7. The Global Water Companies – 2001**

<b>Company (water subsidiary)</b>	<b>Country base</b>	<b>People served with water (Million)</b>	<b>Water Business Revenues (Billion €)</b>	<b>Total Revenues (Billion €)</b>
Vivendi (Vivendi Water)	France	110	12.8	26.48
Suez (Ondeo)	France	115	10.1	42.36
Bouygues (SAUR)	France	30	2.5	20.5
RWE (Thames Water)	Germany	43	1.69	62.9
American Water Works	US	10	1.44	1.44
Anglian Water Group	UK	4.1	0.892	1.29
Severn Trent	UK	8	0.887	1.68
Kelda Group (Yorkshire Water)	UK	4.5	0.62	0.775
United Utilities	UK	7	0.2	1.78

Source: (Public Services International Research Unit ([www.world-psi.org](http://www.world-psi.org) - accessed 12 September 2005); Kasemir, et al., 2002).

Data were obtained from Corporate Reports 2001 and corporate websites. Data for Vivendi are for 2000 and Data for Anglian Water Group are for 1999.

#### *5.4.2 Cherry-picking as Strategic Device*

Servicing urban residents with reliable potable water services is not an easy business. It requires significant long term investment, and complex organisational and management arrangements. And profitability is by no means assured, particularly in urban environments where many people have a low ability to pay and problematic access conditions. In short, only some urban water systems are likely to generate the prospect for long-term profitability, while others will continue to require subsidies and support if they are to continue to improve service delivery. Recent experiences have indeed shown that global private companies only really go for the nice bits; those that have some meat on the bone. That means that only big city water works are considered worthy of privatisation. And within those cities, areas with high-income residents with proven ability to pay are of course the valued customers of the privatised utilities. This of course leads to strategic 'cherry picking' from the part of the companies (Graham and Simon 1994). The 'promising' utilities (in terms of prospects for profit making) are cleared for privatisation; the smaller and usually less profitable utilities remain in public hands and require continuous subsidisation. Moreover, contractual obligations have to be written into concession arrangements to force companies to expand service provision in poorer areas. Rarely, however, do private service providers fulfil all the terms of their contractual obligations.

In sum, strategic cherry picking is just a variation on a recipe long proven successful in capitalism: privatize profitable business and let the taxpayer cough up the subsidies for unprofitably, but still essential, services. And the latter are invariably those on which the sustainability of the poorest groups of the population depends crucially.

#### *5.4.3 Corruption as Institutionalised Practice*

The inevitably strong link between the state and the private sector in privatisation schemes opens up all manner of corrupt practices. They may be illegal, but more often than not, belong to the standard arsenal of agreed practices and accepted procedures. Needless to say, forms of bribery, under-the-table deals, greasing hands to facilitate certain contractual arrangements and financial contributions to political allies, all belong to the standard tool-kit of privatised water utilities. The concession contract for Jakarta with Thames Water (now RWE) had to be renegotiated after allegations of corruption. Bribery scandals were also associated with the concessions in, among others, Grenoble, Tallinn, Lesotho and in Kazakhstan. Enron, Vivendi, and Suez have all been accused of making payments to political parties in return for favours.

Not more subtle, but fully legal inducements for privatisation are offered by national states and international organisations. For example, World Bank loans to the water sector are generally conditional upon spending a considerable share of the loan on managerial and other streamlining measures to prepare the groundwork for water privatisation. In the case of Guayaquil, Ecuador, for example, the Inter-American Development Bank provided a \$ 40 million loan under condition that almost half of it would be spend on preparing the privatisation bid of the public water utility (Hall and Lobina 2002) (Swyngedouw 2004). In sum, international loans and other arrangements are used as a means to push through this neo-liberal agenda.

## 5.5. The Continuing Importance of the State

### 5.5.1 *The Myth of the Neo-Liberal Model*

The water privatisation business foregrounds also one of the central myths of the neo-liberal model, i.e. that privatisation means getting the state off the back of the economy and rolling back regulatory red tape. This rolling-back of the state is further legitimized on the basis that the state has ‘failed’ in many developing countries to deliver the required services. While this is undoubtedly the case for a number of countries, it can also be argued that in many cases the state has been remarkably successful in delivering services to a large number of people. However, regardless of the argument in favour of reduced state intervention in the water sector, the state or other governing arrangements (from multi-lateral organisations like The World Bank, IMF, or the EU to national governments, to the local state) are centrally involved in ‘regulating’ and ‘organising’ privatisation. They change laws, rules, and conventions and produce new legal and institutional frameworks that permit and ‘regulate’ privatisation, often imposing all manner of conditions and constraints that force privatisation through. In addition, governments provide all manner of financial and other incentives to lure private companies, to foster private sector involvement, and the like. After privatisation, a state controlled regulatory institutional framework invariably has to be implemented, just to make sure that companies ‘behave in competitive ways’. Without the various state levels paving the way for and imposing conditions that guarantee privatisation, and to secure profitable operation afterwards, this accumulation by dispossession could not possibly take place. The state is, in other words, a central actor in establishing and maintaining ‘market principles’. Privatisation, therefore, does not roll back the state, but it changes the role of the state while not necessarily diminishing its role.

The tendency towards commodification and privatisation changes the regulatory context in important ways (see also below). While moves towards commodification and privatisation are legitimated on the basis of considerations of increased competitiveness, higher productivity, lower prices, and drastic cutback in bureaucratic regulation, there has been a tendency to equate those shifts in the economic forms of organisation with de-regulation. However, evidence from the water sector suggests exactly the opposite. New institutions, most notably in the field of economic and environmental regulation, accompany every privatisation programme. As Bakker (Bakker 1999a) (Bakker 2001) has pointed out in the context of the U.K., the regulatory game that started with the privatisation (and ostensibly de-regulation) unleashed a certain ‘regulatory creep’, which has subsequently developed into a top-heavy institutional-regulatory body. Given the territorial monopoly-character of the privatised water companies, all sort of regulatory procedures, such as investment target-setting, pricing, environmental standards, abstraction and leakage standards, quality assurance, and the like, have been implemented. Having shifted from a situation in which the state was both ‘poacher’ and ‘gamekeeper’ to one in which there is a sharp institutional separation between the two has inevitably led to a situation in which ‘regulations’ have become formal, overt and statutory (Swyngedouw, Page, and Kaika 2002). Rather than de-regulating the water sector, privatisation has resulted in a profound re-regulation of the water market and in the emergence of a considerable quasi-governmental regulatory structure.

