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**MANAGEMENT OF URBAN WATER AND SANITATION, BAHIA,
BRAZIL**

by

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A Master's Thesis

submitted in partial fulfilment of the requirements for the award of

Master of Philosophy

of the Loughborough University of Technology

JULY, 1995

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DEDICATION

To my parents, Guy and Altair Carteado, to my brothers Guy Filho and Enoch Neto. The privilege of having you as my family is a gift for which I thank God.

To my late beloved Grandmother Astéria Ninck Carteado.

ABSTRACT

The management of water and sanitation services has always been a major concern in developing countries, where many people still do not have access to such services. Researchers have demonstrated that in majority of the cases failures in watsan projects are related to lack of suitable institutional frameworks, rather than to technical problems.

Lately, world-wide a higher private sector involvement in the provision of these services has been seen as a suitable mean of achieving institutional efficiency. In Bahia, Brazil, urban watsan services have been run mainly by a state owned company, that, as in many developing countries, is 'in debt'. It is also an organisation providing insufficient maintenance and misallocating investments. In addition to these problems, there is no current formal policy for the sector.

The hypothesis of this thesis is that a significant extension of private sector involvement in urban watsan sector in Bahia, Brazil is the suitable means to solve institutional problems. Therefore, promoting greater effectiveness of investment and efficiency of the services with a demand driven approach, with more responsiveness to the needs of users.

The thesis investigates the British and French approaches for managing watsan services as in these European countries there is a large involvement of the private sector. The thesis proposes an institutional arrangement for managing urban watsan in Bahia, Brazil, with a higher private sector involvement.

The conclusion is that an extension of private sector involvement is one of the means that can help the watsan sector to reach higher performance levels and can be used as a shortcut to achieve the targets. However, institutional strengthening of the current institutions can also be used for achieving the same purposes.

KEY WORDS: England and Wales - France - Brazil - Bahia - Water and Sanitation Services - Institutional Framework - Privatisation - Water Institutions - Management.

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ABBREVIATIONS

AIC	Average Incremental Costs
AMP	Asset Management Plans
ATD	Administrative and Technical Department
BNH	Banco Nacional de Habitação (Federal Housing Bank)
BOO	Built Operate and Own
BOT	Built Operate and Transfer
CDC	Caisse des Depots et Consignation
C.E.M.S	Centre d'étude des Mouvements Sociaux
Cepal	Comissão Executiva para a América Latina (Executive Commission for Latin America)
CONAMA	Conselho Nacional de Meio Ambiente
CRA	Centro de Recursos Ambientais (Environmental Resources Centre)
CSC	Customer Service Committee
DG	Director General
EC	European Commission
ECU	European Currency Unit
Embasa	Empresa Baiana de Águas e Saneamento S.A.
FAE	Fundo de Água e Esgoto
FNDAE	Fonds National pour le Développement des Adduction d'Eau
GDP	Gross Domestic Product
GNP	Gross National Product
IBGE	Instituto Brasileiro de Geografia e Estatística
IMF	International Monetary Fund
IRBM	Integrated River Basin
lcd	litres per capita per day
MMC	Monopolies and Mergers Commission
MOE	Ministère d'Environnement
NGO	Non Governmental Organisation
NRA	National Rivers Authority
NUS	National Utility Services
O&M	Operation and Maintenance
OFWAT	Office of Water Services
Planasa	Plano Nacional de Saneamento
PSBR	Public Service Borrowing Requirement
RMS	Região Metropolitana de Salvador
ROFA	Rate of Return on Fixed Assets
RPI	Retail Price Index

RT	Referential Tariff
RWA	Regional Water Authorities
SAER	Superintendência de Águas e Esgotos do Recôncavo
SEM	Société d'Economie Mixte
SOE	State Owned Enterprise
UN	United Nations
WAA	Water Authorities Association
WASH	Water and Sanitation for Health Project
Watsan	Water and Sanitation
WB	The World Bank
WDR	World Development Report
WHO	World Health Organisation

CHAPTER I

INTRODUCTION AND METHODOLOGY

1.1 THE MANAGEMENT OF WATER AND SANITATION SERVICES

The management of water and sanitation (watsan) services has always been a major concern, particularly in developing countries where many people still do not have access to these services, which are directly related to health and survival.

In different parts of the world, water and sanitation services are provided to the public by various types of institutions and organisations, within different organisational frameworks. The provision of this public service, as with others, is directly related to the historical development of access to the services; to the role of the state for regulating and/or organising the provision; and the development of public bodies as providers.

During the 19th century, Europe and industrialised America had to face the challenge of reacting to their rapid development and urbanisation processes. From 1830, cholera epidemics were predicted by English hygienists who were aware that only massive investments in sanitation infrastructure could diminish the high level of mortality and morbidity. In 1880, the steps for a Public Health Reform had already been implemented on an international basis in different countries (Brown, 1989; Jacobson, 1989; Kirwan, 1989). At that time, developed countries invested heavily in water and sanitation services as part of their infrastructure for urban areas.

During the 1970's and 80's developing countries spent huge amounts of money on infrastructure (4% of their national output or 20% of their total investment according to WDR, 1994).

The investments have been made through the national budget, international agencies or NGO's. Nevertheless, the provision of watsan services is still a major problem in many of those countries. There are one billion people in developing countries without proper water supply services and nearly 2 billion without adequate sanitation (WDR, 1994). However, the World Bank (op. cit.) has reported that despite the large resources invested in watsan, past investments have not had the development impact expected.

Thus, it is essential to improve the effectiveness of investment and the efficiency of services.

So far, expenditure on infrastructure, and more specifically in watsan, has meant the construction of new systems, rather than investment in the quality of service provided.

Latest studies have shown that the main causes of failure are related to the lack of a suitable institutional framework rather than because of technical problems. (Franceys, 1993a; Morales- Reyes, 1993; WDR, 1994; Saunier, 1991).

Regarding this issue, the World Bank Report (WDR, 1994), found that availability of infrastructure (per capita coverage) tends to be correlated with GDP per capita but not the quality of service provided (efficiency and effectiveness), (Ingram and Kessides, 1994).

Researchers have also indicated that efficiency and effectiveness, and success and failure in projects are more related to the institutional environment, and that changes in environment can improve effectiveness even when conditions of income are low (Ingram and Kessides, 1994; Franceys and Barker, 1992; Saunier, 1991).

1.2 INSTITUTIONAL PROBLEMS

Until recently, the trend had been to allocate resources to supply (or increase) quantity of infrastructure, rather than to the quality of the service provided. Thus, maintenance is often neglected, which makes much of the infrastructure perform to a lower level than that for which it was designed. An examination of the World Bank projects showed that badly maintained water supply systems deliver an average of 70% of their output to users, compared with designed targets of 85% (Ingram and Kessides, 1994). Also, as a result of stressing expenditure in construction, very often systems have been built to the wrong standard with premature investment that absorbs resources that should be used in maintenance or improvements in the service. (See the case of the sewerage system in Salvador, Bahia on chapter IV).

The current approach is that poor performance is basically related to:

- absence of competition;
- lack of managerial and financial input;
- lack of real prices (Ingram and Kessides, op. cit).

In addition, there is a generalised supply driven approach adopted mainly by engineers, for managing the sector. This approach makes the watsan sector emphasise the supply of facilities to communities who presumably will one day become consumers, as opposed to a demand driven approach where providers become more responsive to the stated priorities and wishes of communities, thus focusing management on the demand side.

The challenge in such a situation is to find the institutional arrangement which will make the suppliers of the services more efficient and responsive to the needs of the users. (Ingram and Kessides, 1994).

There are many ways to address the issues of changing organisational features. Different countries are dealing with the problem in different ways.

Table 1.1 shows the current different types of organisational framework for infrastructure. As can be seen, there is a wide range of arrangements, from completely public organisation to completely private, and a situation in which individual communities run the services directly. However, privatisation or high private sector involvement, is one of the ways now being promoted to achieve more effectiveness and more autonomy in the provision of services.

1.3 INSTITUTIONAL CHANGES

A model of management is defined by its institutional organisation, legislation, financing structure and sharing of roles and responsibilities among the actors involved. It is replaced when it is no longer coherent, failing to provide an architecture that meets the needs of the community. This is what has been happening world-wide: the models reach a crisis point because in the current context they are not efficient and do not respond to the needs of the community.

This is the reason why changes have been seen in the management of these services, specially in developing countries: the changes are related to the sharing of responsibility between different levels of government and between the public and private sector, also introducing major participation by local communities. In practice these changes result in two major tendencies: the first one is toward an efficient financial structure of the sector and its institutional development, seeking profitability and self sustainability sometimes with a trend towards privatisation. Even when there is no privatisation, there have been big changes in the financing structure, and in the roles played by the actors involved, mainly the provider organisations, either public or private, and their relationship with customers. The second tendency is toward decentralisation with a major role played by the local communities.

Changes in management methods mean changes within the state and in the equilibrium of the relationship between the groups involved. Lately, the inefficiency of public bodies has been stressed and has led to strong support for privatisation.

The inefficiency of the public organisations is due to: lack of obligation, as hardly any public sector managers are held accountable for their actions, and mismanagement is

TABLE 1.1

THE MAIN INSTITUTIONAL OPTIONS FOR PROVISION OF INFRASTRUCTURE

		OPTION A				OPTION B		OPTION C	OPTION D
		Government Department	Traditional	Public Enterprise Corporatised and Commercial	With Service Contract	With Management Contract	Leasing Contract	Concession contract	Private (including co-operative) Ownership and Operation
F U N C T I O N	Ownership of Assets	Public		Public (majority)		Public (majority)		Private (majority)	Private or in common
	Sectoral Investment Planning, Co-ordination, Policymaking, and Regulation	Internal to government	By parent ministry	Parent ministry or separate public authority		Public authority negotiated with private operator		Private, none or public authority	None or public authority
	Capital Financing (Fixed Assets)	Government budget	Subsidies and public loans	Mainly market-based financing		Public	Private operator	Private	Private
	Current Financing (Working Capital)	Government budget	Mainly subsidies	Mainly internal revenues		Private operator		Private (government may pay for public service obligations)	Private
	Operation and Maintenance	Government	Public enterprise		Private operator for specific services	Private operator		Private	Private
	Collection of Tariff Revenues	Government	Government or public enterprise	Public enterprise		Private operator		Private	Private
C H A R A C T E R I S T	Managerial Authority	Government		Public enterprise		Private operator		Private	Private
	Bearer of Commercial Risk	Government		Public enterprise		Mainly public		Private	Private
	Basis of Private Party Compensation	Not applicable			Fixed fee based on services rendered	Based on services and results	Based on results, net of fees paid by operator for use of existing assets	Privately determined	Privately determined
	Typical Duration	No limit			Fewer than 5 years	About 3-5 years	5-10 years	10-30 years	No limit

Source: World Development Report (WDR), 1994

compensated for by subsidies or transference from the Government; fiscal advantages; and the important fact that they do not face a bottom line, or a threat of bankruptcy. Morales-Reyes, (1993) compiled the different causes and situations that promote inefficiency of state owned companies. This compilation is in Table 1.2

1.4 THE NEW TRENDS

The WDR 1994 advocates three elements of institutional and policy reform:

- application of commercial principles of operation;
- broadening competition;
- involving users more in project design and operation.

These elements should be used either for public or private sector provision of the services. Nevertheless, it is clear that those elements are more likely to appear when there is an increasing involvement of the private sector in finance and operation tasks. It is argued that the past has provided numerous examples of failure of public bodies and increased evidence of more efficiency and user responsiveness when the service is provided privately.

Roth (1987), suggests the institutional arrangements for either private or public provision should be chosen according to the way they actually work in practice, rather than through the traditional way employed by economists, that is the potential market or Government failure.

Piped water supply appears to be unsuitable for private provision, as it does not fit the conditions he considers necessary for allowing private sector participation because it is a natural monopoly. There is an economy of scale; it is difficult to charge for the service or to exclude those who do not pay and there are substantial externalities that are not reflected in the accounts of private suppliers. However, Roth (1987) describes many cases of private sector involvement in the provision of piped water. In francophone Africa, the French system, with leasing '*affermage*' or concession contracts, is more common.

Very often, institutional reform of water bodies has led to more private sector involvement, as was described by Morales-Reyes (1993); Coing (1991); Saunier (1991). For Saunier (op.cit), it is likely that in the near future, technical assistance will consist of privatisation of operation of the public utilities.

Ingram and Kessides (1994) see the changes in management as a 'revolution', since the main concern now is in deciding who should be responsible for providing the service to customers and how it should be delivered. On these grounds, efficiency in the service has

TABLE 1.2 CAUSES AND SITUATIONS THAT PROMOTE INEFFICIENCY IN PUBLIC ORGANISATIONS

<p>A</p>	<p>GENERAL FOR ALL TYPE OR PUBLIC ENTERPRISES:</p> <ul style="list-style-type: none"> - Sometimes SOEs have fallen under public ownership as a result of public rescue following financial crisis under private sector operation. - Shortfall of capital. - The Government sets standards and then denies the means of financing them. - Nation's budgets that constrain or prohibit access to capital markets and control investment programs in ways that seem arbitrary from the industry's point of view. - Governments take a short term approach to what are long term requirements. - Government interferes in the managing of business. - Sometimes objectives are seldom specified and mutually inconsistent. - Vital decisions are determined by extraneous, usually political considerations. - Excessive indebtedness is often not measured adequately. - Inexperienced management and excessive personnel substitutions by political interests or government periods. - Lack of monitoring and supervision of the general performance and poorly defined indicators and goals. - Valuation of fixed and operation assets are rarely done. - Excessive levels of bureaucracy. - Corruption. - Deficiency of personnel aptitudes but also attitudes. - Lack of commitment in lowly motivated workers. - Personnel problems due to low salaries. - Limited professional capability of institutions. - Inadequate career lines in the staff. - Limits of government for supervision. - Considerable external influence that makes the managers/staff indecisive and slow. - Managers acting as political agents. - Weak agencies in the technical and financial supervising ministers. - Government make unrealistic financial promises that cannot be kept. - Poor planning of the total resources availability and the priority for expenditure of the Finances Ministers. - Poor management of targeted subsidies which do not reach the objective. - Excessive and over-exerted size of SOEs. - Inadequate Legislation and Rights allocation.
<p>B</p>	<p>WITH CLOSER RELATION TO WATER ENTERPRISES:</p> <ul style="list-style-type: none"> - Centralised government that gives priority to investment but forgets operation and maintenance. - The often conflicting objectives between the social and financial factors. - Nationalisation acts prohibit or constrain the industry from caring commercially orientated business. - The variables of the source, its availability, size and quality. (water, agriculture, electricity) - Social and economic situations of the customer that limit revenues or induce social and labour problems. - Demand growth that cannot be satisfied (water, electricity, housing) due to the huge cost involved. - Institutional complexity and overlapping of responsibilities. (National, Regional, Local levels) - The high percentage of water unaccounted. - The increasing difficulty of managing the high cost of operations and maintenance. - The legal, political and social limits to raising tariffs. - Inadequate or unfair tariff structure. - Droughts and/or environmental changes that determines lack or excess of water/resources.

Source: Compiled from: Carney, 1991; Cowan, 1990; Pina 1991; Kalimwenjuma, 1992, Coyaud, 89; Rees, 1992; Millward, 1988; Ramanadham, 1989, Kikery, 1990; Rondinelli, 1991; Roth, 1987; Clarkson, 1991; Twort, 1985; quoted in Morales Reyes, 1993.

been greatly encouraged by the use of private sector involvement in the management of watsan services, as a means to stress the importance of the institutional strengthening of providers. This has been led by international organisations, headed by IMF (International Monetary Fund) and the World Bank.

According to Coing (1994) there is no recent document from the World Bank about urban services without the description of the French model of management and the different forms of private sector involvement, concluding that this is best for the developing countries.

Adjustment packages for developing countries, promoted by the IMF and the World Bank, strongly support the involvement of the private sector in the services. In their logic, privatisation comes together with the economic stabilisation programme, goods and capital markets, prices, deregulation, democratisation and welfare of the population (Morales-Reyes, 1993). Those are considered the tools for solving the problems related to increased population, unequal income distribution, poverty and sanitation coverage, all of which are characteristics of developing countries.

Morales Reyes, *op.cit.*, shows that half of the lending from the World Bank to state owned companies in the period 1980-1989, has a strong private component.

Another argument used for privatising is that it is necessary because of the crisis of public finances and privatisation would release the state for other tasks (Coing, 1991). This new approach in many cases, means a complete change from the traditional way of managing urban services, provided in a monopolistic way and run by the council or by the central government.

For Clutterback (quoted by Morales- Reyes, p.32) and Rondinelli (1991) privatised companies do offer better and cheaper services and gains in efficiency, and the preparatory measures in state owned companies have already given positive results.

It is also said in support of privatisation that publicly owned capital deteriorates faster than privately owned capital, as the owner tends to devote more to maintenance in the latter (WDR, 1994; Haarmeyer, 1994). The former ends up being a very costly failure as experience has shown that savings in maintenance expenditure have to be compensated for later by much larger expenditures on rehabilitation or replacement. WDR (1994), reports that badly maintained water supply systems deliver an average of 70% of their output to users, compared to design targets of 85%.

Those who back the idea of privatisation argue that private sector involvement in the management of water and sanitation services in developing countries would provide better services at lower costs. For them, a private sector means greater productivity, the reduction of operation and maintenance costs, an improved efficiency of installations and smaller deterioration of equipment.

The international organisations and those who back their ideas, assume that the private sector has demonstrated a higher level of efficiency.

Although evidence suggests that under proper conditions the private sector and non governmental organisations can provide public services efficiently, little comprehensive or systematic assessment has been made of their comparative advantages (Rondinelli, 1991).

In fact, one cannot say that there is a direct relationship between the efficiency and ownership of provision of the services. The Asian Development Bank states in its 1994 report that the most efficient water organisation in the region is the Singaporian water organisation, which is a completely public body (Asian Development Bank, 1994). In Sri Lanka, the National Water Supply and Drainage Board is a public body that, after undergoing an institutional development project, achieved significantly improved performance levels (Tillekeratne, 1993).

Although new in water and sanitation services, privatisation of urban services has been an hegemonous trend (Coing, 1994a), mainly in developing countries where the international fund agencies play an important role in defining policies.

The World Bank has been increasingly investing in the development of institutional aspects of the services, as this is regarded as the main reason for failure in World Bank' projects (See Chapter VI).

Advocates of privatisation emphasise that lower prices in delivering services can be achieved by private companies as they are less restricted in work and hiring practices than the public sector and consequently can use the work force more productively, reducing it when necessary more easily than governments, therefore lowering the cost of labour force per unit of output. Also, the private sector makes investment decisions more effectively than public bureaucracy. They also point out that even under contracting out services, which is one category of public-private partnership, there are advantages, as in many cases it allows the public sector to take advantage of specialised skills in non-governmental agencies and permits Government to appraise the real cost of production.

1.5 WATSAN IN LATIN AMERICA

This thesis has as its aim the improvement of water and sanitation services in Bahia, Brazil.

Public urban water supply goes back to the second half of the 19th century in Latin America. After a period where urban services were run under concession contracts given to European (mainly English and French) and American companies, the pattern changed to that of a service run by a public enterprise involved in creating the necessary

infrastructure for development, capable of mobilising the necessary internal and external resources and allocating them in the most rational and effective way (Coing, 1994a; Carteado, 1993; Carteado & Franceys, 1994). This continued until the beginning of the present century.