The struggles over the boundary between the public and the private terrain operate primarily through two interrelated axes: first, environmental standards and, second, market imperatives. The tension between these becomes contained in the pursuit of *environmentally friendly marketization*, while the public/private tension is meditated through debates over the form that the commodification process should take. Unanticipated consequences of these debates are seen in the changing character of knowledge within the water sector. Information that was once in the public domain becomes commodified, takes on commercial significance and is often treated as confidential. In the context of a shift to governance, knowledge management is central to playing the regulatory game. Retaining control of technical institutions remains an important vehicle for government bodies (at a variety of scales) to preserve its relative advantage within negotiations. But despite the apparent centrality of such debates about public and private spheres, it is clear that state-led command-and-control strategies remain the key mechanism for the implementation of environmental regulations (Taylor 1999). Governments are not just instrumental as initiators and facilitators of privatisation; they also play a central role in guaranteeing profitability or insuring companies against adverse political or economic conditions. For example, the World Bank insured International Water's concession in Guayaquil, Ecuador to the tune of US\$ 18 billion against all sorts of risk, including political instability (Hall and Lobina 2002).

In sum, rather than de-regulating the water sector, privatisation has resulted in a profound re-regulation of the water market and in a considerable quasi-governmental regulatory structure. In the process, the set of social actors involved in the institutional and regulatory framework of the water sector has been significantly altered, with a new geometry of social power evolving as a consequence. This new choreography of institutional and regulatory organisation is what we shall turn to next.

### *5.5.2 Institutional re-scaling: from water government to water governance*

A host of new institutional or regulatory bodies have been set-up (in the UK appropriately called Quango's (quasi-NGOs)) that have considerable decision-making powers, but operate in a shady political arena with little accountability and only limited forms of democratic control. These institutional changes have been invariably defined as part of wider shift from government to governance (Swyngedouw 2000) (Jessop 2002). Whereas in the past, water management and water policy were directly or indirectly under the control of a particular governmental scale, i.e. either at the national state and/or the local (municipal) level, in recent years there has been a massive proliferation of new water-related institutions, bodies, and actors that are involved in policy-making and strategic planning at a variety of geographical scales. For example, the successive generations of water-related directives and regulations at the EU level and the torturous process of implementing an integrated EU policy – in the form of the European Water Framework Directive -- have resulted in growing powers of the Commission over water-related issues. The political history of the successive stages of negotiating the framework directive suggests a rather tumultuous path in which various actors (such a national governments, water providers, the European Commission, the European Parliament, NGOs of a variety of kinds) played different roles, while their influence changed over time (Kaika 2003b) (Kaika and Page 2003) (Page and Kaika 2003). In addition – as the UK case shows -- privatisation required setting-up a series of new regulatory bodies (OfWAT in

particular) and a re-definition of the powers and prerogatives of existing regulatory organisations such as those of the National Rivers Authority that became integrated in the newly created Environment Agency. The attention to Integrated Water Resources Management has also called for setting up new planning and management bodies like River Basin Authorities. While welcome in themselves and despite calls for implementing ‘participatory governance’ principles, the actual management of such bodies remains often largely outside standard democratic channels.

The combined outcome of the above has been a more or less significant (very significant in the case of the UK, less so in the case of, say, the Netherlands) re-configuration of the scales of water governance. As Bob Jessop (Jessop 1994) has pointed out for other domains of public life, the national scale has been re-defined (and partially hollowed-out) in terms of its political power, while supra-national and sub-national institutions and forms of governance have become more important. Privatisation, in turn, has led to the externalisation of a series of command and control functions. The result is a new scalar ‘gestalt’ of governance, characterised by a multi-scaled articulation of institutions and actors with varying degrees of power and authority. The overall result, therefore, is a ‘glocalisation’ (Swyngedouw 1997) of the national government, both upwards to the supra-national level and downwards to the sub-national level. This results in a more complex articulation of varying geometries of scale-dependent forms of governance. In sum, national governmental regulation is simultaneously up-scaled and downscaled, with an accompanying change in the choreographies of power, both between and within institutions (see also below).

Finally, privatization itself of course results in much greater power and autonomy for the companies themselves in terms of strategic and investment decisions. Privatisation *de facto* means taking away some control from the public sector and transferring this to the private sector. This not only changes decision-making procedures and strategic developments, but also affects less tangible elements such as access to information and data. Traditional channels of democratic accountability are hereby cut, curtailed, or re-defined. A plethora of new institutions has been formed at a variety of geographical scales. This proliferation of ‘governing bodies’ has diminished the transparency of the decision-making process and renders it more difficult to disentangle and articulate the power geometries that shape decision-making outcomes. In practice, it can be argued that the transition from government to governance has implied — despite the multiplication of actors and institutions involved in water management— the transfer of key economic and political powers to the private component of the hydrosocial governance complex. This, however, has not happened in a social vacuum and has rather fuelled a constellation of social and political conflicts, not least because of the consequences of an increasingly private-oriented governance model for the sustainability of socio-environmental systems.

### *5.5.3. The Absent Citizen: New Actors and Grey Accountability*

Needless to say, the transfer of water control and delivery from the public to the private sector involves a change in the choreographies of power and control. With political and public involvement waning, the power of the citizen is reduced. Moreover, to the extent that water is turned into money and capital, and water users into water customers who pay for water (rather than being citizens entitled to access to water), the choreographies of political power around water are fundamentally overhauled. Principles of business secrecy, absence of participation, non-transparent decision-making procedures and the like characterise the privatised organisation of

the water sector. Although a vital and local good, the decision-making frameworks are taken away from local or regional political control and relegated to executive boardrooms of global companies. This leads to autocratic forms of water governance and regulation with limited or absent democratic control.

At the same time has the proliferation of regulatory bodies and systems of governance associated with the hydrosocial cycle, at local, national, or international scales, contributed to the emergence of a 'thick' regulatory structure, at least in developed countries, with ambiguously defined responsibilities and an imprecisely defined accountability. Depending on the geographical scale of organisation or on the particular institutional embedding of the water companies, a differing set of actors is involved in the decision-making procedures. The choreography of 'stake-holder' participation is uneven and unequal and, in many instances, operating outside traditional political democratic channels (see below). While some actors are well represented in some settings, they are excluded from others; still others remain totally absent from the arenas of power where fundamental decisions are made.

## **6. Cracks in the Mirror: the contradictions of water privatisation.**

### **6.1. Water: Public Good or Private Commodity?**

The recent shift towards turning H<sub>2</sub>O into a global commodity has profound implications on the social and political meaning and cultural valuation of water. First of all, water is turned into profits and capital accumulation by private or public/private institutions. Supplying water becomes hereby a means to achieve economic goals: economic growth and profit maximisation. To the extent that private companies do this, water-related activities become just a strategic element within a predominantly corporate strategy of companies that are becoming rapidly multi-utility and international. Second, non-economic uses and functions of water have then to be regulated by governmental institutions that often face serious opposition, conflict, or other constraints in the face of powerful private agencies. Moreover, it becomes increasingly difficult, if not impossible, to integrate water policies within a wider urban, social, or economic policy that would involve cross-subsidisation, alternative uses of water, or a socially stratified policy. Third, this shift inevitably entails a change in the geometry of social power. Private actors and companies become much more powerful voices in strategic water-related decisions, at the expense of other civil society organisations or of the state. Fourth, while the water cycle operates on temporal rhythms that are part of the larger environmental system, it is nevertheless increasingly forced to operate under the standard discounting periods of corporate strategists and of economic cycles. Fifth, the privatised nature of crucial parts of the water cycle diminishes the transparency of decision-making procedures and limits access to data and information that could permit other social groups to acquire the relevant information on which to base views, decisions, and options. Finally, water production and distribution becomes incorporated into an increasingly global economy in which investment flows, financial capital markets, and investment decisions shape the contours in which the urban water economy operate. In sum, the shift from public good to private commodity alters the choreography of power through which the urban hydrosocial cycle is organised.

### **6.2. The Supply/Demand Nexus and the Investment/Pricing Conundrum**

At a moment when the price signal becomes a central organising principle of water markets, and in a context of relatively fixed supplies, demand management becomes tricky business. Monopolistic market control that is inevitably associated with water supply networks demands a strong price and investment regulation by the State (benchmarking) or other governmental agencies. In addition, efforts to reduce water consumption for environmental reasons are countered by cost-recovery requirements that hinge on price setting and produced quantities. Invariably, water companies are operating in the two-pronged wedge of price-setting regulatory systems on the one hand and costly technological/organisational investments to enhance productivity on the other. The triad investment/price/supply becomes very difficult to manage, particularly in a context of increasing pressures to reduce demand. Most evidence suggests a continuing tendency to increase supply despite rhetorical attention to demand management. The costly introduction of water saving technologies is, at best, slow, while major efforts are made to increase supply despite

often-formidable opposition. It is becoming abundantly clear that the price signal is insufficient to regulate the allocation and efficient use of a resource like water. Particularly when ecological or cultural aspects play an increasingly important role, the regulation of which demands political rather than economic instruments.

### **6.3. Socio-spatial Struggle over Water**

The twin tension between continuing increasing demand for urban water on the one hand and the mounting pressure to allocate water to other functions on the other has proliferated socio-spatial tensions and conflict over water abstraction, water allocation, and water use. These conflicts can take a variety of forms, ranging from a growing social differentiation within the city in terms of water consumption, conflicts over urban versus agricultural, industrial, or ecological use, to conflicts between resource extraction areas and urban consumption areas (reflected in conflicts over new reservoirs or dam constructions). In addition, the globalisation of water companies signals a strategy in which local waters, turned into capital, are geographically re-allocated to other places and cities. Invariably, the outcome of these struggles and conflicts is expressive of the uneven power relations that infuse the organisation of the hydrosocial cycle.

### **6.4. Water and Market risk: The Globalisation of Water and Uneven Development**

To the extent that water companies operate increasingly as private economic actors, they are also increasingly subject to standard market risks. While providing a fundamental and essential service, the economic survival of water operations is not necessarily guaranteed. Take-overs, disinvestments, geographical re-allocation, bankruptcies, inefficient operations, political risk, and the like are of course endemic to a private market economy. In fact, this uncertainty and fluidity is exactly what market dynamics are supposed to produce, i.e. to weed out under-performing companies, and to re-allocate economic resources from less to more profitable activities. This raises particular questions with respect to the long-term sustainability of market-based urban water supply systems. In absence of strong incentives to enhance productivity or efficiency, and given the high cost and long time horizon of fixed capital investments in water infrastructure, private companies may fail to keep water systems running efficiently. This would, in the medium term, lead to a situation in which the State (at whatever level) has to get involved again in the water sector in more direct ways. There is a tendency to leave the network/infrastructure part of urban water networks to the public sector, while profitable operational and private companies secure managerial activities. This entails an indirect subsidy of the private sector by the state and, in market terms, distorts the operation of the market. In fact, in a context in which risk of failure of water supply is too dramatic to contemplate, the state will have to remain (or become again) a key player in organising water supply systems.

## **7. Strategies for achieving universal access to clean water.**

The concluding section shall outline the dimensions of a series of strategies and possible avenues for broadening access to clean water.

### **7.1. Thinking out of the Water Box: Social Power and Water**

The hydrosocial cycle and its operation cannot be understood, let alone managed, as a separate entity, independent from other political, socio-economic, or environmental considerations. In fact, blinkered attention to water in itself, in isolation from other dimensions of development runs the risk of missing completely the key processes through which access to and exclusion from access to water is organised. In this section, we shall set out a number of key themes and issues that cannot and should not be ignored if questions of access to water are to be addressed effectively.

Water access and social power are closely intertwined. Powerful social groups never die of thirst. It is the politically excluded, socially marginalised and/or economically poor that suffer most dramatically from problematic water access. Water access, therefore, is first and foremost a question of entitlements, of property rights, and of rights to access. Legal and institutional arrangements that guarantee property rights, and entitlements to access are, consequently, a vital foundation to guarantee sustainable access to a sufficient bundle of environmental resources that would permit individual and collective survival. Such environmental entitlements are not automatic but need to be arranged, legally enshrined and institutionally embedded. Such entitlements are a necessary, albeit insufficient, condition to guarantee universal access to water. It is of course exactly in the controversies over entitlements that social power choreographies become most clearly expressed. Environmental social conflicts invariably unfold exactly over the structure of and social inequalities associated with entitlements.