Unlike the developed countries, where water and sanitation services were traditionally run by local authorities, in developing countries the tradition was centralisation of services (Coing & Montaña, 1986). This also applies to the pattern of financing the services in these countries, which is heavily based on external funds, which had been favouring large scale centralised management and large scale engineering projects.

This hegemonous model of managing water and sanitation services, with a national or regional public company, has been evolving into different models, regarding not only a privatisation process, but also different institutional arrangements, such as decentralisation in operation and maintenance, financing and investment, etc.

The pattern was for the service to be highly subsidised and run by public entities, completely public or para estatal organisations. These public entities are generally deficitary as the public sector have difficulties in charging the real cost of water. In 1988, more than half of the urban water companies in Latin America were running sizeable deficits (Faudry et al., 1991). In addition, the average price charged for water supply in developing countries typically covered one third of the costs of supplying it. (Ingram and Kessides, 1994)

In Latin America, where the majority of the population live in urban areas, 70% do not have access to sanitation services. In these countries the Governments have been trying to maintain availability of the service in step with the level of population growth, but rapid urbanisation together with the constant budgetary problems, made it impossible to achieve their aim, making investment in the service highly dependent on external funds.

1.5.1 The New Trends

The international financial crisis during the 80's affected developing countries in a deeper way; they had to face high levels of inflation together with increasing debts. The adjustment programmes that followed the crisis were often sponsored by international organisations such as IMF and the World Bank, which involves investment in infrastructure as part of the programme to overcome the crisis, by reducing public deficits and subsidies, tariff related to real cost, institutional autonomy of providers removed from political pressure.

In Latin America, many countries undergoing stabilisation programmes emanating from the International Monetary Fund or The World Bank, have already implemented a larger private sector involvement in water and sanitation services.

In Buenos Aires, water supply and sanitation services are now run under a concession contract by a consortium headed by French companies together with Argentinian and British private capital. In many other cities in Argentina, there has been a re-organisation in the sector, sometimes leading to privatisation, sometimes not, but in all cases seeking higher efficiency in the same patterns (Coing, 1993);

In Colombia, the Inter American Development Bank suggested the dissolution of the National enterprise responsible for watsan services in small and middle size cities, to be replaced by municipal organisations to work in a self sustainable basis; and an institutional change of delegating watsan services to private companies in many of the big cities in the country such as Baranquilla and Bucaramanga (Coing, 1994a). The institutional change has led to a market based approach with setting of tariff based on the cost of the service;

In Mexico, the city of Puerto Vallarta has signed a construction and operation agreement with the British private company Biwater whereby the company is committed to invest US\$ 3 million annually for modernisation of the city's water and wastewater plants (Haarmeyer, op cit.);

In Venezuela, the capital city put the watsan service out to bidding in 1994, without success;

In Peru, a *gérance* contract made the private sector responsible for different tasks of provision of water supply, such as meter reading, computer services, billing and collection, etc.;

In Chile and Guatemala, the Governments offer territorial concessions in large cities for long period of time to companies that operate water systems (Rondinelli, 1991);

In Brazil the first concession contract for water and sanitation services has just been signed (April, 1995) for a middle sized city in São Paulo state, between the Municipality and a consortium formed by one of the biggest French private companies in the sector (see Chapter III), Lyonnaise des Eaux and one of the biggest Brazilian contractor companies, CBPO.

Some other countries are preparing legislation and conditions in order to enable more private sector involvement.

Analysing the privatisation contracts signed for watsan services in Latin America, Coing (1993) noticed that the terms of the contracts required from the private providers demand results that have never been required from the public authorities, such as bench marks, supply of poor neighbourhoods with defined quantity and quality, equity in provision, etc.. Actually, these requirements placed on private operators are not a consequence of privatisation, but of the new relationship between providers and consumers discussed earlier in section 1.3 (Institutional Changes). Therefore, those requirements need to be met either by a public or a private provider.

1.5.2 Watsan in Brazil and Bahia

In the specific case of Brazil, urban water and sanitation services were organised according to the national water and sanitation master plan (Planasa) that was in place from the 70's to the 90's, which is discussed in chapter IV.

Before Planasa, the tradition was for watsan services to be run by Municipalities in Brazil. The large number of municipalities dealing with the services was one of the reasons given for the problems in the service at the time. Thus, the new plan was centralised with a policy for a technical approach and rationalism in the sector. It had as one of its bases the sustainability of the parastatal provider organisations. This was not achieved, which caused the vast majority of provider organisations to fall into deficit by the end of the plan in 1990. After that, no other plan has been set up.

Researchers fail to state whether this fact is intrinsic to the adopted model or was caused by mismanagement on the part of companies.

In Bahia, although defined in the Constitution which came into force in 1989 (art. 227-229), the necessity to set up a new policy for watsan services has not been met, which has been causing controversy over the efficient use of financial resources in the sector, in the absence of any study.

When a new policy must be formulated from the legal point of view, Embasa (Empresa Baiana de Águas e Saneamento S.A.), the state owned company created in 1971, as part of Planasa, obtains a loan from the World Bank in order to modernise the sector. Embasa was chosen together with two other companies among the 26 in the country.

This modernisation programme follows the already mentioned recipe used by international organisations, which stresses the institutional strength of the company, financial efficiency, sustainability of the provider, a charge for the real cost and the introduction of a new important managerial approach, that of comparative competition among the companies in the programme, in order to assess further resources.

Coing (1991) reported the importance of international organisms in defining institutional arrangements of urban services in developing countries. Carteado (1993), in a study about institutional changes in the watsan sector in Bahia during the 20th century, noticed that changes in the sector have been dictated by external agencies, as is shown in Chapter V.

1.6 THE PROBLEM, HYPOTHESIS AND THESIS OBJECTIVES

Similar to the pattern in other developing countries, water and sanitation services in Bahia have the problems described earlier, such as unreliable discriminatory provision of services, an indebted provider organisation, insufficient maintenance, misallocated

investment, unresponsiveness to users and technical inefficiencies with stress on the quantity of infrastructure, with new construction, rather than in the quality of the service provided, etc.

Also similar to other water and sanitation institutions, the one in Bahia had not taken into consideration the affordability of population, their willingness to pay or the standard of service that they expect. Due to the stress in construction, controversial if not premature investment in capacity has been made in a sewerage system that ends up not servicing the low income population more unlikely to meet individual solutions for wastewater; and has built a water system that increased the debt of the state dramatically^{1.1}, absorbing resources that could be used in maintenance or improvement in the quality of services.

The current situation in Bahia state and in Salvador city concerning urban watsan is detailed in chapter V. However, some information is necessary to contextualise the problem.

Some characteristics of the service are:

- 8.44% of the urban population have adequate sanitation services; and
- 73.93% of the same population had access to safe water, in 1992 (Cebes, XVII, 1994);
- 50% of the treated water is unaccounted for water as leaks and illegal connections;
- the state owned company is deeply indebt - US\$ 300million in 1993-(Embasa, 1994c).

It is clear from the literature review on Brazil and in interviews that the level of services is different for the rich and the poor populations. Jacobi (1989) and Carteado (1993), also noticed in different researches the discrimination in provision and delivery of services in São Paulo city and in Salvador city respectively.

Causes of problems are generally related to the lack of suitable institutional organisation. In the specific case of Salvador, Bahia, Carteado (1993), came to the conclusion that different institutional arrangements lead to different management styles and patterns for the services.

The role of the private sector in water and sanitation services in Bahia has been as the contractor for building systems, suppliers of materials and equipment, projects and designing, and lately accommodating personnel due to legislation constraints for hiring new staff.

1.1 It was costly - about US\$ 115,000,000 were spent in construction between 1971-1975 for a conventional sewerage system of Salvador, the capital city, which serves about only 9.8% of the population (First, 1991; Embasa, 1994a), see chapter IV; Espinheira, (1991), studied the decision making process and the cost of the largest water supply system of the state.

The hypothesis of this thesis is that a significant extension of private sector involvement in urban watsan service in Bahia is the suitable means to solve institutional problems, therefore promoting improvement of effectiveness of investment and efficiency of the services, with a demand driven approach, with more responsiveness from suppliers to the needs of users.

This thesis seeks to make a contribution to the discussion on a new institutional framework for watsan services in Bahia, Brazil.

Its objectives are:

- to investigate the British and French systems for managing urban watsan services with private sector involvement;
- to develop a proposal for the management of urban watsan services in Bahia, Brazil with a higher private sector involvement;

It investigates the British and the French models as together they comprise a comprehensive range of alternatives for institutional arrangements in which the private sector plays a major role.

Experience has demonstrated that the models of managing public services are the result of complex technical, economic, social and political processes in a society, at a specific moment, with a combination of factors different from the previous ones (Coing, 1991).

Therefore, they cannot be transposed from one situation to another. Nevertheless, past experiences can be studied and treated as references to be adapted to specific conditions. It is with this in mind that the British and the French models were chosen as a suitable starting point for the development of a proposal for managing watsan services in Bahia, Brazil.

1.7 THE BRITISH AND THE FRENCH MODELS OF MANAGING WATSAN SERVICES

Concerning more participation of the private sector in the management of watsan services, the two most important models are those used in England and Wales^{1,2}, since 1989, called the British approach; and the one used in France, since the 19th century, called the French approach. These approaches have influenced and have been used as the

^{1,2} The 'British' approach is used only in England and Wales. In Scotland, the water industry was not privatised in 1989, and the services are run by the Council. See Water and Environment Management, April, 1994; and Fleming, 1994.

base for a number of developed (Australia, United States of America)^{1.3} and developing countries in setting up new ways for managing public utilities in general.

The British model gained its importance as it represents the highest level of privatisation occurring in the sector, comprising the divestiture of assets of the former public authorities that ran the services; and strong regulatory bodies. Besides, historically, England has played a key role as a centre for developing new technological and managerial approaches in the world, specially in those former colonies and participants of the commonwealth, where the country still has an important presence.

On the other hand, the flexible and ancient French approach has had long term success. It comprises different managerial arrangements and has been used throughout the century in a diverse countries, in different political and economic situations, showing a great adaptability to different situations.

1.8 METHODOLOGY

The research was developed in four steps:

The first step was directed towards investigating the British and French systems, as a previous study and practical experience with the Bahian system had already provided the necessary initial knowledge of that system. Thus, the starting point was a preliminary literature review in order to identify the main aspects, actors and issues in each of the European models. This study provided the knowledge of the main aspects of each system and produced the definition of subjects that should be assessed in the next step of the research.

The second step comprised field work with interviews and a deeper and more concentrated literature review focused on the selected key aspects of the systems. Questionnaires and interviews had been prepared in order to assess subjects related to the characteristics of the services before and after privatisation, stressing aspects such as managerial style, customer service, legislation and regulation, and tariffs in order to appraise the main constraints in the systems, their weaknesses and strengths. The schedules of the interviews and questionnaires, together with a summary of the responses are in Appendix I-1. Interviews were carried out in different languages and then translated into English in order to be summarised.

Fieldwork was undertaken in France where interviews were carried out with researchers at '*l'Ecole Nationale des Ponts et Chaussés*'. Useful papers and research reports with

^{1.3} In Sydney, Australia, a concession contract was signed for 25 years, from 1992; Haarmeyer (1994), cites many contracting out in US cities such as New Orleans, Houston, Farmington, and mentions the growing number of US municipalities that have been signing *affermage* contracts, generally for a period of 5 years.

important data were obtained that later helped in the description and assessment of the French system. However, attempts to approach representatives of the French private companies were unsuccessful. Although some information was available on the private companies, reported data is provided for the whole group (holding company).

In England, interviews and questionnaires with representatives of the privatised utilities were made, together with an examination of some primary sources, such as the Water Act 1989, which is the basis of the system, and documents from regulatory bodies.

Having identified the key issues in both European models, fieldwork was undertaken in Bahia, Brazil, in order to assess the view point of policy makers and influential people in watsan services for a new policy for the state. Thus, the Brazilian system was assessed through the literature available, including primary sources from Embasa, the state owned company; and interviews with representatives of the main organisations related to the system. These primary sources and interviews, together with key issues defined for the European countries, were the basis for assessing the main problems and those key points in the system, that had to be considered in setting up the proposal.

The next step in the research was necessary because of the diverse approaches of the three models, especially the French and British ones, which made it necessary to use some tools that would allow a systematic description and assessment of the three watsan systems.

An Activity Responsibility Matrix and a Qualitative (Systematic) Analysis were made for each of the systems. An Activity Responsibility Matrix was also made for the proposed Bahian system. In addition, some objective performance indicators of the sector were set for the three countries.

Activity Responsibility Matrix and Qualitative (Systematic) Analysis are both tools to analyse institutions or institutional frameworks. The activity responsibility matrix is a self explanatory table that shows at a glance the inter-relationship between different organisations in the system and indicates the division of responsibilities, involvement and interests in the provision of the service. It also shows any overlapping, competition or gaps in the system (Franceys and Barker, 1992; Franceys, 1993b).

Regarding the Activity Responsibility Matrix, in this thesis, responsibility is related to the organisation that decides and carries out a task; involvement is generally related to the organisation that provides data or controls a task; and the organisation affected by the decisions is said to be interested. The scope of the matrix is on Appendix I-2.

The Qualitative (Systematic) Analysis of the sector was adapted from Cullivan et al (1986), when describing subjective categories for performance indicators in the guidelines for assessing water and wastewater institutions. Although not designed for

sectoral assessment, the guidelines can be adapted for a broader use. To do so, following as much as possible the recommendations placed in the cited guidelines, the National Policy Environment (Political, Economic, Social and Technological Environment- PEST) of each country, the Legislation and Organisational autonomy, the long range demand and technological requirements within the sector were also assessed. The definitions used in the qualitative (systematic) analysis are given in Appendix I-3. From Franceys (1993b), subjective performance indicators are very much the perceptions of the information gatherer. In this sense the 'Qualitative Analysis of Watsan Sector' shown in Appendix I-3, is the perception of this researcher based on the already mentioned sources and personal experience in the field.

Objective performance indicators are also tools usually used to measure the behaviour of an institution and its achievements. They must be specific and measurable in order to be compared with the previous conditions of a specific institution or with the same results from other institutions (Franceys, 1993b). In this thesis, objective performance indicators were used wherever possible in order to provide a quantitative approach capable of facilitating comparison amongst the three countries as far as it is possible. Nevertheless, only a few comparable indicators were able to be set up. Again, the very different organisation of watsan systems in the three countries posed difficulties in comparisons, although data is provided for Embasa. For the French system, because of its highly decentralised nature, (there are 15,000 water organisations in the country) which is described in chapter III, quantitative data is not available for the system as a whole, but for some cities. Also available is official data from a private company but most of the data refers to the holding company as a whole, which makes the information incomparable to the data available for the British system provided by regulators, mainly OFWAT (see chapter II).

Finally, the fourth part of the research is the development of a proposal for managing urban water and sanitation services for Bahia, based on the analysis of the characteristics and on the lessons learned from the British and French models.

1.8.1 Contents of the Thesis

The thesis is organised in six chapters. Chapters II and III describe and discuss the British and the French approaches for managing water and sanitation services, respectively. The Activity and Responsibility Matrix and Qualitative Analysis are placed at the end of each chapter. In addition, there is a brief comparison of the British and French models at the end of chapter III.

Chapter IV describes and discusses the management of watsan services in Bahia. In order to contextualise the approach, a brief description is given of the situation in Brazil and in the state. In that chapter some indicators related to the current performance of Embasa are analysed, as well as the interviews carried out in Brazil.

The Activity and Responsibility Matrix of the system is shown, followed by a discussion on the main problems of the current situation and on some alternatives that have been considered by researchers, politicians, etc. Then, the Qualitative Analysis of the watsan sector in Bahia, Brazil is presented; finally, a brief comparison among the three systems is made, based on some quantitative indicators.

Chapter V develops the proposal for managing water and sanitation services suggested in this thesis. This comprises the principles of the proposal, the main problems to be solved, its organisational framework and formal bodies, tools for price definition, etc.. Then, the activity responsibility matrix of the proposal is described, followed by a brief discussion on points that will facilitate or adversely affect the implementation of the proposal.

The last chapter gives the conclusions drawn from the research and gives recommendations for the management of watsan in Bahia, and for further research, both on the Bahian and on the European systems of managing water and sanitation services.

CHAPTER II

THE MANAGEMENT OF WATER AND SANITATION SERVICES IN ENGLAND AND WALES

2.1 INTRODUCTION

This chapter describes the overall structure and some aspects of the current institutional model of managing water and sanitation services in England and Wales. It also analyses the role played by the main actors involved in the system. The model, cited in the Water Act, 1989, which provided for the privatisation of the water industry and for the creation of regulatory bodies, is still in the process of construction. This abrupt modification of the institutional framework had as its main aim to facilitate the investment necessary to accomplish the EC directives without burdening the Public Service Borrowing Requirement (PSBR).

The chapter also highlights some of the issues that the system has been facing and the manner in which they have been discussed. The intention here is to predict possible constraints arising during the implementation of a new urban watsan policy, which is aimed at increasing private sector involvement.

The current model formally started in November 1989 when the single flotation to privatise the water industry took place. Nevertheless, as will be seen in this chapter, changes began many years ago within the different water policies.

The chapter is divided into five parts.

Firstly, there is a brief description of the development of the water industry in England and Wales, to put the current model into context, as it is a consequence of previous policies.

Secondly, there is a description of the current framework with its operational and regulatory bodies.

Thirdly, a self explanatory Activity Responsibility Matrix of the system is given, in order to visualise the relationship and the sharing of the tasks necessary to provide the services under the model.

In a further section the model is discussed, examining its main issues according to some of the actors involved, i.e. the regulators, the customers and the companies, as pointed out by researchers on the subject.

Finally, a Systematic Analysis of the model is presented, following the proposed methodology.

2.2 BACKGROUND

In the late nineteenth and early twentieth centuries, urban services were pioneered mainly by local authorities, as part of the infrastructure necessary for industrial production. In 1939, most of the water supply in the country was provided by local public authorities. (Stoker, 1993).

After the second world war, the role of local authorities in urban services was removed and most functions were taken over by nationally-organised quasi governmental agencies. Nevertheless, in 1962 the Central Water Committee reported its concern over the large number of separate agencies, diverse in size and character, that were dealing with water (Reeve, 1987; Stoker, 1993).

The Water Resources Act 1963, failed to change this aspect of the water organisation, and there remained a large number and diversity of authorities dealing with the management of water resources, water supply, sewage disposal, sewerage, and the prevention of pollution.

Continued concern with this situation led to a complete change in water management and to a consideration of managing the whole water cycle.

This new approach was first employed in the Water Bill 1973, which came into force in 1974. The Water Bill represented a cataclysmic change in the organisation of water services in England and Wales, with the idea of Integrated River Basin Management (IRBM), which meant the creation of multi-purpose agencies rather than single-purpose ones. Under this Bill, the local authorities ceded their responsibility for water supply to the Regional Water Authorities (RWAs) (Reeve, 1987; Stoker, 1993; OFWAT, 1993a; Richardson et al, 1992).