It has to be recognised, therefore, that water flows – like other resources – are eminently political and need to be addressed in these terms. While managerial, technological, and organisation principles matter, it is ultimately the forms of political-economic power and its expression through the hydrosocial cycle that shapes mechanisms of access to and exclusion from access to water. It is absolutely vital that it is recognised that existing entitlement relations are socially and politically produced and maintained, and, consequently, do not derive from existing ‘natural’ conditions. Particular social groups lack access to water not because of real or alleged water scarcities, but because of differential entitlements associated with differential power relations.

Adequate consideration of water issues, consequently, has to be sensitive to the sources and mechanisms of reproduction of these power relations. Although gender, ethnic, and political power relations are clearly of eminent importance, the vital power relationship through which access to and exclusion from access to water is organised is undoubtedly money and capital. Indeed, whether irrigation systems, dams, or urban water supply systems are considered, such infrastructures are always necessarily articulated with and organised through major capital investment. The key characteristic of such investments is that they are usually long-term, large-scale, and offer relatively low returns. The central question, therefore, remains one of access to sufficiently large amounts of investment capital on the one hand, and the power to decide on the allocation and management of such investment. Or in other words, it is

the commodity form of water, and the politics around its production and distribution, that shapes conditions of access.

## **7.2. Commodification, Privatisation, Public, Private?**

As discussed above, commodification of water has been part and parcel of modern development, of modern irrigation, and of the urbanisation of water. It is, vital, therefore to recognize the commodified form of water on the one hand and to differentiate 'commodification' from 'privatisation'. Of course, transforming H<sub>2</sub>O into a useful 'thing' requires remodelling and re-organising the socio-hydrological cycle such that it serves particular socio-physical ends (irrigation, recreation, sanitation, etc...). The resulting hydrosocial cycle is embedded in and organised through the commodification of water. The central issue, then, is one that revolves around a) the allocation and control over investment capital, b) the ownership of the infrastructure and of water, and c) the distribution of the capital and of the socialised waters produced with it.

A considerable discussion has emerged over the past two decades or so that revolved exactly around the question of commodification and the structures of ownership. A common misunderstanding is to equate public ownership with free goods and with a non-commodified form of service delivery. This is of course incorrect. Irrespective of the public or private nature of service delivery, large-scale water distribution (in the form of irrigation or urban water) is fully commodified and has been so for a long time. The vital question, therefore, is one of who pays for the investment cost and for the water, and this is of course an eminently political-economic question. Large-scale urban water infrastructures demand large capital investments. The provision of such capital has to be a central concern. In addition, decisions about investment priorities are also centrally important. Both issues are of course directly related to the source of capital on the one hand, and the distribution of the returns of that capital investment on the other. While the cost of investment is usually known and fairly easy to calculate, the question of capital provision and of who the beneficiaries of such capital investment are is an entirely political issue and, therefore, a question of political and public choice.

The latter two concerns cannot be addressed independently from ownership rules and allocation and distribution of decision powers. It is here that a vital distinction appears between private and public sector involvement. In a purely privatised environment, investment decisions are decided by considerations of profitability. This requires, on the one hand, the exclusive right to appropriate and distribute water and the right to set the price of water such that capital investment and a normal return on capital investment is possible on the other. This of course necessarily limits the range of private investment decisions to those that are directly profitable. Private sector organisation of water delivery, therefore, is independent of (and cannot be otherwise) social, environmental, or political needs and requirements. A public organisation of water supply and delivery can (and generally does) distribute investment capital and the return on investment capital in politically and/or socially motivated ways. Both investment flows and the structure of returns are embedded within an arrangement of redistribution in which the key issues are associated with decision of who pays and who benefits or, in other words, is subject to social and political negotiation. Such redistribution processes always entails socio-spatial flows from certain social groups to others, and from some places to other places. For

example, when a developed country offers development aid to a developing country for a water project it is a mere redistribution of capital from the developed world (through the intermediary of taxation which normally results in richer segments of society contributing relatively more than poorer ones) to the developing world. Depending on the political choice of allocation of such capital, different social groups will receive different levels of capital gains from such investments. Of course, to the extent that a return on capital is demanded (in the form of interest, for example), different social groups in the receiving country will also have to contribute to this in differential ways.

In addition, as Karen Bakker (Bakker 2003) pointed out, water is an un-cooperative commodity. For a number of fairly evident reasons (bulky, non-substitutable, heavy, socially and economically contested, monopolistic, requiring long-term fixed investment), it is indeed not evident to make water subject to pure market logic. Recent experiences with water privatisation experiments have shown abundantly that turning water services into profitable and socially acceptable businesses is not an easy task. Moreover, demands for full cost recovery of water related activities reduce the possibilities for cross-financing and cross-subsidisation. The very term of 'Full Cost Recovery' is of course an oxymoron. It is of course evident that all investment project costs' need to be recovered by someone somewhere. The key question is really a political one, that is who will be responsible for the recovery of what kind of costs. When full cost recovery is discussed in the context of water projects, it invariably refers to view that water projects should be self-sufficient, i.e. that the cost of investment should be born completely out of water rates, i.e. that cost recovery is organised via water consumers. This of course limits the possibilities of cross-subsidisation to managing the tariff structure of water delivery in a particular re-distributive manner. It precludes subsidies and, thus, the financing of projects from local, regional, national tax revenues or, through development aid, from tax revenues raised elsewhere. Rates and direct or indirect taxation are the only possible forms for financing water projects. A narrowly defined Full Cost Recovery principle precludes using tax revenue for water projects. However, this has been the only way through which successful development of large scale water works with comprehensive was achieved or large irrigation schemes were implemented in the developed world. There is no evidence that this will be any different in the developing world. Mobilising tax revenues permits mobilising resources obtained from elsewhere or from other activities into other, collectively desirable, ones. Therefore, the narrow definition of Full Cost Recovery needs to be replaced by a much wider social and political-economic understanding, one that permits systemic forms of re-distribution of financial resources.

In sum, questions of investment in collective commodities like water are never independent of question of (re-)distribution. To the extent that the water economy is publicly or privately organised (or a mixture of both), these modalities of redistribution will be organised differently. While we have argued above that uneven access to water is primarily a question of economic or monetary power (and the lack thereof for large numbers of people in the developing world), achieving the Millennium Development Goals for water necessarily implies a major redistribution of capital resources. Guaranteeing access to clean and safe water for the 1.3 billion people who do not have access will necessitate the transfer of considerable amounts of investment capital whose return will have to be carried by the more wealthy sections of the world's population. This, of course, is independent of the question of whether the actual management of water supply and delivery should be publicly or

privately organised. The latter question is one of effective management. Around the world, both public and private (or mixed) companies have proven that they can be effective and efficient. However, the public/private debate should not overshadow (as it has done over the past decades) the question of the origin of the required investments to secure access to water. The private sector, because of the structural requirement for a normal return (profit) on investment, cannot and will not guarantee access to water to social groups with insufficient effective buying power (or, in some cases, willingness to pay) or investment in projects with an uncertain return. The only solution that can provide a mass solution is one based on subsidies and, thus, on redistribution of capital and income. Moreover, a public organisation of investment and of distribution permits considering a much wider range of technological, organisation, and managerial options. In many cities in the developing world, a thriving small-scale private economy of water delivery exists. While currently mainly operating through informal, unregulated, and often-shady forms of organisation, these micro-businesses show that alternative technological and organisational systems for water delivery are socio-economically sustainable.

The key issue therefore is not about whether or not water is or should be a commodity or commoditised. Water is of course a commodity to the extent that delivering the right volume of water of the right quality to the right place (whether potable or irrigation water) requires major investments of capital and labour and these have to be made available and paid for. The central concern is of course one of who will pay for what part of the hydro-social circulation process. Adequate and reliable access of water for those who lack access will require a major transfer of capital and systematic and sustained cross-subsidisation. It is exactly the recognition of water as a commodity that permits effective cross-subsidisation. While inter-spatial and inter-social cross-subsidisation is an absolute necessity if the Millennium goals are to be taken seriously, this should be considered separately from the private or public character of the management of water services understood in a narrow sense. However, the question of subsidisation and cross-subsidisation is of necessity a political one in which clear social, political, and economic choices have to be made. This political question needs to be addressed at local, national, and trans-national levels. Cross-subsidisation and subsidisation of investment does indeed require embedding issues of water access and distribution within appropriate institutional frameworks that discuss democratically and openly such questions of distribution. In fact, in the same way as a decision to privatise and fence-off water services (and to insist on its Full Cost Recovery) is an eminently political one (and often imposed by transnational organisations on developing countries), so is the issues of cross-subsidisation. Indeed, if the above argument is correct, then the question of who decides on both investment and distribution becomes an eminently political question, and one that relates directly to issues of democracy and of the distribution of political power. To the extent than no one has ever voted to starve of thirst, political empowerment is a vitally important part to achieve a more equitable and sustainable distribution of water. And this is what we shall turn to next.

### **7.3. Democracy and Political Power**

It is now widely accepted that systems of governing are undergoing rapid change (Commission\_of\_the\_European\_Communities 2001), (Le Galès 2002), (Swyngedouw

2005). Although the degree of change and the depth of impact are still contested, it is beyond doubt that the 19<sup>th</sup>/20<sup>th</sup> century political formations of articulating the state/civil society relationship through different forms of representative democracy, which vested power in hierarchically structured transcendental state-forms, is complemented by a proliferating number of new institutional forms of governing that exhibit rather different characteristics (Jessop 1995) (Kooiman 1995) (Kooiman 2003). In other words, the Westphalian state-order that matured in the 20<sup>th</sup> century in the form of the liberal-democratic state, organised at local, often also regional, and national scales, has begun to change in important ways, resulting in new forms of governmentality, characterised by a new articulation between state-like forms (such as, for example, the EU, public private partnerships, stakeholder forms of participatory governance and the like), civil society organisations, and private market actors (Brenner et al. 2003). In the water sector, the emergence of new forms of governance, with their particular configurations of participation, has been clearly identified (Swyngedouw, Page, and Kaika 2002). NGOs, international bodies like the World Bank or the European Union, national governments, and the like advocate new principles of good governance in the water sector, based on stakeholder participation, that brings together state, civil society, and private economy actors together in presumably horizontally organised, participatory, transparent, and networked forums and institutional organizations.

While the traditional state-form in liberal democracies is theoretically and practically articulated through forms of political citizenship which legitimises state power by means of it being vested within the political voice of the citizenry, the newly advocated forms of water governance exhibit a rather fundamentally different articulation between power and citizenship and, consequently, constitutes a new form of governmentality. As Schmitter (Schmitter 2002):52 defines it:

*Governance is a method/mechanism for dealing with a broad range of problems/conflicts in which actors regularly arrive at mutually satisfactory and binding decisions by negotiating with each other and cooperating in the implementation of these decisions*

Paquet ((Pacquet 2001), see also (Hamel 2002)) defines governance as

*The newly emerging models of action result from the concerted combination of social actors coming from diverse milieus (private, public, civic) with the objective to influence systems of action in the direction of their interests. (my translation)*

What we observe today is not a diminishment or reduction of state sovereignty and planning capacities, but a displacement from formal to informal techniques of government and the appearance of new actors on the scene of government (e.g. NGOs, transnational organisations and the like), that indicate fundamental transformations in statehood and a renewed relation between state and civil society actors” (Lemke 2002):50. This ‘destatisation’ (Jessop 2002) of a series of former state domains and their transfer to civil society organisations or the private market sector redefines the state/civil society relationship through the formation of new forms of Governance-beyond-the-State. This encompasses a threefold re-organisation (Swyngedouw 1997). First is the externalisation of state functions through privatisation and de-regulation (and decentralisation). Second is the up-scaling of

governance whereby the national state increasingly delegates regulatory and other tasks to other and higher scales or levels of governance (such as the EU, IMF, WTO, and the like), and, third is the down-scaling of governance to “local” practices and arrangements that create greater local differentiation combined with a desire to incorporate new social actors in the arena of governing.