The 1973 Water Act created the ten multi-purpose Regional Water Authorities (RWAs) that would be privatised in 1989. Those RWAs were given control of all regional aspects of the water industry.

The Bill provoked considerable debate and polarisation since it meant a loss of local authority power. It is said that it reflected the dominance of technical aspects in management over the political ones, although the Local Authorities still retained some influence, through a strong lobby (Reeve, 1987; Richardson, et al, 1992).

The dominance of technical aspects helped the growth of a strong corporativism of the technocrats within the sector, which would be important during the process of privatisation.

Those changes also represented a radical shift in the managerial approach within the sector, as it did not try to upgrade the existing framework, setting new duties in the

organisational system. The idea was to create brand new structures. Only the 29 Statutory 'water only' private companies that supplied about 25% of the population remained in the new system.

Because of the idea that the Local Authorities were preventing the system from working effectively, The Water Act of 1983 took away some rights of representation from the Local Authorities and stressed the commercialism approach, calling for attention to the sustainability of the system, through the requirement of a rate of return on fixed assets (ROFA) of 2%. Water supply and sewerage services would henceforth be regarded as economic goods or a commodity. (Richardson et al, 1992; Reeve, 1987; Saunders, 1984). This changed the distribution of power in the sector, strongly minimising the influence of local authorities and putting economic considerations at the heart of the decision-making process.

In 1986, the White Paper, "Privatisation of the Water Authorities in England and Wales" proposed the privatisation of the water industry "in toto" i.e., privatising the ten water authorities with their responsibilities for providing water supply and sewerage services and also their duties as regulators, the latter including environmental regulation as control of river water quality and abstractions.

The idea at that time was that privatisation would encourage the companies to compete effectively where they could. Where this was not practical the Government would introduce a system of regulation to stimulate the competitive approach. Profit was considered to be a more effective incentive than government controls. In addition, the idea of the integrated river basin would be retained. (Richardson et al, 1992; OFWAT, 1993a)

After a deluge of opposition from different levels of society, including the possibility of problems with the European Commission (EC), privatisation in those terms was rejected. It was obvious that the role played so far by the Regional Water Authorities as "gamekeeper and poacher" could not remain when management was in private hands, and the Government could not downgrade its environmental responsibilities in order to maximise profit. (Glynn et al, 1992; Richardson et al, 1993).

In 1989, the water industry was privatised under the rules set by the Water Act 1989, in the way later described under heading 2.3.1.

At this point, it is necessary to make some brief comments on the privatisation policy of public utilities that started in the UK from the late 70's.

As previously indicated, the privatisation of watsan services was incorporated in a broader privatisation programme.

Before 1979, the majority of urban services were provided by elected local government and various quasi-governmental agencies, and in this process of municipalisation, the municipalities became managers of many public services (Stoker, 1993).

The idea of privatisation of urban services in the UK emerged in a context where the local authorities accounted for about a quarter of all public expenditure and 10% of the gross domestic product. The economic crisis of the early 1970's and the consequent concern over public expenditure encouraged the idea (Stoker, 1993).

By promoting private involvement wherever possible, the government could escape from the role of universal problem solver, and would reduce the public service borrowing requirement (PSBR) and privatisation became a major feature with British Telecom in 1984 and British Gas in 1986.

A publicity campaign was undertaken to sell shares of the companies to the public and to institutional investors. The shares of each utility were over subscribed, reinforcing the view that the shares were underpriced.

The concept was that the public authority was no longer the provider of public utilities, but should try to ensure that the needs were met through other agencies using private and voluntary resources as much as possible.

This implies, amongst other things, that where local authorities are involved in managing services, involving a massive work force and assets, they are distracted from their essential function as governors.

A key goal on the establishment of the privatisation policy was the disposal of a considerable amount of local authority assets (Stoker, 1993).

To sum up, some characteristics of the process of privatisation are:

- Not only the idea of, but also the attitudes towards, privatisation did not grow in a political vacuum- the Government was dissatisfied with the non commercial approach of the Water Authorities;
- There was no Local Authority participation in the process. The attitude of central government was shared by the bureaucracy involved, allowing an organisational change within the water industry;
- The Government was able to depolitize the subject, taking the trade unions and anti privatisation groups out of the process;
- The water authorities, some of which were in favour of privatisation, lobbied parliament.

Under the Water Act 1989, a Director General of Water Services- OFWAT- was appointed as the economic regulator of the industry in order to control prices and protect customers. The National Rivers Authority -NRA-, was also created. This is a non-departmental public body playing the role of environmental regulator, taking on the responsibility for water quality in rivers, lakes and bathing areas and for the associated functions.(Water Act, 1991) .

The Government decision was that only water supply, sewerage and sewage disposal would be privatised and the NRA, remaining under government control, would regulate the environment.

2.3 THE CURRENT MODEL

The current model of managing water and sewage services in England and Wales was established by the Water Act 1989, which included the privatisation regulation and stated the organisation and relationship between the different bodies involved in the provision of the services.

The system was built with two main concerns:

1. To stimulate competition among companies, encouraging technical efficiency and preserving the business approach by the suppliers. The companies are managed to "ensure their business skills" (Byatt, 1991, p.96);
The competitive forces must be preserved; the customers are free to have their own licence to abstract water, as well as the industrial sewage customers.
2. To protect the customers and society as a whole from the abuse of a natural monopoly in private hands and the effects of information asymmetry i.e. the private companies have better information than the public sector.

The main actors in this model are the regulators, the companies, and the customers.

According to Byatt (1991), the Director General of the economic regulator, the creation of independent regulators took away the mechanism whereby political decisions were constrained by public expenditure. As previously stated, regulation is still being developed, and the review identified problems and issues that will be briefly stated.

2.3.1 The Privatisation

In November 1989, the water industry was privatised in a single flotation, in which shares in the 10 water and sewerage companies were offered for sale. The earlier mentioned 29 minor Statutory Water Companies that have always been privately owned but operated under different regulations, were also put under the same regulatory control.

The expensive preparation for privatisation included:

- Evaluation of assets of the companies, in order to assess the cost of maintaining and replacing the system. This was done through statistical sampling rather than through the previous existing accounting practices, of historical and current cost account. Besides, Asset Management Plans (AMP) were adopted for each company as a tool to cost the investments they should make in the next ten years after privatisation. Infrastructure accounting was introduced as a new approach for estimating the value of infrastructure assets in financial accounts, providing more realistic information for preparing the AMP;
- the writing off of the water industry's debts: about five billion pounds;
- 1.6 billion pounds in a "green dowry" cash injection in selected companies to improve their financial position;
- cost-pass-through concession relating to the new legal requirements;
- cost of installing domestic water meters;
- beneficial corporation tax treatment, which means the water companies possibly will not pay mainstream corporation tax over ten years because of the billions of pounds of unused capital allowances available to be offset against pre-tax profits (Richardson et al, 1992; Triche, 1992; OFWAT, 1993a).

According to OFWAT (1993a), the benefits to the private water industry such as writing off of debts, cash injection and beneficial tax treatment were a recognition of the implications of EC legislation for improved standards on water quality that would impose great costs on the newly privatised companies. It was also due to the lack of investment in the industry in the past.

In fact one of the primary objectives of watsan privatisation was the need for huge investments in the industry to meet EC legislation.

2.4 REGULATION

The legislative framework for this aspect comprises:

The Water Act, 1989;

The Water Industry Act, 1991;

The Competition and Services (Utilities Act, 1992) - which applies also to regulatory bodies for the other privatised utilities of gas, electricity and telecommunications.

Within this framework the private companies are regulated as follows:

Water Quality regulation - the responsibility of the NRA and the Drinking Water Inspectorate;

Economic regulation - is conducted by OFWAT;

Other aspects - are regulated by the UK Monopolies and Mergers Commission (MMC) and the European Commission.

The Secretary of State for the Environment is responsible for regulating drinking water quality and for environmental policy, for which he employs the Drinking Water Inspectorate and the NRA as of his Department. The NRA negotiates on behalf of users and consumers and reports to the Secretary of State.

The Secretary of State for Trade and Industry, who is responsible for mergers, consumer and competition policies, receives recommendation from the MMC. The MMC has power over the costs and efficiency to the industry, being able to review OFWAT decisions, and is briefed to promote the competitive aspects of the utility.

The Director General of the Office of Water Services (OFWAT) is responsible for the economic regulation of water and sewerage. He is appointed by the secretary of State and, while autonomous in the judgement of his duties, must report annually to the Secretary of State for the Environment.

In addition to these regulations there is the watchdog who has the power to control prices for the same services, monitors service quality and acts as a conduit for customer complaints. (Stoker, 1993).

Although stating that regulation would have an open style, allowing companies to exercise their business skills, the British adopted a strict regulatory policy to monitor the monopolistic companies. This approach to regulation leads to higher costs for companies in providing information to regulators, Triche (1992). In fact, this is one of the strongest criticisms made of the British model.

2.4.1 The National Rivers Authority (NRA)

The National Rivers Authority (NRA) was set up to take responsibility for the control of pollution in the controlled waters of England and Wales.

In 1991, the following further legislation consolidated its duties:

the Water Industry Act, 1991;

the Land Drainage Act;

the Water Consolidation (Consequential Provisions).

The Water Resources Act, states the legislation related to NRA and concerned with water quality and quantity.

Each of the former water authorities was succeeded by a new nominated company. There are, therefore, ten regional NRA's.

Although the NRA took up the functions of the former water authorities (Water Act, 1989, chapter 15, section 1), it has quite new statutory powers, concerning the water

environment, only few of which will be stressed in this work, i.e. the ones strictly related to water supply and sewerage discharge, which are the key issues in the debate with the economic regulator.

Others functions are related to water resources, flood defence, salmon and freshwater fisheries, as well as some navigation, conservancy and harbour authority functions. The NRA also has the duty of promoting the conservation and enhancement of the natural beauty and amenity of inland and coastal waters, and the promotion of their use for recreational purposes.

The NRA sets Water Quality Standards for different purposes under the Water Quality Regulations of 1989. Nevertheless, the standards for drinking water are set by the Drinking Water Inspectorate, which was also established in the Water Act 1989 within the Department of Environment.

Together with the NRA, the Inspectorate of Pollution has powers under legislation to regulate and control discharges to controlled waters. Such waters include ground waters, fresh waters, estuaries and "relevant" territorial waters, among others. It is also responsible for the determination and issuing of consents for discharges into controlled waters, the monitoring of the extent of pollution in these waters and the achievement of water quality objectives. (Bowman, 1992).

The NRA sets the standards for quality and quantity that the discharges must meet, reviews discharge consents and, when necessary, revises them to ensure that standards are met. (Bowman, 1992, p.570)

The NRA charges the private water companies for abstraction of water from rivers and aquifers and also for discharges of dirty water to the watercourses. (Water Act, 1989, chapter 15, section 145). There are charges also for issuing consents to discharge and of monitoring compliance with discharge consents and also charges for the consent of abstraction.

The price is related to the volume the company has been licensed for consent. It is argued that nowadays the way the NRA charges the companies is not related to the concentration of pollutants they discharge. For this reason, there is no incentive or environmental care policy for the companies. Besides, the abstraction is charged according to the volume they are permitted to abstract, not the real amount abstracted. (Glynn et al, 1992; Kinnersley, 1992).

Economic instruments are used as a tool to prevent companies from discharging pollutants into the water. The idea here is that of encouraging companies to invest in environmentally friendly technology as opposed to having to face the costs of pollution.

The NRA has the power to prosecute those who cause pollution to the waters and can take direct action to prevent and remedy the pollution.

As an environmental regulator, the NRA is concerned with the following elements: (Bowman, 1992, p.576)

- . licence abstractions to control water quantity and flow rate;
- . controlling discharge of effluents to water;
- . clear licence and conditions which are understood in the same way by abstractors, discharges and regulators;
- . charging schemes for discharging;
- . clear prosecution scheme for those who breach licences and consents;

According to Hugh Tebbutt (1994), the former Regional Authorities had difficulties in prosecuting the water companies as "...they worked for the same boss". When launched, the first issue the NRA had to face was related to their credibility; that the body would be able to act on behalf of the customers, despite the existing relationship between water companies' people and the NRA's staff, as both were originally from the former Regional Water Authorities.

Trying to comply with the EEC Treaty, which says that actions related to environment should be taken at the Community level, the NRA works both at national and local level. At national levels, it works together with other bodies involved in the industry such as OFWAT and the Water companies, and agrees the priorities for the industry:

The agreed priorities in this stage, are: compliance with the EC directives and other statutory obligations; maintaining existing quality standards and reversing recent deterioration; and then targeting future improvements. (Crickhowell, 1993, p.2.1).

At local level, the NRA acts with farmers to discuss the feasibility of capital programmes.

2.4.2 The Office of Water Services (OFWAT)

OFWAT is an independent government department whose general duties are to ensure that: "the functions of water undertaker and of a sewerage undertaker are properly carried out as respects in every area of England and Wales"; and;

"without prejudice to the generality of the previous paragraph, to secure that companies holding appointments as water undertakers or sewerage undertakers are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of the functions of such undertakers." (Water Act 1989, chapter 15; part II, section 7).

"OFWAT shall perform in the way to look after customers, ensuring that their interests are protected as respects the fixing and recovery by the company..." (Water Act, 1989, chapter 15, section 7). This means that it must set prices in such a way as to reflect what

the customer imposes on the water and sewerage systems, in order to provide a proper service. In other words, it is responsible for the quality of that service. This means that the regulator has the conflicting duties of ensuring profitability of the private companies as well as acting on behalf of customers, protecting them from the monopoly position of private operators.

OFWAT has four policy divisions:

- Legal and land, providing legal advice to the office in all aspects of regulation-ensuring that customers get a fair share of the proceeds of sales of surplus land;
- Engineering intelligence, covering operating efficiency and capital investment-supervision of asset management planning and monitoring capital expenditure and company performance;
- Consumer affairs, covering consumer aspects of regulation (codes of practice, guaranteed standards scheme), consumer complaints, consumer care (comparisons, etc.) and management of the customer service committee (CSC) staff;
- Charges control, covering economics, accountancy, corporate finance policy on tariff structures, charge limits.

source: Byatt, 1991

In summary, the main concerns of OFWAT are:

- service standards;
- customer representation;
- price control ensuring reasonable return on capital for shareholders of private companies;
- facilitating comparative competition between suppliers trying to prevent the companies from misusing their monopoly position.

2.4.3 Service Standards

On regulating service standards, the Director General (DG) asks the companies to report progress on seven indicators: pressure, interruption to supplies, flooding from sewers, availability of water resources, hose pipe bans, response to written complaints, and response to billing queries. There are targets to be achieved on the three first indicators. There is also a guaranteed standard scheme which obliges the suppliers to pay a penalty of five pounds per incident or per day for failing to keep appointments without good reason.

As stated in OFWAT's Annual Report 1992, one of its key objectives is to move to a position in which the company performance is measured in terms of the quality of service delivered, instead of levels of activity or expenditure, (p.52).

2.4.4 Customer representation

Under the Water Act, 1989 (chapter 15, part I, section 6), the DG appointed a customer service committee (CSC) to each company.

Their statutory duty is to represent the views of the customer in each area and to deal with the customer. The CSC's identify the main concerns of water consumers in its geographical area, ensuring that customer complaints are properly dealt with, and advise the DG.

The range of issues brought to light by the CSC's includes the problem of debt and disconnection, the use of compensation paid by the companies for less than reasonable service and as a complaint remedy, optional metering, services for elder and disabled customers, involvement of customers in tariff policy, in the Periodic Review, etc. (OFWAT, 1993b).

Because many of the issues raised by the customers have a national dimension, the OFWAT National Customer Council was created in 1993 to speak with an authoritative voice on behalf of customers. It is formed by the chairmen of each of the CSC's and the DG.

A bigger concern with customers is one of the results of privatisation, because of OFWAT and regulations the Companies are more customer friendly. The customer manager is an important person in the companies. The former regional water authorities did not think of customers. They only did what they thought they had to as part of their duties. (Tebutt, 1994)

2.4.5 Price definition and control

The main concern of economic regulation has been the setting of prices. The system is such that it is OFWAT's duty to define the limit of charges that water companies can make for providing their services.

The limit is given by the formula $RPI + K$, where K is a charging limit that represents the amount by which average charges can rise in any one year above the rate of inflation. At the time of the flotation, K was established for ten years by the Secretary of State for the Environment and for Wales for each company. It was defined that the value of K should be reset after ten years, at a periodic review. However, under the terms of Licence, a review may take place after five years if proposed by a company or by the DG.

RPI is the Retail Price Index which measures inflation. The RPI to be used in calculating the price limit is the value in November prior to the start on April 1 of the charging year. (OFWAT, 1993b).

The **K** figure should reflect the amount each company needs to meet its capital expenditure programme and its operation and maintenance costs.

The idea is to make the companies search for the best profits through implementation of cost-reducing innovations. Thus, **K** is affected by the firm's own level of costs and size of assets.

The **K** value permits prices to increase faster or less fast than the **RPI** (Byatt, 1991, p.94). The first revision on **K** after privatisation was carried out by OFWAT in 1994, together with the review of different aspects of the system. The new **K** value took effect from April, 1995.

This system aims to provide stability for customers and incentives to companies to reduce their costs. But according to Byatt (1993), it does not avoid the issue of rate of return on capital, which was one of the objectives of the price cap system.

To avoid the possibility of the **K** factor being only the end result of calculations and bargaining, OFWAT is disaggregating **K**, between clean water supply and waste water disposal, between quality enhancement and efficiency, between infrastructure and improvement and utility service. (Byatt, 1993, p.4.3).

2.4.5.1 The raising of prices - Since privatisation, the prices of the services have been increased by about 4% above inflation. This has led to the increase by the private companies of using disconnection for non payment.

Table 2.1 shows the percentage of increase in average water bill since privatisation and the average household bill for 1993-1994.

The average water and sewerage bill for 1993-1994 was £185 for unmeasured connections. (OFWAT, 1993b).

In March, 1993, Byatt, (1993) stated that the price was about £0.50 per 1000 litres and about the same for waste disposal, which was considered good value for money. (See tables 4.12 and 4.13).

These price increases have been necessary to make up for the lack of investment prior to privatisation, and because of the new obligations placed on companies by the EC directives, by the Secretary of State for the Environment and for Wales and by customers (OFWAT, 1993b; Langdon, 1993).

Another source of rising prices has been the maintenance and upgrading of assets. According to Byatt (1993), it represents about 1/5th of the total cost of water. As **K** is defined taking into consideration this value, it is necessary to examine if companies are overestimating expenses in this area or if the standards have been too high and costly.

Table 2.1 Average Household Bills for Unmeasured Water and Sanitation - 1993/94

COMPANY		% Increase 89-90/90-91	% Increase 90-91/91-92	% Increase 91-92/92-93	% Increase 92-93/93-94	Level for 1993-1994 (£)
W A T E R	Anglian Water	22.3	19.7	13.4	9.0	116
	Bournemouth & West Hampshire ¹	19.6	23.2	13.5	11.5	85
	Bristol Water	7.2	15.5	11.6	9.5	86
	Cambridge Water	19.1	26.5	13.4	6.3	92
	Chester Waterworks	11.5	18.4	6.3	4.4	105
	Cholderton & District Water	10.0	19.0	9.1	9.0	111
	Dwr Cymru Cyfyngedig	18.3	16.2	9.4	8.2	123
	East Surrey Water	34.0	25.8	5.3	6.1	141
	Essex Water	16.0	13.1	9.9	8.6	91
	Folkestone and Dover Water	17.5	18.4	11.3	7.7	92
	Hartlepoons Water	15.9	14.9	9.9	8.0	71
	Mid Kent Water	25.1	12.9	6.4	4.1	114
	Mid Southern Water	21.8	21.9	11.3	8.5	102
	North Surrey Water	15.6	23.2	12.3	12.4	79
	North West Water	12.7	14.8	8.6	9.0	79
	Northumbrian Water	8.3	17.2	10.6	9.8	80
	Potsmouth Water	12.6	14.5	8.1	10.3	65
	Severn Trent	14.9	14.0	9.2	7.8	73
	South East ²	29.1	27.0	12.6	3.9	155
	South Staffordshire	12.5	14.4	8.9	5.7	69
	South West Water	12.9	16.6	12.9	13.4	106
	Southern Water	12.2	15.6	9.3	7.1	77
	Suffolk Water	31.9	17.0	18.2	15.8	105
	Sutton District	20.3	22.8	13.7	10.0	99
	Tendring Hundred Water	30.1	31.2	17.1	18.3	134
	Thames Water	16	12.9	5.5	6.8	75
Three Valleys ³	16.2	17.5	10.2	4.4	86	
Wessex Water	12.6	17.1	8.7	9.5	95	
Wrexham & East Denbighshire	22.7	17.8	13.4	7.8	124	
York Waterworks	16.3	13.1	7.2	6.4	80	
S E W E R A G E	Anglian Water	7.3	12.5	9.3	9.0	132
	Dwr Cymru Cyfyngedig	9.7	16.3	9.4	10.1	109
	North West Water	12.5	14.5	9.7	8.4	90
	Northumbrian	19.5	16.5	10.3	9.3	92
	Severn Trent	12.9	14.7	9.5	8.4	91
	South West Water	12.2	17.1	23.0	19.1	160
	Southern Water	10.3	18.4	9.6	7.6	114
	Thames Water	10.3	16.2	11.3	9.1	77
	Wessex Water	11.2	13.0	7.9	9.3	114
Yorkshire Water	9.8	13.1	6.7	6.8	84	

Source: OFWAT (1993b) Annual Report 1992

Notes: 1 Bournemouth & West Hampshire Water Companies comprise Bournemouth & District Water plc and West Hampshire Water plc

2 South East Water comprises Eastbourne Water, Mid Sussex Water plc and West Kent Water plc

3 Three Valleys Water Services plc comprises Lee Valley Water Ltd, Colne Valley Water Ltd and Rickmansworth Water Ltd.

2.4.5.2 Metering- The population of England and Wales are not accustomed to using meters. The possibility of paying for those services according to the quantity they use has been an issue in the system, with lively public debate and political dispute.

The method used before privatisation was to charge water according to the rateable value of houses, that is relative to local taxes. Only about 25% of the volume of water supplied in the UK is charged for by measured volume. The system is considered discretionary and there is no plan for universal metering.

The population is concerned about the cost of installing meters in existing properties. While the cost of installing meters on new construction is about £25.00, the average cost of installation on existing units is about £150.00 (Triche, 1992). There is also concern about paying for what one uses, especially related to health needs.

Metering is seen by OFWAT as one of the methods to be appraised when a company needs to reinforce its transmission or distribution schemes. The possibility of metering will be appraised together with the possibility of resource development and leakage control, in order to minimise the customers' bill (Byatt, 1993, p.4.2).

In the view of the companies, universal metering is not justified on economic grounds. (Byatt, 1993; Tebutt, 1994). On the other hand, it makes sense to charge for water supply services according to the consumption.

Companies can choose to use metering where it is likely to be economic. This is probable when the development of new resources would be required. Within the strategy, all customers should have a meaningful option to pay by meter.

Because most of domestic water is not charged for by volume, Byatt admits that the only way to finance increasing demand is by increasing price. Therefore, increasing demand would be one of the cases where metering would be studied, compared to the cost of resource development, as well as the use of hosepipes initially for the unmettered customers (Byatt, 1993, p.4.5).

In the system, low income families who find it difficult to pay their water bills, can get some support from the Department of Social Security and the Benefits Agency in order to avoid disconnection (Langdon, 1993), but the companies argue that they must be able to disconnect.

2.4.6 Comparative competition

Competition is one of the bases of the model. The DG proposes that through regulation and comparative competition it will be possible to achieve the same balance that is found in the competitive market. (OFWAT, 1991; 1993b).

A spectrum of indicators has been evolved by OFWAT, together with the industry, to assess the relative efficiency of companies, related to cost of capital expenditure

activities, financial cost capital, service levels and consumer care. The comparison on these figures is said to be very useful to the regulators in setting prices (Byatt, 1991).

Having the result of the efficiency study of each company, OFWAT adjusts each price limit. This price control intends to ensure that customers and shareholders will be beneficiaries of improved efficiency. If a company is able to increase its efficiency beyond the point that was predicted, it will be able to retain the extra profits to cut its costs until the next periodic review.

Furthermore, the price limit is not set taking into consideration the cost of each firm separately, but the cost of those companies which are judged to be relatively efficient.

Although competition in a monopolistic environment is lower than in a non-monopolistic system, it is claimed that comparison in performance will help in setting prices.

In spite of the efforts made by the government to increase competition, one of the bases to sustain the model, observers agreed that the flotation did not achieve its aim in this sense, and one of the interests in privatisation by investors is their monopoly position. (Stoker, 1993).

According to Andrew John, director of The National Utility Services -NUS^{2.1} - "comparative competition" or the "quasi-competitive" forces within the water industry have not started working yet. "Water is the only industry to have moved from public monopoly to private monopoly". (Water Services, November, 1993a). From his point of view, the lack of competitiveness within the system gave users no tangible benefits from privatisation, as happened with Telecommunications. While shareholders and Government have all the benefits, the customers face "...soaring bills without the ability to do anything about them". (p.13).

According to his considerations, privatisation, which is supposed to benefit customers, has not played this role in this area.

2.5 THE COMPANIES

Under the Water Act 1989, each of the water service companies has been appointed water undertaker and/or sewerage undertaker for a geographical area, the water region, and/or sewerage region. Generally, these areas are coincident, except for those places where water is supplied by one of the statutory water companies or where water supply or sewerage services are carried out by a neighbouring water services company.

The companies are licensed as undertaker by OFWAT. The appointment runs for a minimum period of 25 years and, in the event of inadequate performance the regulator has the power to revoke, terminate or transfer it in specific circumstances. Circumstances that could trigger changes in the licence are related to shortfall in achieving legal

^{2.1} NUS is a private company that deals with cost control and price of utility services world-wide.

obligations of service standards, and variations in proceeds from the sale of land. Nevertheless, OFWAT has encouraged companies to ask for amendments in their licences where necessary on the grounds of cost raises due to any new legal requirements.

The ten water and sewerage companies are formally represented by the Water Services Association whereas the water companies are represented by the Water Companies' Association. In the time of privatisation there were 29 statutory water companies - the water only companies. Currently, after some mergers they are 23.

The ten water and sewerage companies provide 75% of the water supply and all the sewerage services in England and Wales and the remaining 25% of water supply is provided by the water only companies (Langdon, 1993).

The ten water and sewerage companies are:

Anglian Water Services Limited;	South West Water Services Limited;
Dwr Cymru Cyfyngedig (Welsh Water);	Southern Water Services Limited;
North West Water Limited;	Thames Water Utility Limited;
Northumbrian Water Limited;	Wessex Water Services Limited;
Severn Trent Water Limited;	Yorkshire Water Services Limited.

The water only companies are:

Bournemouth & West Hampshire Water Companies;	Mid Southern Water plc;
Bristol Water plc;	North East Water plc;
Cambridge Water Company;	North Surrey Water Limited;
Chester Waterworks Company;	Portsmouth Water plc;
Cholderton & District Water Company Limited;	South East Water Limited;
East Surrey Water plc;	South Staffordshire Water plc;
East Worcester water plc;	Suffolk Water plc;
Essex Water plc;	Sutton District plc;
Folkestone & District Water plc	Tendering Hundred Water Services plc;
Hartlepoons Water Company;	Three Valleys Water Services plc;
Mid Kent Water plc;	Wrexham & East Denbighshire Company.
Water York Waterworks plc.	

Source: OFWAT, 1993b, p.24

The figure 2.1 shows the geographical distribution of the ten water and sewerage companies.

The sizes of the water companies vary widely: the largest one in population served is Thames Water, which delivers service to 7,225,000 people.

The smallest one in water services is the water only company Cholderton and District Water Company, which serves 2,000 people. (OFWAT,1993b)

However, the water and sewerage companies are generally large. Their main business is within the water industry but all of the ten companies have been diversifying, investing in their non-core business as solid waste management, environment consultancy, hotels, etc.

They are also undergoing an internationalisation process. Some of the British water companies have invested in off shore projects to design, build and operate water and waste-water plants in Mexico, Thailand, Macao, Egypt, etc.

There is a large international market to be conquered, in which they can use their experience and skills (The Sunday Times, 15.05.1994; Water Services, November, 1993b).

The industry is big business:

Its turnover for the years 1990/1991 was £ 4,374million and for the years 1991/1992 it was £ 4,735 million;

The dividends distributed to shareholders were, respectively, £810 million and £734 million in 1990/1991 and 1991/1992; (OFWAT, 1993b)

And the profit for the 10 water companies was £1.3 billion in 1990/1991.

Their monopolistic position makes it possible for them to have a profit per employee varying from about US\$38,000 to US\$70,000, while the biggest French companies in the sector makes a profit of about US\$3,500^{2.2} (Financial Times Newsletter, 1994a).

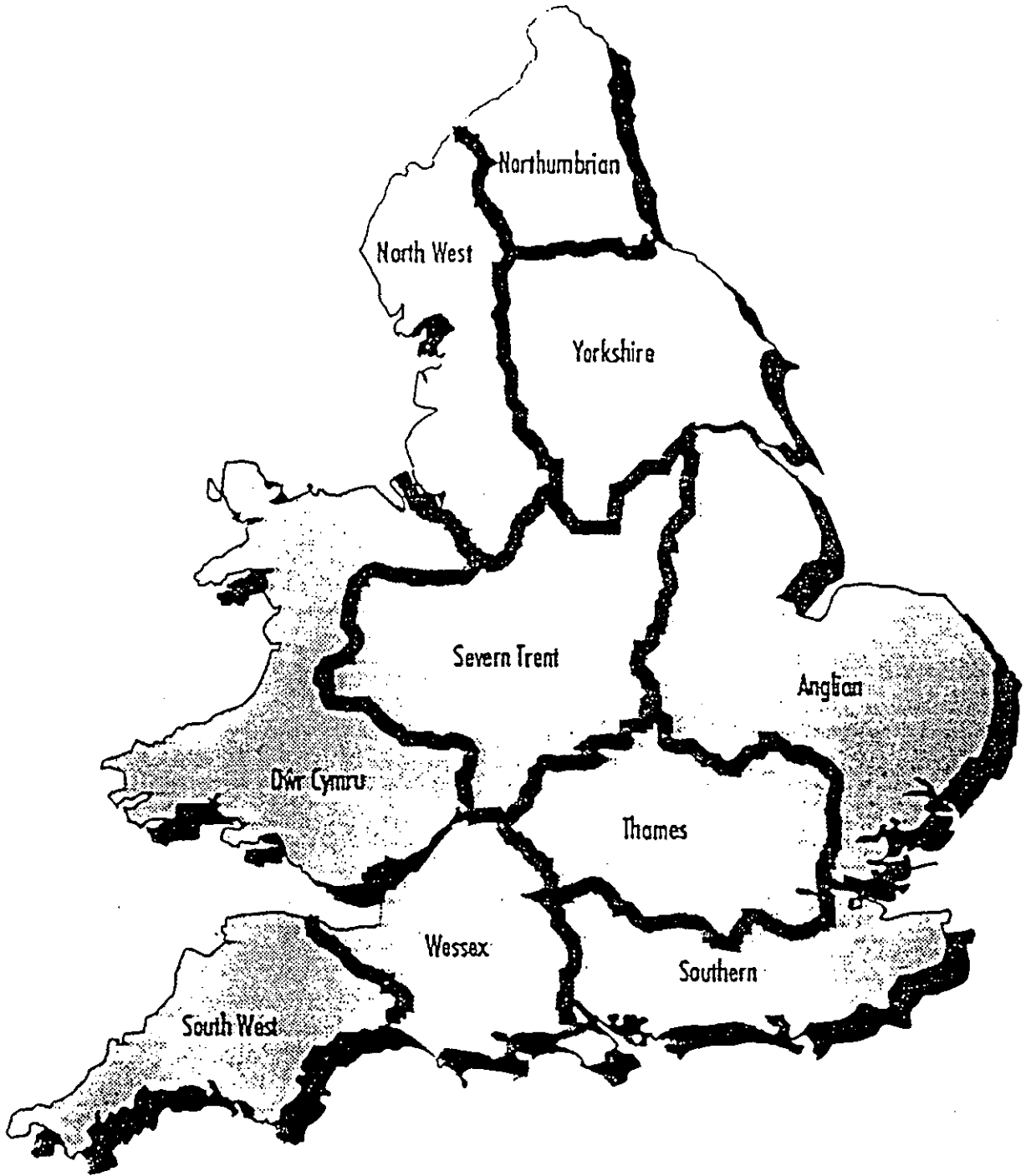
Management salaries have been increasing in the private companies and this has been seen as an issue by part of the public in the national press. Generally, it is compared with the rise in water bills.

This issue also illustrates the great change in management style after privatisation; switching from a technological driven to a financial driven style. Historically, the water industry was run by the technical people, engineers and chemists. After privatisation, the chief executives are generally financial people. (Tebutt, 1994).

A survey made by the NUS indicates that shareholders' pressure is playing an important role in the high prices.

^{2.2} A comparison between some indicators on British and French watsan private providers is under subheading 4.11 and tables 4.11, 4.12, and 4.13.

FIG. 2.1 The Ten Water and Sewerage Companies of England and Wales



source: Langdon, 1993

2.6 INVESTMENT

Investment in the industry is decided by the companies, according to the obligations placed on them and their investment master plan, which covers a period of ten years. As owners of assets, the private companies are responsible for investment in rehabilitation. The master plan carried out by the companies determines the customers' view on cost/benefit for the investments (Langdon, 1993) and, according to the companies' point of view, the investments are decided according to the customer's willingness to pay, and in areas they see as important.

The K factor for each company is determined by the DG taking into consideration the level of investment the company is expected to make. To comply with their "K Investment Programme" each water group makes assumptions for the rate of deterioration of the assets, the increase in demand for water and sewerage services, etc. Initial K setting estimates that £30 billion (1992-1993 prices) would be invested by the industry between 1989 and 1999 (OFWAT, 1993b).

Until July 1993, £7.9 billion had been invested, most of it in infrastructure improvements. Of the £30 billion companies expect to invest in water and sewerage services, about £13 billion is for improvement in the quality of drinking water (Langdon, 1993, p. 5.2). This represents £600 per person in England and Wales.

There are two main ways of regulating utilities: return on fixed assets and price capping. The return on fixed assets system (ROFA) can lead to over investment while the price capping system is designed to lead to efficiency gains, although it could generate excess profits between price revisions.

Price rises have been justified by the large investment made by the companies in order to meet the EC directives and environmental regulations.

The Government does not provide any subsidy for the necessary investments and the bulk of them will be met by the market.

The companies, together with the economic regulator, think that the customer must be sovereign (Byatt, 1993; OFWAT, 1993a; Langdon, 1993) and will be the one to decide which sort of improvement they want and how much they are willing to pay for it. They also insist on the importance of the legislation taking into consideration the cost benefit approach when setting standards related to water or environment.

The decision, then, is whether the burden of payment for investment should go to the current or to future generations. This issue has made the industry seek a more cost

effective approach and look at life time costing, questioning the way of doing things, in such a way as to make customers happy as well as shareholders.

OFWAT is also concerned about the possibility of cross-subsidy within the water groups. The Competition and Service (Utilities) Act 1992 empowered the regulator to prevent the groups from subsidising other activities of an enterprise at the expense of water customers.

2.7 ACTIVITY AND RESPONSIBILITY MATRIX

The Activity and Responsibility Matrix (fig. 2.2) shows a system where roles are well defined, without overlap in tasks. It also demonstrates a centralised approach to the system, where decisions are taken by regulators and private companies and local authorities do not participate in the system.

2.8 DISCUSSION

The economic regulator, OFWAT, acts on behalf of customers. At the same time the regulator has, as its duty, to ensure that shareholders of the private companies will get reasonable returns on their capital. This gives OFWAT the task of balancing between over regulation and lack of control.

Acting on behalf of the customers, OFWAT is preoccupied with the quality of the service and with their pocket. The NRA is concerned with the environment, including the quality of the water. It seems, then, that they have conflicting objectives and the Government faces a dilemma, as the pressure for improving the environment is growing and, on the other hand, the concern is rising about the cost.

It is the economic regulator's function to be concerned with the consequence of the cost of the improvements on the water bills. On this topic, OFWAT and its Director General, Mr. Ian Byatt, have already delivered many documents stating their point of view and sometimes responding in a critical way to the EC directives and to the NRA interpretation of them. (Byatt, 1991, 1993; OFWAT, 1993a).

From their point of view, environmental investment should be made according to the extent to which customers are willing to pay. The NRA view, on the other hand, with its responsibility for protecting a wider interest, states that the level of this investment should not be decided by the customers alone. Supporting this idea, the regulator must always aim high, being ambitious and pressing people faster than they are willing to go.

On the other hand, it is possible that the estimates of water companies and OFWAT are showing exaggerated figures in the hope that it will alarm the Government into stopping

FIG 2.2

ACTIVITY AND RESPONSIBILITY MATRIX
 England and Wales- The British System

ACTIVITIES	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
AGENCIES								
Central Government	IT	IT	IV	--	--	IT	IT	IT
Regional (State) Government	--	--	--	--	--	--	--	--
Local Authority or Syndicate of Communes	IV	IT	IT	--	--	IT	IT	IT
State Owned Company	--	--	--	--	--	--	--	--
Private Company	IT	IT	IT	IV	IT	R	R	R
Financial Basin Agency	--	--	--	--	--	--	--	--
Régie (Municipal Company)	--	--	--	--	--	--	--	--
Regulators	R	R	R	R	R	IT	IV	IV

R = Responsibility

IV = Involvement

IT = Interest

the whole process towards environmental improvement, as tariffs are defined based on their investment programme.(Crickhowell, 1993)

Efficiency in investment planning has always been an issue in watsan. In this case, although the price cap system tries to avoid over investment, the need for huge investment in the next ten years makes it unclear whether or not this arrangement can succeed in its aims. The population is complaining as prices have been increasing steadily. The key issue is to decide who is going to pay for environmental improvement, this or future generations.

Competition, one of the principles of the system, occurs in the stock market rather than within the system itself as was planned. The comparative competition that is stressed by OFWAT does not seem to be completely achieving its aim as the regulator is still in process of developing the spectrum of indicators suitable for assessing the relative efficiency of the various companies, because there are specific features in each company affecting its specific cost, such as level of treatment required and amount of pumping, in addition to customer care.