These three processes of re-arrangement of the relationship between state, civil society and market, simultaneously re-organise the arrangements of governance as new institutional forms of Governance-beyond-the-State are set up and become part of the system of governing, of organising the ‘conduct of conduct’. This restructuring is embedded in a consolidating neo-liberal ideological polity. The latter combines a desire to politically construct the market as the preferred social institution of resource mobilisation and allocation, a critique of the ‘excess’ of state associated with Keynesian welfarism, and a social engineering of the social in the direction of greater individualised responsibility (Harvey 2005). Of course, this scalar re-organisation of the state and the associated emergence of a neo-liberal Governance-beyond-the-State redefine in fundamental ways the state/civil society relationship. Ironically, while these new forms of governance are often advocated and mobilised by NGOs and other civil organizations speaking for the disempowered or socially excluded (Carothers, Barndt, and Al-Sayyid 2000), these actors often fail to see how these instruments are an integral part of the consolidation of an imposed and authoritarian neo-liberalism, celebrating the virtues of market discipline, self-managed risk, prudence, and self-responsibility (Castel 1991), (Burchell 1996), (Dean 1999).

To the extent that ‘*participation*’ is invariably mediated by ‘*power*’ (whether political, economic, gender, or cultural) among participating ‘holders’, between levels of governance/government and between governing institutions, civil society, and encroaching market power, the analysis and understanding of shifting relations of power is a central concern. Since it is impossible within the remit of this paper to exhaust the possible theorisations and perspectives on social and political power, we focus on the principles that fundamentally shape individuals’ or social groups’ position within the polity and that articulate their respective (but interrelated) power positions vis-à-vis governing institutions on the one hand, and within civil society, on the other. In particular, in what follows, we take the theoretical and practical yardsticks of what constitutes democratic government together with the practices associated with arrangements of Governance-beyond-the-State commonly observed in the formation of new institutions of water governance around the world.

Whilst in pluralist democracy, the political entitlement of the citizen is articulated via the twin condition of ‘national’ citizenship on the one hand, and the entitlement to political participation in a variety of ways (but, primarily via a form of (constitutionally or otherwise) codified representational democracy) on the other, network based forms of governance do not (yet) have codified rules and regulations that shape or define participation and identify the exact domains or arenas of power (Hajer 2003). As Beck (Beck 1999: 41) argues, these practices are full of “unauthorized actors”. While such absence of codification potentially permits and elicits socially innovative forms of organisation and of governing, it also opens up a vast terrain of contestation and potential conflict that revolves around the exercise of (or the capacity to exercise) entitlements and institutional power. The status, inclusion or exclusion, legitimacy, system of representation, scale of operation, and internal or external accountability of such groups or individuals often take place in non-transparent, ad-hoc, and context-dependent ways and differ greatly from those

associated with pluralist democratic rules and codes. While the democratic lacunae of pluralist liberal democracy are well known, the procedures of democratic governing are formally codified, transparent, and easily legible. The modus operandi of networked associations is much less clear. Moreover, the internal power choreography of systems of Governance-beyond-the-State is customarily led by coalitions of economic, socio-cultural, or political elites (Swyngedouw, Page, and Kaika 2002). Therefore, the re-scaling of policy transforms existing power geometries, resulting in a new constellation of governance articulated via a proliferating maze of opaque networks, fuzzy institutional arrangements, ill-defined responsibilities, and ambiguous political objectives and priorities. In fact, it is the state that plays a pivotal and often autocratic role in transferring competencies (and consequently for instantiating the resulting changing power geometries) and in arranging these new networked forms of governance. The democratic fallacies of the pluralist ‘democratic’ state are compounded by the expansion of the realm of ‘governing’ through the proliferation of such asymmetric governance-beyond-the-state arrangements. In fact, when assessing the formal requirements of pluralist democracy against the modes of arrangements of Governance-beyond-the-State, the contradictory configurations of these networked associations come to the fore and show the possible perverse effects or, at least, the contradictory character of many of these shifts. That is what we turn to next.

### *7.3.1 Entitlement and Status*

The first question revolves around ‘entitlement’ and ‘status’. While the concept of (stake)‘holder’ is inclusive and presumably exhaustive, the actual concrete forms of governance are necessarily constrained and limited in terms of who can, is, or will be allowed to participate. Hence, status and assigning or appropriating entitlement to participate, is of prime importance. In particular, assigning ‘holder’ status to an individual or social group is not neutral in terms of exercising power. In most cases, entitlements are conferred upon participants by those who already hold a certain power or status. Of course, the degree to which mobilisations of this kind are successful depends, inter alia, on the degree of force and/or power such groups or individuals can garner, and on the willingness of the existing participants to agree to include them. In addition, the terms of participation may vary significantly from mere consultation to the right to vote. Needless to say, status within the participatory rituals co-determines effective power positionality. More fundamentally, while political citizenship-based entitlements are (formally) inclusive (at least at a national level) and are based on a ‘one person one vote’ rule, holder entitlements are invariably predicated upon willingness to accept groups as participants on the one hand, but also on willingness-to-participate on the other. The latter of course depends crucially on the perceived or real position of power that will be accorded to incumbent participants. In a context in which, partly through the erosion of political power (compared with other forms of power) and partly through an emerging more problematic relationship between state and civil society, many individuals and social groups have fully or partially ‘opted-out’ of political participation and chosen either other forms of political action or plain rejection.

### *7.3.2 The structure of representation*

Second, in addition to decisions over entitlement to participate, the structure of representation is of crucial importance. While pluralist democratic systems exhibit

clear and mutually agreed forms of representation, ‘holder’ participation suffers from an ill-defined and diffused notion of an actual system of representation (Edwards 2002). Various groups and individuals participating in networks of ‘governance’ have widely diverging mechanisms of deciding on representation and organising feedback to their constituencies. To the extent that it is primarily civil society organisations that participate in governance, their alleged insertion into grass-roots civil society power, is much more tenuous than is generally assumed. In fact, it proves to be extremely difficult to disentangle the lines of representation (and mechanisms of consultation and accountability that are directly related to the form of representation) through which groups (or individuals) claim entitlement to ‘holder’ status (and, hence, to participation) or are assigned ‘holder’ status. This, of course, opens up a space of power for the effective participants within the organisation that is not at all, or only obliquely, checked by clear lineages of representation.

### 7.3.3 *Accountability*

Thirdly and directly related to the above, the mechanisms and lineages of accountability are radically redrawn in arrangements of Governance-beyond-the-State (Rhodes 1999), (Rakodi 2003). Again, while a democratic polity has more or less clear mechanisms for establishing accountability, ‘holder’ representation fundamentally lacks explicit lines of accountability. In fact, accountability is assumed to be internalised within the participating groups through their insertion into (particular segments) of civil society (through which their holder status is defined and legitimised). However, given the diffuse and opaque systems of representation, accountability is generally very poorly, if at all, developed. In other words, effective representation has to be assumed, is difficult to verify, and practically impossible to challenge. The combined outcome of this leads to often more autocratic, non-transparent systems of governance that – as institutions – wield considerable power and, thus, assign considerable, albeit internally uneven power, to those who are entitled (through a selective random process of invitation) to participate.

### 7.3.4 *Legitimacy*

This brings the argument directly to the centrality of legitimation. The mechanisms of legitimation of policies and/or regulatory interventions become very different from those of representational pluralist democracy. To the extent that legitimation does not result from the organisation of entitlement, representation, and accountability, these new forms of governance face considerable internal and external problems with respect to establishing legitimacy. In fact, this has been a long-running problem for many of the new forms of governance, particularly as coercion and the legitimate use of coercive technologies remain largely, although by no means exclusively, with the state. Legitimacy depends, therefore, more crucially on the linguistic coding of the problems and of strategies of action. This is particularly pertinent in a policy environment that, at the best of times, only reflects a partial representation of civil society. As Kooiman notes, governance implies ‘*a linguistic coding of problem definitions and patterns of action*’ (cited in (Grote and Gbikpi 2002: 13)). This view parallels recent post-modern theories of political consensus formation (see (Hajer 2003)), which implies a reliance on the formation of discursive constructions (through the mobilisation of discourse alliances) that produces an image, if not an ideology, a representation of a desirable good, while, at the same

time, ignoring or silencing alternatives. These discursive or representational strategies have become powerful mechanisms for producing hegemony and, with it, legitimacy. The latter, of course, remains extremely fragile as it can be continuously undermined by means of counter-hegemonic discourses and the mobilisation of a deconstructionist apparatus for deciphering the codings of power that are imbedded in legitimising discourses.

### *7.3.5 Scales of Governance*

Fifth, the geographical scale or level at which forms of governance-beyond-the-state are constituted and their internal and external relational choreographies of participation/exclusion are clearly significant. When Governance-beyond-the-State involves processes of ‘jumping scales’ (Smith 1984) -- that means the transfer of policy domains to sub-national or transnational forms of governance -- the choreography of actors changes as well. As Hajer contends, scale jumping is a vital strategy to gain power or influence in a multi-scalar relational organisation of networks of governance (Hajer 2003: 179). For example, where national urban policy increasingly replaced ‘local public-private partnerships’, the types of social actor and their positions within the geometries of power changed as well. In other words, up-scaling or down-scaling is not socially neutral as new actors emerge and consolidate their position in the process, while others are excluded or become more marginal (Swyngedouw 1996b). In sum, with changing scalar configurations, new groups of participants enter the frame of governance or re-enforce their power position, while others become or remain excluded.

### *7.3.6 Orders of Governance*

Finally, as both Kooiman (Kooiman 2000) and Jessop (Jessop 2002) attest, a clear distinction, at least theoretically, has to be made between meta-, first, and second order governance. Meta-governance refers to the institutions or arrangements of governance where the ‘grand principles’ of governmentality are defined. For example, the European Union, the World Trade Organization, or the G-8 meetings are textbook examples of vehicles of meta-governance. First order governance is associated with codifying and formalising these principles, while second order governance refers to the sphere of actual implementation. In terms of political and social framing of policies, there is a clear hierarchy between these orders of governance, which can and do operate at all spatial levels. However, the choreography of participation, including entitlement, status, and accountability, varies significantly depending on the ‘order’ of the governing network.

In sum, a considerable effort has to be made to tease out the democratic content of the new forms of institutional organization through which water projects, particularly in the developing world, or proposed, developed, implemented, and managed. Two key concerns are of central importance:

- a) The alleged ‘excess’ of state.

The call for new forms of water governance is primarily resulting from a perceived state failure (see above). However, this ‘failure’ needs to be

carefully considered. Although there are instances of state failure, the state has also ‘succeeded’ on many terrains and in many countries. Moreover, the state is not disappearing, but will remain a key interlocutor in assuring governance and providing investment capital. A continued effort, therefore, needs to be made to assure further democratisation of the state and the improvement of the democratic forms of government and its accompanying institutions. It is vitally important, therefore, to focus attention on democratising the state’s water institution, rather than replacing them with new and decidedly unproven (in terms of democratic content) forms of governance-beyond-the-state.

b) The alleged democratic nature of ‘good participatory governance’

The non-normative and socially innovative models of governance as non-hierarchical, networked and (selectively) inclusive forms of governmentality, cannot be sustained uncritically. While governance promises, and on occasion, delivers a new relationship between the act of governing and society, and, thus, re-articulates and re-organises the traditional tension between the realisation of the Rousseauian ideal in immanent forms of governing on the one hand, and the imposition of a transcendental Hobbesian leviathan on the other, there are also significant counter-tendencies. In particular, as discussed above, tensions arise between:

- The possibilities and promises of enhanced democratisation through participatory governance versus the actualities of non-representational forms of autocratic elite technocracy.
- The extension of ‘holder’ participation as partially realised in some new forms of governances versus the consolidation of beyond-the-state arenas of power-based interest intermediation.
- The improved transparency associated with horizontal networked interdependencies versus the grey accountability of hierarchically articulated and non-formalised and procedurally legitimised, associations of governance.

These tensions arise particularly prevalent and acute in the context of the processes of re-scaling of levels of governance. The up-scaling, down-scaling, and externalisation of functions traditionally associated with the scale of the national state have resulted in the formation of institutions and practices of governance that all express the above contradictions. This is clearly evident in the context of the formation (and probably implementation) of a wide array of new forms of water governance. The processes of constructing these new choreographies of governance are associated with the rise to prominence of new social actors, the consolidation of the presence of others, the exclusion or diminished power position of groups that were present in earlier forms of government and the continuing exclusion of other social actors who have never been included. The new ‘gestalt of scale’ of governance has undoubtedly given a greater voice and power to some organisations (of a particular kind, i.e. those who accept playing according to the rules set from within the leading elite networks). However, it has also consolidated and enhanced the power of groups associated with the drive towards marketisation, and diminished the participatory status of groups associated with social-democratic or anti-privatisation strategies.