The conflicting duties of ensuring 'fair returns on investment to shareholders' and acting on behalf of customers places on the regulatory body, standing between providers and customers, a very difficult role to play. So far, it seems that OFWAT has been responding to companies' pressure in their needs to ensure investment capacity and returns, making this arm of the system (the companies), the one that is profiting from it. In balance, OFWAT has been carrying through the task concerning the companies but has not fully accomplished that of acting on behalf of customers due to its difficult position between conflicting interests. Even so companies have been complaining about the extension of regulation and agitate for deregulation. They argue that if it is for them to keep costs down, that they must be assured that regulation will place no unnecessary constraints on the industry and that the industry will have freedom to decide what needs to be done. At the same time, customers complain about the cost of the service.

The system is facing an attempt at over regulation, imposing a cumbersome and expensive system on one hand, when in many cases, it seems that it can only work effectively through negotiation and consultation.

The balance between the extent of freedom of the private companies and the role of the regulators to meet the interests of shareholders, customers and public health is the key factor in this system. Security of water services should be ensured through the companies which would be exposed to scrutiny and judgements of the financial market. But the

market is only profit motivated and not public health motivated, which makes the difference when a public service is run privately.

Examination of the British system has taught about the process of implementing a radical policy innovation that dramatically changed the equilibrium of forces between the actors involved in the provision of watsan services and has highlighted the issues and conflicting interests likely to arise during an implementation process. This approach for involving the private sector in the service is studied in contrast to the incremental approach to change happening in France, which will be investigated in the next chapter.

2.9 SYSTEMATIC ANALYSIS

The model for managing water and sanitation services in England and Wales, described earlier in this chapter, is formed by different organisations that play well-defined roles, as either providers or regulators.

- **National Policy Environment**

Both of the countries under consideration (England and Wales) are regarded as developed countries with stable political, economic and social infrastructures.

Economic and Social data refer to the UK as a whole unit in the World Development Report (WDR). It is considered that this does not prejudice the analysis of these aspects. According to the World Bank, the countries are highly urbanised (89% of the population live in urban areas) with a low rate of population growth (0.3%) and a high income economy. (see table 2.2)

Regarding social aspects, most of the population already has the basic needs, such as water supply, sanitation, health care, education, etc. typical of developed countries.

In technological terms the United Kingdom is a highly industrialised nation, of which England is the most industrialised. Regarding water and sanitation, the British Water Industry is recognised by its high standard.

- **Legislation and Organisational Autonomy**

The management of water and sanitation services in England and Wales is defined by the Water Act, 1989. The services are managed by ten water and sewage companies and the current twenty-three water only companies, which operate in all the English and Welsh regions. Thus, there is no flexibility in choice of management.

Table 2.2 Political and Economic Indicators - United Kingdom

Population (million)	YEAR	
Total	1992	57.8
Urban	1992	51.4
Urban (as a % of Total)	1992	89
In urban agglomeration of one million or more (as a % of)		
Urban	1992	26
Total	1992	23
Average annual growth rate	1980-92	0.3
Access to (in urban areas as a % of total population)		
Safe drinking water	1980	n.a.
Sanitation	1980	n.a.
Safe drinking water	1990	100
Sanitation	1990	100
Household income		
Share of top 20% of households	1989	44.3
Share of bottom 40% of households	1989	10
Share of bottom 20% households	1989	4.6
GNP <i>per capita</i> (US\$)		
Total	1992	17,790
High income group	1992	21,960
Energy consumption <i>per capita</i> (kg of oil equivalent)		
Total	1992	3,743
High income group	1992	5,101

Note: (n.a.) not available

Source: World Development Report (WDR), 1994

The private companies work on a monopoly basis in their geographic region, therefore there is no real competition in the system. Nevertheless, the economic regulator, OFWAT, tries to create "comparative competition" among the companies through regulation; comparing costs and performance between them. It is thought by policy makers and regulators that increasing efficiency should lead a specific company to retain extra profits until the next periodic review in prices. Competition occurs in the stock market where the industry competes with different businesses.

Box 2.1

- The Director General proposes that through regulation and comparative competition it will be possible to achieve the same balance that is found in the competitive market. (OFWAT, 1991, 1993a)
- Nevertheless, according to Andrew Johns, from the NUS, "comparative competition" or the "quasi-comparative" forces within the water industry have not started working yet. "Water is the only industry to have moved from public monopoly to private monopoly" (Water Services, Nov. 1993, p. 13). The users had no tangible benefits from privatisation.

Legislation and regulation, which are strong points in the system, provide a means by which the regulatory bodies monitor and control in a systematic way:

- the quality of the service and product delivered;
- the prices of services;
- and the service to the customer.

• Long Range Demand and Technological Requirements

The low rate of population growth in the UK (see table 2.1) means that the investment required for covering unattended demand is low, i.e. there is very little need for increasing the quantity of water delivered. However, investment is required to make up for the lack of investment in the years before privatisation and to meet the standards set out in the EEC directives.

Box 2.2

Of the £30 billion companies expect to invest in water and sewerage services (among 1989 and 1999) £13 billion are for improvement in the quality of drinking water.... (Langdon, 1993).

- **Organisational Culture**

The commercial approach of the water industry is the main settled belief shared by those involved in the sector. The Water Bill, 1973, was a starting point towards a more independent water industry. It reflected a more commercial approach to delivering the service, a view of water and sanitation as economic goods.

This approach was strengthened during the process of privatisation of the water companies and after the flotation, when financial professionals started to run the industry, and a profit making culture grew throughout the system. Managers of the new companies generally worked in the former public water industry.

- **Commercial Orientation**

The principles of watsan in England and Wales are highly commercialised. The economic regulator monitors the tasks of the system to achieve a highly cost-effective product. The DG of OFWAT is strongly against the use of subsidies in the sector and seeks, as one of his duties, to ensure that shareholders of private companies will receive reasonable returns on their investments.

From the private companies' perspective, the business has been very profitable. (see section 2.5)

- **Consumer Orientation**

The system is highly customer oriented. Under the law (Water Act, 1989) the Customer Service Committee set up for each private company deals with customers' concerns, in particular those related to customer complaints. There is also a similar national body.

A sophisticated scheme insures some basic rights to the customers as compensation paid by companies to settle complaints.

The system also allows for customer' involvement in setting tariff policy and company strategy (market plans) made by the private companies. This includes a wide consultation with customers. The master plans are presumed to help the industry to define their investment strategies in order to meet customer's requirements.

There is also a concern for elder and disabled customers, for whom payment facilities are provided.

Although there is no special regulation in the tariff structure for low income households, special attention is given to problems related to debt, disconnection and choosing a metering system. The trend is for the sector to make agreements through the Benefits Agency in support of low income customers.

CHAPTER III

THE MANAGEMENT OF WATER AND SANITATION SERVICES IN FRANCE

3.1 INTRODUCTION

This chapter describes and comments on the French model of management for urban watsan services. It also analyses the role played by the main actors involved in the system. This system is different from that in England and Wales, where the privatisation of the water industry meant a deep change in management which is, still, a big issue. In France, there is no rigid institutional framework for the service; the involvement of the private sector in the water system goes back to the nineteenth century and has been increasing over the years.

In France, the urban services have always been seen as industrial by nature and private sector involvement in urban services has never been a political issue. This unique form of managing urban services, especially the ones related to watsan, includes a number of institutional alternatives with a range of different levels of private sector participation and flexible regulation.

The chapter describes an approach for managing watsan services different from the British one but with the same large participation of the private sector. The end of the chapter provides a brief summary of the main differences between the British and the French systems in order to address some of the issues that will be discussed when defining a proposal for providing watsan services in Bahia/Brazil.

The chapter is divided into six parts:

Firstly, a brief description of the development of watsan services in France is given.

Secondly, there is a description of the current framework with its diverse institutional alternatives for operation, maintenance and investment.

Thirdly, a self explanatory Activity Responsibility Matrix for each of the institutional arrangements available in the French system is shown, in order to visualise the relationship of and the share of responsibility for the necessary tasks to provide the services under the model.

In a further section the model is discussed, taking its main issues according to some of the actors involved.

Then, the Systematic Analysis of the model is presented, following the proposed methodology.

Finally, some aspects of the British and French systems are discussed, stressing their main differences in approach on selected issues.

3.2 BACKGROUND

In the eighteenth century, watsan services were provided mainly by water vendors working on a door to door basis. Since then, there have been many changes in the provision of urban services in France, but the utilisation of the private sector has always been important.

In 1782 the Perrier brothers were granted a *concession* to deliver piped water to Paris for fifteen years. In 1839, the first *concession* was signed in Paris with water vendors. In 1866, an English private company - General Irrigation and Water Supply Company of France Limited - was the first to have a licence in France, for the provision of water in Cannes.

It was about the same time that the major French *Compagnies* in the provision of urban services were created, *Compagnie Générale des Eaux*, in 1853, and *Société Lyonnaise des Eaux*, in 1880.

At that time, there were both public and private forms of managing water and sanitation services. In the private one, the company with a franchise would make the necessary investments and would operate the system at its own risk.

In the instances of public management, the municipality would operate the service directly or through a public enterprise- *La régie*.

Progressively, other sorts of contracts were developed in such a way as to fill the gap between the forms of management, and jurisprudence added guaranteed results clauses to the franchises.

All of the new contracts created had, as a common feature, the combination of private management with public financing and a transfer of ownership of the most costly equipment such as water and waste treatment plants, sewage stations, etc. to the public sector.

These forms of contract are the ones used nowadays for the majority of public services: *Affermage*, *régie intéressée* and *gérance*.

The original model was strengthened after the second world war due to the speed of urbanisation in France at that time.

In 1946, local services were nationalised. Nevertheless, in July 1947, a law was passed authorising the municipalities to revise or to rescind the contracts with private companies

signed before or during the war. This was due to the considerable changes occurring in the economic environment.

Since then, different decrees and 'information notes' have been issued to guide the relationship between the local authority (mayor) and the private sector under different systems. (See box 3.1)

The contracts should follow the appropriate schedule of rates (*cahier des charges*). If this did not occur then the approval of the Minister for Agriculture and the Minister of the Interior was required.

Also, when the contract was longer than 30 years, a decree was necessary from the State Council.

According to the law of decentralisation, which came into force in March 1982, the contract is agreed between the private sector and the mayor and there is no need for approval from other authority levels. Also, new rules on public accountability gave more freedom to the elected mayors to run the service. (Loosdregt, 1990; Barthélémy, 1992)

Although released from the obligation to follow the *cahier des charges*, Loosdregt (1990) noticed that these documents are still widely used as reference for the new contracts.

Box 3.1

- Decret n.47-1554 (13.8.1947) *Cahier des charges* for concession contracts for drinking water distribution;
- Decret n.51-859 (6.7.1951)* *Cahier des charges* for leasing (*affermage*) contracts for private water distribution;

*This decret was replaced in 1980

- Decret on 16.10.1981 *Cahier des charges* for leasing (*affermage*) contracts for sanitation services;
- Information notes addressed by the Ministry of Agriculture on 5.3.1964 regulating drinking water services regarding '*régies*' only, and a further one on 20.2.1969 for any system.

Source: Adapted from Loosdregt, 1990

The environment in which the model was made had the following characteristics: a large number of communities with a strong character of co-operation among them; short distance between the mayor and the citizen; and a strong central state.

The French model of managing urban services seems to have been developed progressively according to the necessities of history, in an incremental way. It has a range of mechanisms, which provide freedom of choice to the '*commune*' for deciding its own specific sort of management.

3.3 THE CURRENT MODEL

Legally, the '*commune*' is responsible for the provision of water supply and sewage services. It has the monopoly of the service and is the only owner of physical assets. It can either run the service on its own or delegate it.

The model is based on the right of the '*commune*' to choose the method of managing urban services it prefers. It is pragmatic and flexible enough to accommodate any alternative and all the problems.

'*Commune*' is a unit of local government. It differs in size, from a small rural village to a town or municipality. The *communes* have the possibility to work together for managing services of common interest in supra communal units. Very often they join together in these units with different levels or grades of commitment such as: single purpose associations, multi-purpose associations, districts, urban communities, but mainly in syndicates. Two thirds of the more than 36,000 '*communes*' have joined a syndicate. This is the way they choose for seeking technical and financial co-operation with economy of scale.

The high number of *communes* leads to a very fragmented administrative framework which makes watsan services quite decentralised, regarding responsibility of operation, maintenance and ownership of assets.

Most of the *communes* delegate the service to the private sector. In total, about 80% of the French population have a water supply operated by private companies, under public-private contracts, through different forms of delegation, whereas half of the sewage plants are operated by private firms (Coyaud, 1988; Lorrain, 1991; Triche, 1992; Moraru-de Loë and Mitchell, 1993).

For water services, a statistical survey on the central '*commune*' of urban areas with 23,000 inhabitants or more showed that: 34% of the services were operated on a public basis; 12% through a franchise; 43% through *Affermage*, *régie intéressée* or *gérance* arrangement (Lorrain, 1992).

From the juridical point of view, water and sanitation services are local public services with industrial and commercial characteristics that must meet the following principles: equity in provision, continuity, and constant improvement of the service.

From the formal point of view, the model is a simple one, based on the two main actors: the community with the elected mayor and council, and the big private companies that work together with the public authority. The legal system helps to establish the rules of the relationship and the Central Government overlooks (supervises) the system. It is based on co-operation, sustainability and institutional flexibility. The water source belongs to the central state.

The flexibility makes it possible to meet all kinds of situations between partners, whether technical, political or institutional matters. Thus, the '*commune*' can decide to delegate only some tasks such as the bill collection or the entire service.

The choice of management and the process of private sector involvement can be the result of different reasons and the process can take different forms. Some of these reasons are:

1. Cutting down the importance of unions. Much of the privatisation occurred in the late 80's and early 90's and was a consequence of the victory of right wing mayors in the local elections;
2. The wish of the mayor to confirm his personal authority. In many instances, the decision to privatise the service is taken by the mayor in conjunction with his direct advisors, without any consultation or participation of the community. When this occurs, discretion is justified on the grounds of efficiency. This happened in Montpellier, 1989; in Caen in 1992 and in Grenoble, where the mayor decided to delegate the service three months after the election, when the subject had never been discussed during his campaign;
3. Carrying out a modernisation programme without raising taxes. With the private sector, the *commune* does not have to assume the negative political role of raising bills to finance necessary investment and, sometimes, still receives payment from the private company which can be used to finance different projects. This was the case in Paris, Bordeaux, Marseille, Toulouse, Montpellier, Caen, and Saint-Etienne.
4. Because of security and technology. In many cases private involvement is due to the technical condition of the private companies. In fact, their world wide experience makes them better skilled than the *communes* for solving technical problems promptly, mainly in the current conditions where the EC directives must be met.
5. Because of the integration and complexity of the network. The security and compatibility of the network can lead to having only one operator for different services. Also, the operation of one system can facilitate the operation in neighbouring places. This has happened with the big French companies such as *Lyonnaise des Eaux*, which operates several suburbs of Paris.

Source: Adapted from Lorrain, 1993a; Jamati, 1994; Financial Times Newsletter, 1994c, issue 18/5.

The elected mayor is supposed to be reliable and he is given power to decide on behalf of the citizens. Only recently, under the law 93-122 of 29th January 1993 a competitive bidding became mandatory, but the contracts can be formulated in general terms without details or specifications (Triche, 1992; Cordier, 1994).

Nevertheless, *communes* can gain assistance in the preparation and monitoring of contracts from the Ministry of Equipment.

The important thing is the relationship between the two main actors involved: *communes*- represented by the elected Mayor -and private groups. The legal framework legitimates them.

Part of this relationship is the general attitude of the companies regarding the local authority: their discretion, and pragmatism are profitable for both of the actors (Lorrain, 1993b).

3.3.1 The different sorts of management

The organisation of watsan services can take many different forms. The main differences among them are related to the extent of private sector involvement; who is the commercial risk taker and who finances working and investment capital. The organisation of management can be divided in three broad groups:

Direct Management (*Régie*)

Semi direct Management (*Régie Intéressée*)

Delegated Management (*Affermage, Concession*)

Table 3.1, (Watsan in France), summarises the types of institutional arrangements and gives some characteristics.

3.3.1.1 Direct Management- 'Régie'

Régie means administration. Under this system, the Local Authority, *commune* or syndicate takes responsibility for construction and operation as well as ensuring technical, financial and commercial management with its own staff. Its responsibility also includes works from water catchment to distribution and from sewage collection to disposal.

This system can take three different forms, according to the staff conditions and budget autonomy:

Régie directe or régie simple

Régie autonome

Régie personnalisée

Table 3.1

Watsan in France

TYPE OF CONTRACT	DELEGATED MANAGEMENT		SEMI-DIRECT MANAGEMENT			DIRECT MANAGEMENT		
	Concession	Lease <i>Affermage</i>	Administration <i>Régie Intéressée</i>	Management Contract <i>Gérance</i>	Service Prestation <i>Partielle</i>	<i>Régie Personnalisée</i>	<i>Régie Autonome</i>	<i>Régie Simple</i>
Who finances new works?	operator	public authorities	public authorities	public authorities	public authorities	public authorities	public authorities	public authorities
Who provides operating capital?	operator	operator	public authorities	public authorities	public authorities	public authorities	public authorities	public authorities
Who sets rates paid by the consumer?	public authorities according to contract	public authorities according to contract	public authorities	public authorities	public authorities	public authorities	public authorities	public authorities
Client bound contractually to	operator	operator	operator	local authorities	local authorities	local authorities	local authorities	local authorities
Contracting party's income	included in rates	included in rates	% of cost plus productivity bonus	set rate depending on physical parameters	according to contract	---	---	---
Cover of public authorities	surcharge	surcharge	receipts	receipts	receipts	---	---	---
Responsibility of private operator	very high	high	average	average	minimal	---	---	---
Financial commitment of the private operator	very high	high	average	average	minimal	---	---	---

Source: Adapted from I. Cheret, World Bank Seminar, 1985; Quoted in Saunier, 1991.

La régie directe or régie simple- in this case, the utility staff is part of the municipal staff and the accounts are incorporated within the government's budget. This means that there is no financial autonomy. French law no longer permits the creation of this type of system, but it remains in some small rural towns and villages where it was adopted before a decree which created the '*régie personnalisée*' in 1926.

La régie autonome- in this case, utility management is conducted by a separate local organisation, and the utility has managerial autonomy, although its accounts are attached to the government's budget. Very often it has autonomy for financial operations. In this case, the organisation does not have a juridical personality.

La régie personnalisée- under this system, created by decree on 14.10.1959, the utility has an autonomous board or independent management. That is, there is financial and managerial autonomy. The accounts for the utility are distinct from the government's budget.

3.3.1.2 The semi direct management (*Gérance, Régie Intéressée, Prestation Partielle*)

The main characteristic of these arrangements is the low level of commercial risk of the private sector. It occurs when the public authority does not want to relinquishing leave the responsibility for the provision of the service, but needs technical and administrative assistance to deal with the tasks. It can also be used as an early stage towards a higher private sector involvement.

Gérance (Management Contract)- legally, this system is a "service contract", in which is specified those parts of operation and maintenance for which the private company will be responsible.

Services under private company responsibility can range from a very few such as metering, invoicing, billing, water treatment, networks maintenance etc., to the operation of the whole system.

Major repairs, extensions, increased demand, etc. are made by the municipality.

The municipality is also responsible for financing, design and construction of the system.

It is used for municipalities that wish to retain control over the service.

Very often there is an administrative committee to oversee the administrative aspects of the contract, and a technical department to supervise the technical aspects.

The customers remain clients of the municipality.

The period of contract ranges from 10 to 12 years.

Tariffs are fixed by the public authority and the private company does not assume commercial risks.

Compensation of the private company is similar to that for consulting companies. Generally it is based on:

- (i) number of connections, regarding the size and expense of maintenance and meter replacement;
- (ii) volume of water sold - a fixed sum plus a proportional payment are paid to the company to cover the costs of water distribution;
- (iii) volume of water produced - a sum is paid to cover the cost for production, treatment and pumping. The volume of water taken as reference for payment is the volume of water sold plus a fixed percentage of unaccounted for water.

Régie Intéressée (Management Contract with Profit Sharing)- It is very similar to the *gérance* contract. In some cases, the public authority shares with the private company any profit gained through productivity bonus, in addition to a fee that is calculated as a percentage of the turnover.

As in the *Gérance* contract, the customers can remain clients of the municipality or of the operator and prices are set by the '*commune*'.

This is an old form of management, which is declining nowadays due to the difficulties confronting the elected mayors in trying to raise prices to the extent required by investment demands. In Bordeaux, where one contract was signed for the period 1969-1992, with prorogation until 1999, the contract form was changed into that of a *concession*. It was also used in Paris suburbs comprising a syndicate of Municipalities. On the other hand, for Barthélémy (1992), it is evident that these mixed solutions concerning public private partnership, are superior to the extremes ones, totally public or totally private, as among the ten French systems he studied, the private companies seemed to be technically and financially more efficient, whereas the *Régies* tend to be better skilled in management of operation.

Prestation Partielle (Contract for specific Operation Service)- in this system, the private company provides the necessary resources to the public authority, when requested. It can range from loaning staff, technical assistance, billing connection, maintenance of the network, operation of production facilities, etc.

In this case the private company is compensated as a consulting company i.e. time based, lump-sum, cost-plus, fixed-fee, etc. (Coyaud, 1988; Moraru de Loë and Mitchell, 1993). The payment made by the public authority is entered as an expense for operation in the public authority budget.

3.3.1.3 Delegated Management

Delegated management means a wider private sector involvement in running the service.

There are two different types: *affermage* and *concession*. The main difference between them is the investment. In the former the private operator finances capital expenditure, and in the latter it is done by the municipality.

***Affermage* (leasing contract)**- Nowadays, this is the main type of contract for providing watsan services in France (Coyaud, 1988; Lorrain,1992).

It involves private management with public financing. Under this system the *commune* is responsible for the initial capital investment and a private company for operation and maintenance.

Even during the contract, the *commune* remains responsible for major civil works, expansions and renovations.

Financing is carried out by the '*commune*' through the aid of subsidies, grants or municipal loans. The private company is financially responsible only for the renewal expenses of short economic life components (i.e. connections, meters, etc.). The private company, called "*fermier*", has two major obligations under the contract:

- to supply the service (water, waste water treatment) according to the established standards;
- to give the physical assets back in good condition to the '*commune*', at the end of the contract.

The private company's revenue is based on the tariffs charged from customers. The prices are set up during the contract and rise automatically through a formula based on official indices.

Generally, the contracts are signed for a period of 10 to 12 years, and can be renewed by tactical agreement for up to 20 years. This should be long enough for the company (*fermier*) to pay off its operational investment costs.

Part of the tariff goes to the private company whereas the remaining value is transferred to the public authority who financed the fixed assets of the system.

The remaining value is calculated after the operation and maintenance cost, as well as the company's profit.

The percentage of the tariff that will go to the private company is one of the clauses included in the competitive bids during the process of choosing the company, or is part of negotiation between the mayor and the private company.

The company pays to the municipality on an annual basis the amount of surcharge it is due to collect from the customers. The surcharge can be used by the municipality to pay loans made to finance the fixed assets of the system as long economic life components.

The private companies are currently lobbying for an extension of the length of *affermage* and leasing contracts, as longer contracts will reduce their risks and will lead to lower tariffs.

Concession (turnkey or full service) - also called BOT- Build, Operate and Transfer- In this type of management, the community or syndicate of communities signs a contract with a single private company. The private company is then responsible for the whole cycle of service: design, construction, operation, maintenance, and also for financing the system and upgrading it when necessary.

It is the most comprehensive form of private sector involvement used in France.

Characteristics of this arrangement include:

The revenue of the private firm comes straight from the customers;

The initial tariffs are negotiated between the "*commune*" and the company in the contract, taking into consideration the capital investment cost besides operational, maintenance, other costs and the company's surplus. There are rules to revise the selling price of the service, reflecting economic changes and assuring the profitability of the company.

Formerly, the contracts were signed for 20 or 30 years, whereas nowadays they tend to be shorter (15 to 20 years).

During the period of validity, the private company acts as the real owner of the utility.

At the end of the contract, if it is not renewed, the company gives back all the assets to the *commune*, in good condition. (Moraru-de-Loë and Mitchell, 1993, p.141)

Coyaud(1988), noticed some slight differences between *concession* contracts.

According to this author, part of the tariffs received by the company are given to the *commune*, and at the end of the contract, the company is compensated for the residual value of the system components that have been financed during the last 10 years of the contract.

If the public authority upgrades the system through existing facilities, financing or subsidies, during the validity of the contract, the contribution given appears as a surcharge in the customer bills and goes back to the public authority.

The *concession* contract arrangement was very popular in the late 19th century, when the lack of public funds made it useful, as the private companies had more opportunities than municipalities to borrow loans from the financial market.

After a period of little use, since the late 80's it has been increasing again due to the necessity of investment mainly in sewage treatment plants, as about 70% of the French population discharge their waste water into the natural environment. It is likely to be widely used in the near future due to the need for investment to meet the EC directives (Lorrain, 1994a).

3.3.2 The semi public enterprises

Lorrain (1991, 1992); Moraru-de Loë and Mitchell (1993), call attention to the importance of the semi-public enterprises in the French model. They represent an important form of co-operation in the system, which takes place in its capital structure.

The semi-public companies started in the 20's, for the implementation of economic activities, in order to raise funding for urban structure financing. After some years of neglect, they re-started in the late 50's, in order to accelerate development of the urban infra-structure.

The system was organised with national companies at the top, specialising in different subjects, with engineering enterprises and *Sociétés d'Economie Mixte -SEM-* at the local level, responsible for operations and directly linked to the mayors or deputy mayors.

The government call on the *Caisse des Depots et Consignation-CDC-* to mobilise financial and human resources and set up the mixed enterprise- *Sociétés d'Economie Mixte- (SEM)* where the government has the majority of shares.

These companies used to work in the same way as any other private company. The capital funding and the loans were provided by the public partner, but the private sector attached to the company had the real power.

Lorrain (1991) states that a quasi-industrial sector was created in France until the mid-70's. It was of macro-economic importance, on an industrial scale, with a limited number of leading companies.

The model became unacceptable to mayors and local authorities since it involved a weakening of their autonomy of decision in relation to the future direction of urban development. As a result, from the mid 70's the semi-public enterprises took on a different character. Many local and regional enterprises were created using local financial and human resources and developing local experience.

This was a consequence of the French tradition of political autonomy of the *commune* and the importance of this level of organisation. In many situations the *commune* wants to have control over the operation, without dealing with everyday problems.

3.4 REGULATION

The basic regulation operates through the contracts signed between the key actors: the elected mayors, on behalf of the '*communes*', and the private companies, rather than through general strict rules. These contracts result from jurisprudence and the traditional relations and are written to adapt to real situations.

Having no formal board of regulators, there are many bodies involved in the service at different levels of the administration.

At the National Level, the Ministry of the Environment (MOE) establishes national guidelines for water quality management, and, together with the *Mission Interministérielle de l'Eau*, drafts laws and regulations and puts together and reviews the water-related decisions of the different ministries (e.g. Agriculture, Industry, Building, Health, etc.). It is also responsible for revising the multi-year programme of the River Basin Agencies. (Moraru-de-Loë and Mitchell, 1993; Lorrain, 1992);

The Ministry of Urbanism and the Direction of Local Activities establish contracts and finance urban communities;

The Ministry of Economy and Finance monitors tariff levels at the '*départements*' level. The *Département* is the political division headed by a *préfet* appointed by the central government with representatives of the major ministries. There are 99 *départements* in France.

The Ministry of Public Health promulgates laws to enforce drinking water standards.

At the Regional Level, the regional prefects (or regional officials of the central government) make sure that the laws, regulations and guidelines of MOE are applied.

Regional prefects control, co-ordinate and direct the activities of the departmental prefects. It is at this level that funds for water and waste water are allocated to departments and '*communes*'.

It is also at the departmental level that measures for water controls and enforcement are applied.

The departmental prefects play a key role in the system as they must ensure the application of the measures. They issue prefectural decrees on water quality objectives and effluent standards, and also enforce these standards at departmental and communal levels. (Moraru-de Loë and Mitchell, 1993, p.139)

The six River Basin Agencies are responsible for resource mobilisation and investment planning. Basin Committees, with representatives of the local authorities and users, set charges for abstraction and pollution. They also establish five year investment programmes. Currently, due to the EC Directives, these programmes set a target for each of the river basins. These targets are a reference for investment but do not have the force of law.

The control of the service, of the monopolistic private company in one *commune* or municipality, can take two different forms: the first is "global regulation". It occurs when the *commune* delegates the service and the delegation means transfer of responsibility. The control is only a global and indirect one. If the users do not complain, the operator is doing his job well. The control exercised by the elected authorities is much more political

than technical. If "*les gens sont satisfaits*" i.e. if people are happy, the companies are doing their jobs well. It is more important than the figures of performance indicators. The private companies are quite free to initiate policies on their own. (Lorrain, 1991). This is what takes place in the majority of delegated management for water supply and sewage services.

This system has, in principle, a low cost which is seen as advantageous as there is no extra regulatory costs. Also, there is no duplication in activities. Each actor knows his role perfectly.

In the second form of regulation, the "detailed control", the *commune* delegates the service but wants to have control over it. There is a department in the council with qualified personnel to assess the private company's policies. This system increases operation costs and there is also a duplication of roles between the private company and the department (the experts), or even the political local authorities. This model also increases the cost of regulation.

This system should be closer to the British system where in fact the private companies complain about the cost of regulation and the possibility of over regulation.

3.4.1 Price Definition and Control

Price is defined according to the specific system of management of the service. In the *régie* system it is defined by the local authority, as well as in semi direct management. In delegated management, prices are defined in the contract, or when it occurs, through the bidding to choose the private company.

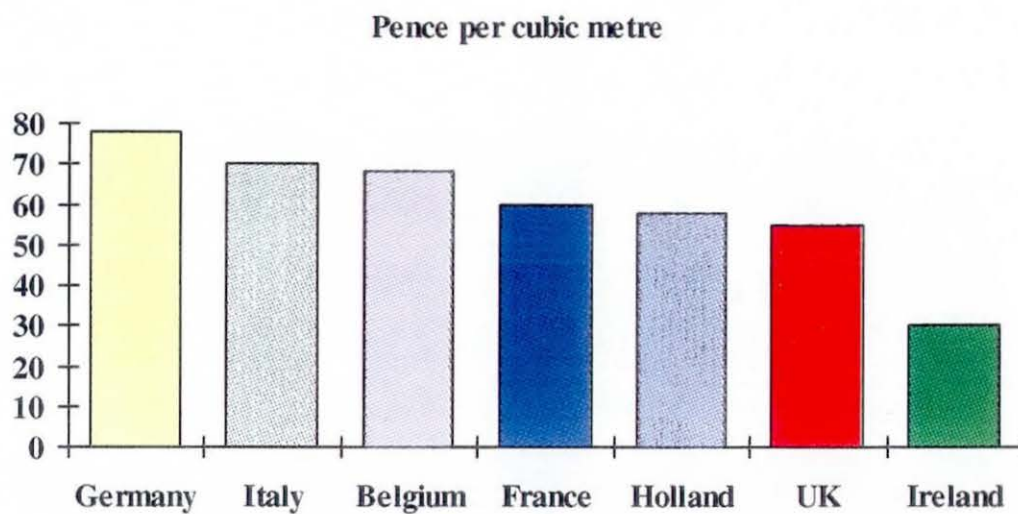
In research comparing the prices of water in different countries in Europe, Müller & Scheele (1993) noticed the difference between the French case and other countries in Europe. In France, the diversity of public and private corporations have different price regulations.

Barthélémy, in a comprehensive investigation of the 10 biggest watsan networks in France, noticed that the cities under public management tend to have lower tariffs than the ones under delegated management.

Langdon (1993) presents a comparison of water tariffs in Europe showing higher levels of average tariff in France than in the UK. (See fig.3.1).

Price is defined on the basis of actual consumption. Connections are measured, although in old buildings there is no meter for each apartment.

Price setting is a very important tool in the system. It will make possible the long term strategies for the private company as well as for the *commune*, as it will drive the service from a public based management towards a market based orientation. It is seen as the

FIG. 3.1 **British Water Prices**

Source: NUS, quoted in Langdon, 1993

most sensitive part of the relationship between the private and the public sector and can not be seen as a technical matter only.

Generally, water tariffs cover the full cost of water supply, including depreciation. Sewerage is generally subsidised. Subsidies are provided by the *commune* or by the regional authority. Part of the investment cost is financed by River Basin Agencies.

When the company is chosen through bidding, the tariff is one of the indicators. Triche (1992) states that when a bid is made, the control on prices during the contract is less strict. Although defined for the whole time of the contract, there is flexibility for changing prices according to changes in the circumstances. In this case, modifications are agreed between the community and the private operator. There are no strict rules to set and modify prices.

Negotiation is conducted on the basis of full cost recovery plus profitability of the private company.

This is also a strategy that has been used by the private companies as an alternative for the lack of public investment in the sector. Wherever possible they lobby to make it possible to finance new investments through tariffs paid by those who could pay reinforcing the market based principle.

Nevertheless, in practice, the system departs from the principle. Contracts are drawn up in such a way as to protect private companies from bankruptcy.

3.5 THE COMPANIES

Although decentralised in the responsibility for provision of urban water supply and sanitation services, the actual provision of those services is concentrated in a few French private companies: *Compagnie Générale des Eaux* and *Société Lyonnaise des Eaux*. A third company, *Société d'Aménagement Urban et Rural (SAUR)* is active in smaller towns and rural areas.

The first two companies supply about 68% of the population. By regulation none of them can supply more than 50% of the water and waste water market.

Their strategy can be seen as the current trend among the French private companies involved in the watsan service, all of them having a tendency to horizontal and vertical integration, cross diversification and transnationalisation. Very often, the same company or its subsidiaries work in different urban services in a given '*commune*'.

The development of these companies began at a time when the public companies operating these services faced a spiral of deficits. Initially, they worked only in water distribution but later they extended their activities to almost all urban services and other activities, such as water treatment and disposal, solid waste, heating, car parks,

management of building and construction works, public lighting, local cable networks, cellular telephones, funeral services, collective catering and leisure activities (Lorrain, 1991; 1992).

In fact, horizontal integration was the strategy they used to overcome the problem of the high number of communities. Very often, a private company, alone or as partner of the *commune* in a semi-public company, is involved in the provision of the vast majority of the urban services in a community (Lorrain, 1991; 1992).

The companies offer state of the art solutions for technical problems. Their subsidiaries are specialised in the whole range of problems concerned with the service, and their capacity of mobilising equipment and the labour force readily is very important in assuring the continuity and the quality of the service.

Their strategy of growth in each place is a mixture of market competition and geographical expansion with new municipalities, the big cities having a special place in their plans. The big cities work as a reference for their strategy (Lorrain, 1991).

More recently, their strategy has been leading to internationalisation and now the French companies have contracts in the USA, Macao, Mexico, Argentina, Brazil, many countries in Africa, and in the European countries of Spain, Italy and the UK, where it has caused political controversy.

In the UK they have shares in the water industry and *Lyonnaise des Eaux* seeks to take over one of the ten private water companies.

The main characteristics of the companies are:

Compagnie Générale des Eaux- Founded in 1853, this company had 200,000 employees in 1993 (Financial Times Newsletter, 9.2.1994), and supplied water to over than 22 million people in France and more than 8 million around the world. As other companies, it diversified its activities by vertical integration together with a cross-diversification. It is involved in all urban services, plus leisure activities and health clinics. Lorrain (1991) states that it is present in practically all sectors which concern urban life. In 1988, the company served 30% to 32% of the French water supply market.

Its process of internationalisation has strengthened since the late 80's.

In the UK, the company had equity interests in 9 out of the 29 British statutory water companies (1993) and in the United States they bought shares in some American water companies, including Philadelphia Suburban Corporation, which was the fifth largest water supplier in the United States. (Moraru-de-Loë and Mitchell, 1993).

The vertical international integration of the Company led it to gain contracts in more than 30 countries world wide, ranging from services in renovation of water plants to the management of the services and the upgrading of local officials' skills.

Société Lyonnaise des Eaux - Established in 1880, this company provides water to 14 million people in France in addition to 40 million world-wide (Lyonnaise des Eaux-Dumez, 1994). As a diversified company, it also has business in other urban services and construction, and it is the largest mortuary company in France.

Its strategy of diversification started during the 70's, to protect it from the consequences of nationalisation. Its vertical integration led it to extend its business in a way that made it the world leader in water treatment and the European leader in waste collection and disposal.

Under its internationalisation strategy, the company bought four statutory British water companies in the late 80's, which made it the owner of 24% of the British private water supply market and 6% of the total national market (Moraru-de-Loë and Mitchell, 1993).

To promote the expected favourable environment of an oligopolistic market, with low risk, the development of these companies was helped by a juridical corpus which enables the system to protect the companies through municipal grants, to help them to overcome problems due to wars, unexpected inflation and special arrangements. Also, the articulation between the public and private sector can help to explain profitability in the sector.

The public authorities in the system have always acted as a partner of the private sector, linked to it, much more than an external actor. They are placed between the companies and the consumers.

Affermage, *régie intéressée*, and *gérance* contracts, together with their variations, solved the problems of capital accumulation and return of investment as, in these cases, the public authority makes the investment. Those arrangements helped the development of the French companies, as they did not put their profitability at risk because of the need for expensive capital funding.

The arrangement works in two different ways: At the same time that it allows the public authority to have more control over the future of the service and gives it more power; it diminishes the risk of loss for the private companies.

Affermage was encouraged by the central State, which made specific grants to the 'communes' for financing water supply and sewage systems. Thus, local authorities financed the public utility with public capital, getting loans from national credit institutions such as *Caisse de Depots et Consignations* or the *Credit Agricole*, that does not need to have the same profitability as capital obtained in the market (Moraru-de-Loë and Mitchell, 1993; Lorrain, 1991;1992).

3.6 INVESTMENT

Investment can be financed by the public authority or by the private sector according to the sort of management. (See section 3.3.1). Nevertheless, planning remains in the public sector.