## **7.1. Creative Dissent – Productive Conflict – Mediating Power**

Enhancing the democratic content of water governance does not, therefore, rely on avoiding conflict, marginalising dissent, or ignoring power inequalities, but recognising these conditions and processes. Dissent and conflict, can, if institutionally and democratically embedded, produce productive and creative solutions for intractable problems. Power relations and differences have to be acknowledged and taken into consideration. The latter, in turn, would permit articulating dissent and democratically embedding conflict. This is particularly important in the water sector where conflict, uneven power relations, and voices of dissent are the norm rather than the exception.

This report (and many others) showed the inevitably contested nature of water production and allocation and the power relations associated with this. Conflict over water is unavoidable. Over the past few years, however, open and often-intense water conflicts of a variety of kind (over dams, water privatisation schemes, irrigation plans, and the like) have proliferated around the world. The intensification of open water conflicts signals, among others, an incapacity of the systems of governance and their institutional arrangements to bring dissent, conflict and power inequalities with the institutional configurations of governance and is often a sign of autocratic forms of governing that exclude, marginalise, or silences opposition rather than finding appropriate institutional settings for articulating difference.

In sum, therefore, democratising institutions of water governance requires not less dissent or conflict, but arranging transparent and democratic institutions of water governance (at all scales) that are sensitive to existing power relations that permit exactly some social groups to exclude others, thereby intensifying and publicising (in the sense of making ‘public’ in all its meanings) conflict, tension, and dissent.

## **7.5 Financing the Millennium Development Goals**

Of course, ultimately, political democratisation and socially empowered governance can only deliver the desired outcome with a sufficient mobilisation of necessary financial resources. The financial needs required to reach the MDG objectives are indeed considerable. According to Agenda 21, the report of the 1992 Rio Conference on Environment and Development, the estimated annual additional investment cost needed to achieve global water security was US\$ 56 billion (see (Cosgrove and Rijsberman 2000)). However, more recent estimates suggest that a much more significant effort is needed. The World Water Vision Report (Cosgrove and Rijsberman 2000) estimates that in the run up to 2025, US\$ 180 billion annually is required to achieve good water access for all. This includes an investment of US\$ 550 billion in dams and irrigation schemes to feed the growing world’s population, assuming a 40% increase in world food production. The report also assumes a 1.5 billion increase in population, half of whom will live in cities. Combined with existing deficiencies (1.5 billion) and ongoing rural to urban migration (0.5 billion), this would bring the total of people that need to be serviced to 3 billion. With a conservative estimate of US\$ 50 a person for urban water supply and sanitation, the total cost would be nearly US\$ 1.8 trillion. In addition to that, industrial water use will expand, while urgent replacement investment is required in the developed world and

in the former socialist states. The summary of total annual investment needs up to 2025 (and compared to the actual situation in 1995) and their expected sources is provided in Table 8.

**Table 8. Annual Investment Requirements for Water Resources and Anticipated Sources of Investment**

USE	Billions of US\$		Share (%)	
	1995	Vision 2025	1995	Vision 2025
Agriculture	30-35	30	43-50	17
Environment and Industry	10-15	75	13-21	41
Water Supply and Sanitation	30	75	38-43	41
<b>Total</b>	<b>70-80</b>	<b>180</b>	<b>100</b>	<b>100</b>

#### SOURCE

National Public Sector	45-50	30 <sup>a</sup>	58-71	25
Private Firms (domestic)	12-15	90	15-21	45
<i>International</i>				
Private Investors	4	48	5- 6	24
Donors	9	12	12-13	6
<b>Total</b>	<b>70-80</b>	<b>180</b>	<b>100</b>	<b>100</b>

<sup>a</sup>This figure assumes an additional \$20 billion in direct subsidies to the poor.

Source: Cosgrove and Rijsberman, 2000

In addition to the quite staggering magnitude of the investment required, 70% of the total is expected to be raised by the private sector. This World Water Council report asserts that “private actors can thus provide the main source of infrastructure investment”. The World Bank accepted this view, which furthered their push to privatization as the main means through which to elicit private sector participation (Pitman 2002). However, after some major difficulties (as exemplified by the cases of Atlanta, Cochabamba, Jakarta and Manila), many international operators are strategically withdrawing from major investments (Buenos Aires is the most recent example if this) (Gleick 2004). In a recent report of the World Panel on Financing Water Infrastructure (Camdessus Report) (Winpenny 2003), the modest contributions of the private sector to financing water projects were considered. The report concluded that “multilateral financial institutions will be the pillars of the new water financial architecture. They should do everything to reverse the recent decline in their water lending and make every effort to expand their use of guarantees and insurance” (Winpenny 2003). The latter would include establishing a “Devaluation Liquidity Backstop Facility”. This rather fancy name refers to the establishment of an international public body that would “effectively guarantee the foreign loans and finance the additional debt service incurred from devaluation to be reimbursed by the authority responsible setting the tariffs” (Winpenny 2003). In straightforward language, this would de facto mean that private investment risk would be transferred to the international public sector who would then recoup losses from the local publics in the developing country in case devaluation occurs. In other words, the public would carry the brunt of unfavourable national and international political economic conditions; this will hardly improve the situation of the poor and disempowered.

As Amann-Blake attests, and confirmed by the findings in this report, “through a review of the historical record [recent in case of the developing world; much longer in case of the developed world] we see that infrastructure ... was not primarily financed by the private sector and therefore questions why this would be different in developing countries today as they face rapid urbanisation, unstable economies, and population growth” (Amann-Blake 2006): 16.

Indeed, even with privatisation, private sector participation in the water sector remains limited and the prospects for future private sector investment rather dim. This leaves no other alternative than public financing to cover the bulk of the required investment. It would be a mirage, if not worse, to believe or assert that the MDGs can be achieved on the basis of massively increased private sector investment in the water sector. It has not happened in the recent past despite great pressure on all actors, the results of the actually existing experiments are mixed to say the least, and the prospects for enhanced investment in context of total privatisation are not promising. Without massively enhanced national and international public support, the MDGs will remain an empty promise. The fundamental policy question that the world is faced with is whether this public investment will be channelled in direct investment in public utilities or through financial mechanisms to make operations safe and profitable for the private sector.

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