In the majority of cases the public authority is responsible for financing investment and the fact that it does not operate the service can lead to inappropriate investment.

Decisions are taken by municipalities using information from the operators. As water tariff seeks full cost recovery, both operator and financing body will try to meet optimal investment.

In sewerage, as it is subsidised, it is possible that investment is not optimised. In *concession* contracts the company that operates the service uses resources obtained from the market, i.e., the payment made by the users with no dependence on the state or municipality. The capital investment comes from cash flow generated in the market or within the business.

To meet the EC Directives there is an investment programme of US\$ 15million. Of this value, US\$ 6.5 million will be financed by the River Basin Agencies and the remainder by the local authorities.

3.7 ACTIVITY AND RESPONSIBILITY MATRICES

The matrices (fig. 3.2-3.6) show a system able to accommodate a diversity of situations within the country. Tasks are shared between Local Authorities and private companies and the level of responsibility for the latter is decreasing gradually from the concession contract to the *Régie* system. Tasks of each of the actors involved in the system are well defined and there is no overlap.

3.8 DISCUSSION

The number of the necessary activity and responsibility matrix for the system shows to some extent its diversity and the number of alternative arrangements that the system can take.

The system is very much based on local government, rather than on local or national agencies, as happens in the UK. The elected local authority has a position that legitimates its decision about the service and all the needs of the population. If the mayor or local representatives want, they can co-ordinate the services and avoid professional or technical control. The management of the service depends more on political rather than on technical legitimacy.

FIG. 3.2

ACTIVITY AND RESPONSIBILITY MATRIX
 France- Delegated Management- Concession Contract

ACTIVITIES	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
AGENCIES								
Central Government	R	R	R	--	--	--	--	--
Regional (State) Government	--	--	--	--	--	--	--	--
Local Authority or Syndicate of Communes	IV	IV	IT	IV	R	IT	IT	IT
State Owned Company	--	--	--	--	--	--	--	--
Private Company	IT	IT	IT	R	IV	R	R	R
Financial Basin Agency	IV	IV	IV	IT	--	IT	IV	--
Régie (Municipal Company)	--	--	--	--	--	--	--	--
Regulators	--	--	--	--	--	--	--	--

R = Responsibility

IV = Involvement

IT = Interest

FIG. 3.3

ACTIVITY AND RESPONSIBILITY MATRIX
France- Delegated Management- Affermage Contract

ACTIVITIES	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of tariff preparation	Tariff approval	Operation investment	Capital investment	Operation and maintenance
AGENCIES								
Central Government	R	R	R	--	--	--	--	--
Regional (State) Government	--	--	--	--	--	--	--	--
Local Authority or Syndicate of Communes	IV	IV	IT	IV	R	IT	R	IV
State owned Company	--	--	--	--	--	--	--	--
Private Company	IT	IT	IT	R	IV	R	IT	R
Financial Basin Agency	IV	IV	IT	--	--	IT	IV	--
Régie (Municipal Company)	--	--	--	--	--	--	--	--
Regulators	--	--	--	--	--	--	--	--

R = Responsibility

IV = Involvement

IT = Interest

FIG. 3.4

ACTIVITY AND RESPONSIBILITY MATRIX
 France- Semi direct Management- Régie Intéressée- Management Contract

ACTIVITIES	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
AGENCIES								
Central Government	R	R	R	--	--	--	--	--
Regional (State) Government	--	--	--	--	--	--	--	--
Local Authority or Syndicate of Communes	IV	IV	IT	R	R	R	R	IT
State Owned Company	--	--	--	--	--	--	--	--
Private Company	IT	IT	IT	IV	IV	IV	IV	R
Financial Basin Agency	IV	IV	IV	IV	IT	--	IV	--
Régie (Municipal Company)	--	--	--	--	--	--	--	--
Regulators	--	--	--	--	--	--	--	--

R = Responsibility

IV = Involvement

IT = Interest

FIG. 3.5

ACTIVITY AND RESPONSIBILITY MATRIX
France- Direct Management- Régie Personalisée

ACTIVITIES	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
AGENCIES								
Central Government	R	R	R	--	--	--	--	--
Regional (State) Government	--	--	--	--	--	--	--	--
Local Authority or Syndicate of Communes	IV	IT	IT	IV	IV	IT	IV	IT
State Owned Company	--	--	--	--	--	--	--	--
Private Company	--	--	--	--	--	--	--	--
Financial Basin Agency	IV	IV	IV	IT	IT	IT	IV	--
Régie (Municipal Company)	IT	IT	IT	R	R	R	R	R
Regulators	--	--	--	--	--	--	--	--

R = Responsibility

IV = Involvement

IT = Interest

FIG. 3.6

ACTIVITY AND RESPONSIBILITY MATRIX
France- Direct Management- Régie

Activities	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
Agencies								
Central Government	R	R	R	--	--	--	--	--
Regional (State) Government	--	--	--	--	--	--	--	--
Local Authority or Syndicate of Communes	IV	IT	IT	IV	R	IV	IV	IT
State Owned Company	--	--	--	--	--	--	--	--
Private Company	--	--	--	--	--	--	--	--
Financial Basin Agency	IV	IV	IV	--	--	IT	IV	--
Régie (Municipal Company)	IT	IT	IT	R	IV	R	R	R
Regulators	--	--	--	--	--	--	--	--

R = Responsibility

IV = Involvement

IT = Interest

In many cases the mayor does not interfere in a *régie*, but through a contract plan he is the one who sets specific goals for the organisation. (Müeller and Scheele, 1993).

Regulation is supposed to have a minimum role. It just gives a yardstick for the users, comparing prices and providing information to everyone. The users are voters and they will decide at the next local election, whether the service has been good or not.

The lack of formal regulatory bodies and the French approach to control within the sector is explained through politics: the users are the voters and the elected mayor is responsible for the service. The informal approach of the institutional architecture provides big gaps where the private companies take their profits, which are not stated in the contracts. The importance of no written rules is recognised in their development. Those rules are not in the contracts, but are accepted by the local authorities and communal administrators, which means important marginal benefits for the companies. These procedures include the long period of contract, which makes a re-negotiation difficult, the use of the companies' subsidiaries for specialised services without bidding and delay in repaying money to the public authority when collected on its behalf, as well as tax and other payments. (Lorrain, 1991, 1992). This means that there is an asymmetry in the business.

The purpose of creating competition in the provision of the services is more visible in France than in the UK. Competition exists between the public and the private sector as well as within the private sector for the market. The *régies* must be efficient in order to keep the service under public administration. On the other hand, the private companies take advantage of the fragmentation of the administrative body where the *communes* are likely to have more limited technical and human resources. In fact, from the technical point of view, there is no doubt that the private companies are much more skilled than the vast majority of '*communes*'. Economies of scale are obtained at the operator level, different from the British system, where they are sought at the organising authority level.

One trend in the system seems to be the issue of pricing. Although, so far, pricing has not been an issue in France, from now on it seems that the consumers will pay more attention to it, for two main reasons: firstly, price rises are expected as a result of investments necessary to meet the EC standards in the next ten years; secondly, the Sapin law which came into force in January, 1993, is aimed at preventing corruption and demands transparency in public economic agreements.

As stated above, one of the sources of company profits in France is the "non written rules", and the French idea of loose controlling. Under this new law, possibly a new arrangement between mayors, '*commune*' and private companies will flourish.

At least one fact has arisen as a consequence of the new law: in the city of Saint-Etienne, the court invalidated the increase of water rates made by the private company with the approval of the city council. The action was brought by four customers, and as result of the court decision, the mayor resigned. (Financial Times Newsletter, Water Briefing, 18.5.1994).

The investigation of the French arrangement presented the experience of a system built in an incremental way, without a formal institutional framework, and where private sector involvement does not occur by decree or legislation and is not defined (or imposed) by the Central government, as happened in England and Wales, where privatisation meant a radical policy innovation. The French process shows a procedure where private sector involvement takes place when the local authority feels it is necessary and political forces have a balance that permits it. The investigation gives subsidies for the construction of a new policy, according to the stated objective of this thesis under the hypothesis that extending private sector involvement would be a suitable solution for improving the level of services.

3.9 SYSTEMATIC ANALYSIS

Because of the fragmentation and diversity of the French system , which comprises different sorts of management of water and sanitation services with a variety of characteristics, it is necessary to analyse the different arrangements in the sector for some of the performance categories.

• National Policy Environment

France is an industrialised, developed country with a stabilised political economic and social situation. With a high income economy, according to the World Bank, the country is highly urbanised (73% of the population live in urban areas) with a low rate of population growth. (see table 3.2) Political and Economic Indicators- France.

Regarding social aspects, most of the population already has the basic needs, typical of developed countries.

Concerning technology, France is highly industrialised and outstanding in some sectors such as the armaments industry, aircraft, chemicals, etc. Regarding water and sanitation, the two biggest French private companies in the sector (*Compagnie Général des Eaux* and *Société Lyonnaise des Eaux*) are known world wide for their

Table 3.2 Political and Economic Indicators - France

Population (million)	YEAR	
Total	1992	57.4
Urban	1992	41.9
Urban (as a % of Total)	1992	73
In urban agglomeration of one million or more (as a % of)		
Urban	1992	29
Total	1992	21
Average annual growth rate	1980 - 1992	0.4
Access to (in urban areas as a % of total population)		
Safe drinking water	1980	100
Sanitation	1980	100
Safe drinking water	1989	100
Sanitation	1989	100
Household income		
Share of top 20% of households	1989	41.9
Share of bottom 40% of households	1989	11.8
Share of bottom 20% of households	1989	5.6
GNP per capita (US\$)		
Total	1992	22,260
High income group	1992	21,960
Energy consumption per capita (kg of oil equivalent)		
Total	1992	4,034
High income group	1992	5,101

Source: World Development Report (WDR), 1994

state of the art technology in every part of water and sanitation systems and their vast international experience in managing different systems.

- **Legislation and Organisational Autonomy**

French legislation provides high flexibility for managing watsan. The sort of management of local services is decided by the elected local authorities, which makes the system very decentralised. (France has more than 36,000 communities).

The system includes a wide range of organisation types, from those with low levels of autonomy (*régies*) to the more autonomous private companies. Even the private companies which run services under *concession* contracts, are not considered to be highly autonomous as they cannot determine at least one key factor in the system, that is the set of tariffs, which is defined in the contracts. (see box 3.2). Also, the companies do not own the physical assets of the systems, as they belong to the *commune*, even if built and financed by the private companies.

Box 3.2

Regulation says that the *communes* are free to decide on tariffs with no need for higher level approval, provided the budget of the service is in real equilibrium. The communal budget can not subsidise the service. (Communal Administration Code 1970. Quoted by Loodsgret, 1990).

However, Barthélémy (1992), in a comprehensive research on the ten biggest water and sanitation systems in France, noticed that the *régies* tend to have a lower level of auto financing compared to the systems under delegated management.

Competition within the system occurs at two different levels: firstly, between the public and private sectors for the provision of the services, and secondly amongst the private companies, which try to improve their position in the market, managing a higher number of *communes*, (see box 3.3)

Box 3.3

In Barthélémy's (1992) opinion the *régies* behave in a more competitive manner nowadays, than the private companies, as they are always "threatened" by the latter.

Although very flexible in choice of management, the sector is monitored across the different tasks which comprise the provision of watsan services. Quality of service delivered and decisions on investments and financing are monitored by a number of bodies at local, regional, river basin and central levels.

Regulation and control are conducted through legislation formulated by decision making bodies, at different levels.

In delegated management contracts, the first regulatory body is the contract.

- **Long Range Demand and Technological Requirements**

Due to the demographic stability of the country (see table 3.2) investments required for covering unattended demand is low, i.e. there is very little need for increasing the quantity of water delivered. However, investment is required for two main reasons: firstly, for replacing the physical network, in many cases built during the 40's, soon after the second world war; secondly for meeting the standards of EC directives.

- **Organisational Culture**

In France some beliefs seem to be shared by those involved in the sector, such as the acceptability of jurisprudence as the reference to deal with problems within the sector with no need for strict rules on many of the issues, which supports the idea of flexibility.

This is considered an important tool for achieving a better level of service. Also, the principle of being a community based service is common sense i.e. the elected Local Authorities are the ones who decide on the local services management. There is common sense in the idea of "*La liberté d'administration*" of the Local Authority and it is legitimised by the different actors involved, which have different interests.

Box 3.4**About *concession* contracts**

- The freedom of choice for a *concessionaire* from the delegating *commune* makes it necessary to assure that a public service will not be entrusted to a person in which the delegating authority does not have complete trust. Reliability and co-operation are not possible in the long term if the freedom of both parties is hampered by strict regulation (Loosdregt, 1994, p.5)

About '*Affermage*' contracts in France

- France has the best developed lease arrangements for water supply and sewerage services. Private operators provide about 75% of the country's water and 32% of its sewerage service.....Contracts are negotiated direct between the private contractor and the municipality. Even when there is competition, the incumbent contractor usually has an advantage over potential competitors (Triche, 1992; Walker, 1993).

- **Commercial Orientation**

Under the law, water and sanitation services in France are considered Local Public services with an industrial and commercial character. Municipalities can not use the budget to subsidise the service, no matter if it is run under direct or delegated management. (Law n.70-1297 31.12.1970 and LC 193 19.10.1971- quoted by Loosdregt, 1990).

Nevertheless, there are subsidies for financing investments in new extensions and in upgrading the systems. (Loosdregt, op.cit; Barthélémy, 1992). Loosdregt explains that the subsidies are due to the ease with which public sector loans can be paid off because of lower interests rates, a situation which does not apply to the private sector. These subsidies affect small communities, (mainly in rural areas) for whom it is difficult to raise internal capital for major investments in the system. Grants are given through the National Fund for Water Transmission Development (*Fonds National pour le développement des adduction d'eau- FNDAE*), or by river basin agencies.

Barthélémy (1992), noticed that in the ten biggest water and sanitation systems in France the average percentage of auto financing in five *régies* studied was 50%, whereas in the delegated management systems it was 79%.

- **Consumer orientation**

The system has some tools for protecting the customer. In direct management, the '*régies*', threatened by private sector involvement, try to keep their customers happy;

in delegated management, there are clauses in the contracts concerning customers' claims and the relationship between the organisation and the customer. In addition, in the "*Code du Communes*", there is a Consultative Commission of Public Services (*Commission Consultative des Services Publics*), formed by customer representatives, which acts on behalf of customers.

At national level, the customer association deals with customers' interests. Loosdgret (1990) states that the regulation of sanitation services, set by the '*Ministère d'Intérieure*' in 1988 was a consequence of customers' association pressure.

There is no data available on the existence of regulatory parameters or bodies for customer demands, nor for special attention to low income households, either through tariff structure or facilities for payment.

3.10 BRITISH AND FRENCH SYSTEMS: BRIEF COMPARISON

The history of watsan services in Britain and France has taken different paths in the 20th. century: in Britain the process shifted progressively from a Local Authority and decentralised perspective to a national centralised perspective with few actors involved. France, at the same time, experienced a decentralisation process (reinforced in 1982) which empowers elected Local Authorities to decide on the organisation of the service, on behalf of the population.

These different approaches have led to different managerial and regulatory views of the service. In Britain, the aim is to have homogeneity of procedures and global solutions. In France, one of the foundations of the system is the diversity of alternatives.

The differences on views regarding some selected issues within the sector are discussed below. Table 3.3 shows some characteristics of both systems.

In Britain, the service is seen as an industry and seeks managerial efficiency, as much as possible away from political and public authority interference. The regulatory body works independently of the state bureaucracy. Local Authorities are kept away from decisions and customers are assessed directly through the regulators and/or the private companies.

In France, the decentralisation of the provision of service and the power given to the elected Local Authority or Municipality for choosing the method of running the service makes it more a local political decision. Efficiency of the service is measured through the approval of the population communicated to the Mayor.

In Britain, issues in the system are dealt with between the private companies and the independent and centralised National Agencies, whereas in France the reference is the contract signed between the private company and the Mayor; and issues are solved on a one to one basis.

Regulation

England and Wales experienced the most comprehensive privatisation process in watsan service including the divestiture of physical assets. As a consequence of the fear of abuse by the private companies in their monopolistic position, an apparently strict regulation was established where the companies are monitored in detail through specific indicators. The French belief is that the market finds 'natural' ways to avoid abuse by the oligopolistic private companies and therefore the main indicators in the system are level of service and price, which stay around an average level. The stability of this 'equilibrium' is convenient and profitable for the actors involved and it is achieved through competition among neighbouring and similar towns for the level of service, the concern of the private companies about their reputation and competition between direct and delegated management.

Planning and Investment

In Britain, each one of the private companies provides a 10 year master plan that is monitored by the economic regulator.

In France sector planning is a state responsibility. Nevertheless, it is made based on information provided by the operational body.

The price cap approach used in England and Wales for tariff setting could lead the companies towards over investment, as the value of K is related to the amount of investment.

In France, investment can be made either by the public or private operator. When the body that operates the system is not the same as that responsible for planning and investing, the lack of all the necessary information could lead to inappropriate investment. This tendency is counterbalanced by the full cost recovery tariff, as both the one who finances and the operator get revenues from the same source.

Subsidies

One important point in the British system is the complete lack of subsidies, after privatisation. Private companies get resources for investment from the stock market and through revenues. There are also restriction on the use of cross subsidies within the companies from different business. In France, sewerage plants are generally subsidised. Subsidies are provided by municipalities or regional *départements*.

TABLE 3.3

THE MAIN INSTITUTIONAL OPTIONS FOR PROVISION OF
WATSAN IN FRANCE AND ENGLAND AND WALES

		FRANCE						ENGLAND AND WALES
		Option A				Option B		Option C
		Government Department	Traditional	Corporatised and Commercial	With Service Contract	With Management Contract	Leasing Contract	Concession contract
F U N C T I O N	Ownership of Assets	Public		Public		Public		Private
	Sectoral Investment Planning, Co-ordination, Policymaking	Internal to government	By parent ministry	Parent ministry or separate public authority		Public authority negotiated with private operator		Private, none or public authority
	Regulation	Not applicable						Public authority
	Capital Financing (Fixed Assets)	Government budget	Subsidies and public loans	Mainly market-based financing		Public	Private operator	Private
	Current Financing (Working Capital)	Government budget	Mainly subsidies	Mainly internal revenues		Private operator		Private
	Operation and Maintenance	Government	Public enterprise		Private operator for specific services	Private operator	Private operator	Private
	Collection of Tariff Revenues	Government	Government or public enterprise	Public enterprise		Private operator		Private
C H O T H A E R E	Managerial Authority	Government		Public enterprise		Private operator	Private operator	Private
	Bearer of Commercial Risk	Government		Public enterprise		Mainly public	Private operator	Private
	Basis of Private Party Compensation	Not applicable			Fixed fee based on services rendered	Based on services and results	Based on results, net of fee paid by operator for use of existing assets	Privately determined
	Typical Duration	No limit			Fewer than 5 years	About 3-5 years	5-10 years 10-30 years	No limit

Source: Adapted from World Development Report (WDR), 1994

Price regulation and adjustments

In Britain, prices are defined and modified by OFWAT, based on information provided by the companies to determine the value of K, and on inflation rates. The time for review is five years.

In France, prices are defined in the competitive bidding or through negotiation, along with formulas used to correct for inflation. In some cases the tariff is defined for the whole length of the contract, but changes in circumstances are allowed for the renegotiation of the contract.

An important difference between the two systems is that in Britain the service is charge based on the rateable value of the building. Metering has been introduced after privatisation for specific cases but it is not the usual procedure.

In France, metering is universal.

Competition

In both of the systems some form of competitiveness was created in the business, but it occurs in distinct places. In the UK, competition exists between the companies on the stock market, together with other alternatives of investment. In addition, the economic regulator tries to create comparative competitiveness among the private companies through performance indicators seeking higher efficiency.

In France, competitiveness exists between the public and private sector and between the big private companies.

CHAPTER IV

THE MANAGEMENT OF WATER AND SANITATION SERVICES IN SALVADOR, BAHIA, BRAZIL

4.1 INTRODUCTION

This chapter examines the water and sanitation services in the Brazilian state of Bahia and in the state capital, Salvador. It includes information on the way the service is currently managed and analyses the performance of the state owned company responsible for the provision of the service. The aim is to contextualise the environment in which a greater private sector involvement in watsan services is suggested, which will be described in the next chapter.

Currently there is no policy for the sector in the country, as since 1990, when the previous policy ended, no successor has been formulated. Therefore, the organisational structure of, and many of the current practices in the sector, are a legacy from the former policy. This is the reason for analysing that policy.

The chapter is divided into ten parts:

It starts with an overall picture of Brazil, in general and Bahia, the state, in particular with some socio-economic characteristics.

Secondly, a description is given of the development of watsan in the country and in the state, with special attention to the last national master plan for the sector, with its price setting and investment structure.

Thirdly, the current situation of the urban watsan services in Brazil and particularly in Bahia is described, through some indicators of the state owned company, Embasa, which runs the service, together with some operational information.

The services are assessed through the analysis of interviews made with representatives of the main organisations related to the system, including directors and ex-directors of Embasa; the Secretary of State for Water Resources Sanitation and Housing; the Secretary of the Council for Infrastructure; a representative of the State Legislature.

In a further section an Activity Responsibility Matrix of the system is shown, in order to visualise the relationship and the sharing of the necessary tasks to provide the services under the current model.

Furthermore, the main identified problems in the system are stated.

The service is then discussed through some of the alternatives that have been considered for solving the problems presented in the previous section. In addition there is a brief discussion of the trends of a new institutional and investment framework.

Then, a systematic analysis of the sector is presented, following the methodology, and finally, there is a section comparing the three studied systems comprising some objective indicators.

4.2 BRAZIL - THE COUNTRY

The largest country in area and population in South America, Brazil is considered by the World Bank as a high medium income country, together with some other Latin America countries such as Argentina and Mexico. Table 4.1 gives some socio-economic indicators of the country compared to Argentina and Mexico.

Table 4.1 Socio-Economic Indicators

	Brazil	Argentina	Mexico
Area (thousand km ²)	8,512	2,767	1,958
Population (millions)	153.9	33.1	85.0
Urban population (%)	77	87	74
Gnp per capita (US\$ 1,000.00)	2,770	6,050	3,470
Adult Illiteracy (%)	19	5	13
Access to safe water (% of total population)	86	64	81

Source: World Development Report, (WDR) 1994

4.2.1 Bahia- the state

The state of Bahia is located in the Northeast of the country (see fig.4.1). Its area is 566,978Km² and its population is about 12 million people, of which 59.11% live in urban areas, comprising 415 municipalities. Although having the longest coastline in the country (1,103Km), part of the state (about 60% of its area) is located in the semi arid region, with regular draughts and water shortages. The average annual temperatures in the state vary from 19.2°C to 26.6°C (Cabes XVII, 1994; Bahia, 1994).

The state possesses both industrial and underdeveloped areas, often existing side by side, as in the national pattern. Also similar to other parts of the country and other developing countries, the poor urban population and the lack of infra-structure is one of the problems in the main cities. In the capital city, Salvador, and its metropolitan area (RMS), which has 2.1 million inhabitants in urban areas, 93.88 % of the urban population

Figure 4.1

BRAZIL and BAHIA



source: Bahia, 1994

have access to safe water supply and 19% have sewerage services. (see table 4.2). The table gives the rate of services in the city and the state, compared to the region and to the country.

Table 4.2 Brazil - Water and Sanitation Indicators in Urban Area

	Metropolitan Area of Salvador	Bahia	Northeast Region	Brazil
Total population (1000 inh)	2,113	12,092	43,392	153.9
Urban population (1000 inh)	--	7,148	26,853	118.5
Urban population (% of total population)	--	59	62	77
Access to safe water (1000 inh)	2,007	5,284	20,913	101.6
Urban population (%)	94	74	78	86
Total population (%)	--	44	48	67
Access to sanitation services (1000 inh)	443	603	3,318	47,066
Urban population (%)	19	8.4	12	40
Total population (%)	--	5.0	7	31

Note: Data refers to 1992

Source: Adapted from Cabes, XVII, 1994; World Development Report, (WDR), 1994

Sharing of GDP in the state is as follows:

Service- 55%

Industry-30%

Agriculture and Farming - 15%

The GDP per capita in 1990 was US\$2,174 (Bahia, 1993)

4.3 BACKGROUND

Public water and sanitation services in Salvador, Bahia started in the middle of XIX century, together with other Latin America cities and since then has been subjected to some institutional changes, most of them determined by external donors or failures in the previous system.

Table 4.3 gives a summary of the different institutional arrangements used by watsan services in Bahia.

At the beginning, in 1853, the service was run by a Portuguese private company, the "*Companhia do Queimado*" on a concession system basis from the Council, in which assets belonged to the private company. The contract lasted for 50 years, until the beginning of this century, when the Council bought the assets of the private company and put the service out to tender. A contract was signed, but this time, financial responsibility for upgrading the system lay with the Council, which took out a loan from the "*Banque L'Union Parisienne*". The service was then run as an '*affermage*' system.

In the first quarter of this century, having as an excuse the deterioration of the service, the regional government decided, in 1925, to take over the service and run it in a '*Régie Autonome*' system where the water department had no financial autonomy and the staff were civil servants. At the time, the service was attached to the Secretary of State of Health. Later, in the early forties, the service was moved to the Building Secretariat which meant the beginning of a new perspective, where water and sanitation services were seen as economic goods, a necessary infrastructure for industrialisation and economic growth.

In the early sixties, the first big change in the institutional arrangements occurred, because of an external actor. Together with other Latin American countries, a new economic development cycle was developing in Brazil, based on the CEPAL (Executive Commission for Latin America) model of import substitution. This means that infrastructure had to be

provided in urban areas, not only as basic conditions for the emergent labour force, but also as part of the strategy to encourage the growth of other industries related to the sector (Carteado and Franceys, 1994).

The World Bank and the Inter-American Bank financed the infrastructure at that time as part of an agenda where the social problems were addressed and prioritised. (Cardoso, 1982). The terms of the loans represented a complete change in the national managerial approach to the service. In Bahia, the Inter-American Bank provided a loan for upgrading the water system of Salvador and its region, including new catchment, transmission and water treatment plant. The bank required independent and dynamic organisations with autonomy, free from political interference. It was necessary to ensure that the money would be used according to the initial purpose and also that the organisation would be able to charge tariffs on a full cost recovery basis, making it possible for the bank to recover its investment.

As a consequence of these new conditions, the institutional framework set up comprised an organisation officially attached to the regional government, but quite autonomous.

At the time, the service was managed in a '*Régie Personnalisée*' basis, as the organisation- *Superintendência de Águas e Esgotos do Recôncavo (SAER)* was rather autonomous. Because of the financial aspect, the management system changed. It led to the construction of big catchments and treatment plants and the physical network was mainly directed to areas with a great potential for revenue.

TABLE 4.3

INSTITUTIONAL MODELS FOR URBAN WATSAN IN BAHIA (1853-1994)

INSTITUTION	Characteristics			
GOVERNMENT				
Government/State Ministry	Centralised government control	1970 -	1990	Through subsidies
Municipal (Regional) Department <i>Regie Directe</i>	Centralised municipal(statal) control	1925 -	1960	
Decentralised Government Department <i>Regie Directe</i>	Encouraging autonomy at district or municipal level	1960 -	1970	
Semi-autonomous Utility Department <i>Regie Autonome</i>	Managerial autonomy	1970 -	1994	
Autonomous Utility Board <i>Regie Personnalisee</i>	Managerial, financial and legal autonomy			
Regulator	Ensures adherence to agreed performance standards including tariffs			
PRIVATE ENTERPRISE				
Service Contractors	Fees per task - conventional contractors	1925 -	1990	
Informal Sector or 'Mini' Contractors	Fees per task - small scale enterprises			
Management Contractor <i>Gerance</i>	Fees proportional to physical output of fixed assets	1905 -	1925	
Shared Profit <i>Regie Interesse</i>	Fees proportional to output plus bonus or shared profits			
Leasing Contract <i>Affermage</i>	Agreed amount of tariff to lessee of fixed assets			
Concession Contract (BOO/BOT/BOOT) <i>Concession</i>	Agreed amount of tariff to concessionaire who has constructed fixed assets	1853 -	1905	
COMMUNITY				
Community Group	Informal group			
Cooperative	Formal group			
Non Governmental Organisation (NGO)	Voluntary agency providing services			
CONSUMER				
Household	Owner or tenant			
Institution	Government			
Commercial/Industrial	Private enterprise			

Source : adapted from Coyaud (in Carteado and Franceys, 1994)

This organisational structure would be replaced in the late sixties, with the state following the national master plan - Planasa.

4.3.1 The National Plan for Urban Water and Sanitation- Planasa (1970-1990)

Planasa, the Brazilian National master plan for Urban water and sanitation changed in many aspects the profile of the sector in the country. After this plan no other policy has been formulated in the country for the sector and many of its features are still in use, such as tariff setting.

The current watsan situation in the country is a consequence of the institutional and financial framework set up by Planasa.

This major institutional change in urban watsan services took place in the early 70's and it would remain until 1990. It was a consequence of the managerial centralisation approach established by the central military government, for infra-structure and social policies during that period.

The model was based on the centralisation of decision making concerning investment and financing within the central government through the Federal Housing Bank (*Banco Nacional de Habitação*- BNH); and in the creation of regional state companies as executive bodies responsible for implementation of the national policy in each state. Also important in Planasa was the idea of self sustainability of the system through the viability of the regional companies.

Before Planasa, urban watsan services in Brazil were considered inefficient and one of the main causes restricting development. Only 42.7% of the urban population had access to safe water and 22.3% had sanitation services connected to the sewerage system in the late sixties. (IBGE, 1990). According to the government, at that time the main problems in watsan could be summarised as:

- wastage of funds because of the lack of organisational structure and planning;
- lack of an adequate tariff system;
- responsibility for provision of the services lying in the weakest level of the political-administrative chain, the municipality.

4.3.1.1 Price definition and control

The method of tariff definition in Planasa was set by a Federal law (Law 6.528 11/5/1978). It was defined under the target rate of return on capital method, with a maximum rate of return of 12% per year. Along the years, tariffs were expected to have

lower increases in value as investment would be necessary only for extending demand and for maintenance.

A lifeline tariff was defined as 7% of the national minimum salary, when it was for water and sanitation services, and 5% of the minimum salary when for water supply only. The lifeline consumption was 10m³/month. (BNH, 1978a; BNH,1978b).

This method should guarantee the technical aspects regarding self sustainability of the companies and also ensure affordability for low income households. The tariff structure, that is still used in Bahia, is in table 4.6.

Subsidies were provided in the tariffs from high income households to low income households; from large consumers to small consumers, and amongst the different regions in the country, which had different levels of development and different levels of income. The average tariff for each company should allow its viability when working efficiently, but the law did not define efficiency.

Tariffs were approved for each company by the central government, as until 1986 public tariffs were used as a tool for controlling inflation. Since then, changes in tariff have been authorised by the state Governor, according to proposition made by Embasa.

4.3.1.2 *Metering*

Under the law, each company would carry out studies in order to define the optimum percentage of metering. When metering was not used, the service would be charged by the estimated average consumption based on the rateable value of the house. Appendix IV-1 shows the percentage of metering in Salvador, Bahia during the period 1970-1990.

4.3.1.3 *Investment*

The Federal Housing Bank (*Banco Nacional de Habitação- BNH*) was responsible for the water and sanitation policy, with a high level of autonomy and centralisation. Priorities were decided by the Bank. Financing for the sector in general figures was made in the following way:

- . 25% as grants from the central government, states or municipalities;
- . 37.5% by the central government, through the bank, with resources from compulsory savings from salaries; and
- . 37.5% from the '*Fundo de Água e Esgoto*'-(FAE), a fund set up in each state for investment in urban water and sanitation.

The Federal Housing Bank should progressively decrease its participation in the system, as FAE was supposed to achieve its sustainability. FAE were fed by 5% of regional taxes and through revenues from loans.

The targets of the plan were: to provide water supply to 90% of the urban population and sanitation services to 65% of the same population by the year 1990.

To be eligible for participating in the system and receiving funds, each city should give the concession of water and sanitation services to the regional state company.

The majority of cities (64% in 1990) joined "Planasa" giving the concession to the respective state owned company, thus relinquishing responsibility for the services.

During the first decade of the plan, during the 70's, there were big investments in the sector and a significant increase in the proportion of the population served.

In the 80's, the results of the policy reflected the recession with high levels of inflation faced by Brazil and other Latin American countries. The Brazilian crisis lasted the whole decade. The main source of investment, the compulsory loan given by each employee in the country as National Insurance, was drastically reduced, due to unemployment.

Although defined by law that the average tariff should recover the costs of the service, the Federal Government kept the value of tariffs at a very low level, well below that required for recovering the costs of the service. Even when the federal government stopped controlling inflation through public tariffs, in 1986, the states, especially the ones in the poorest regions of the country, found it difficult to set realistic tariffs, in the middle of an economic crisis with high unemployment.

The institutional model started to be dismantled in 1986 when the Federal Housing Bank (BNH), the main reference of the system, was wound up. As a consequence of all these factors, investments in urban watsan decreased and the levels of service started going down from the middle 80's, with a resultant resurgence of some of the water born diseases (Carteado, 1993).

During the first decade of Planasa, the state owned companies stressed expenditure in water production, constructing new systems, and upgrading the ones in use, rather than investing in institutional development, effectiveness, programmes on leakage control, etc. When the first signs of crisis arrived, the majority of the companies did not change their profile of investments. Nowadays, in some regional state owned companies, unaccounted for water reaches figures above 50% of the whole treated water (Carteado, 1993; Lobo, 1993).

In Bahia huge investments were made for the production of water and for the sewage system in Salvador, which ends up serving only a small part of population. The operational system in Bahia is discussed in heading 4.4.2. By the end of Planasa, in 1990, the watsan situation was that stated in table 4.2.

4.4 THE CURRENT SYSTEM

Since Planasa's pattern had collapsed, the central government launched a programme in 1990, the Sanitation Programme for Urban Areas, (*Pronurb*) but without any commitment to self sustainability or to an organisational framework.

The lack of an institutional arrangements together with the financial crisis in the sector, created a new situation where the regional governments and municipalities, facing pressure from citizens, especially in the big cities, started investing in the provision of the services.

This attitude was also part of a process that has developed in the country since the middle 80's with a strong tendency to decentralisation of policies, as part of an agenda of (re)democratisation. This tendency is very clear in the current National Constitution that came into force in 1988. Many of the taxes that previously remained at the national level, now returned to the municipality or to the state where it was generated.

According to the new Constitution, municipalities hold the concession, but there is no definition of the role to be played by the central government, the states or the municipalities, with a complete lack of institutional arrangement and financial mechanisms.

The role of regulator formerly played by the central government was not assumed by any other level of government, despite the decentralisation process.

At the end of the national plan most of the regional state owned companies were facing a spiral of deficit. Researchers still discuss if it is due to mismanagement of the regional companies or a problem inherent in the policy itself. Nevertheless, it is common sense that part of the deficit is due to the set of tariffs that has always been an issue as part of the welfare role played by public authorities (Carteado and Franceys, 1994).

The current situation in Brazil is that 86.0% of the urban population have treated water. Nevertheless, only 31% of the same population have a convenient sewerage system, and the greater part of this has no treatment before reaching water courses or the sea. (see table 4.2).

4.4.1 The current situation in Bahia- The Company

The state owned company in Bahia, *Empresa Baiana de Águas e Saneamento S.A. (Embasa)* was launched in 1971 as part of the requirements of the Central Government in order to make the state eligible for joining Planasa and consequently to get capital resources. It is attached to the Secretariat of State for Water Resources, Sanitation and Housing.

The company, similar to those in other federal states, operates over a large and dispersed area. It covers an area of 561.026km² and serves about 4.5million people of the 7.0

million urban inhabitants in the state. (Embasa, 1994a). Another 726,000 urban inhabitants are served by municipalities or other organisations. This means that 43.7% of the total population and 73.93% of the urban population are served by the water supply system (Cabes XVII, 1994).

Decisions on budgets, investments priorities and rate of tariff are controlled by the state government, which makes the company highly vulnerable to political interference. Every four years there are elections for the regional government. The elected Government appoints the Secretary of State for Water Sanitation and Housing and the Board of Directors for Embasa. On each of these occasions there is a change in priorities within the company. Even when the Governor is in the same political party as the former one, it is likely that he will put people from his own group in key positions. Sometimes these people use their situation to entrench their political position for the next election. In many cases priority in investment is given to the Governor's region, or that of the Secretary of State, or a director.

Similar to other water companies in the country, Embasa faces a huge debt - US\$ 302 million in 1993- (Embasa, 1994c) and problems in providing services to the customers. The national crisis was reflected in the state by a drop in capital investments in the sector, followed by a consequent decrease in the proportion of the population served and in metering installation. Poor maintenance of assets or deterioration of installations and equipment due to lack of regular maintenance and replacement of fault parts became a feature of the system (see Appendix IV-1 Water Supply-Service Evolution-Salvador, and table 4.5.- Embasa- Strategic Indicators).

At that time, diseases such as malaria, "dengue fever" and particularly cholera, were responsible for more than 60% of people hospitalised and for the death of one child every six hours, consuming about US\$2.5million in order to prevent the spread of these diseases (Bahia, 1994).

In 1991, the newly elected regional government realised that there was no external source for financing the service and decided to invest 24% of the capital expenditure of the government in water and sanitation services due to the visible worsening in the service and the degradation of existing assets.

Although expending about US\$300million in the period 1991-1993 in water and sanitation services, mainly for construction and rebuilding systems, the analysis of some indicators in the company suggests that it has not been working efficiently. One of its inefficiencies can be seen in the reliability of information provided by the company. Often the same indicator has different figures, according to the department within the company. Embasa recognises this problem. In a Mid term report for the World Bank (Embasa, 1994b) it is stated that the company is improving its internal controls, providing more

reliable information which proves failures in the historical data base. Therefore, estimates and monitoring sometimes did not reflect Embasa's real financial and sometimes even operational situation.

Whenever possible, comparisons are made between Embasa and some similar Latin American companies (LAU companies) considered by Yepes (1990), as successful, despite the problems and constraints faced by all of them in acting in a similar environment, such as high inflation; rapid and uncontrolled urban population growth; a large proportion of low income population to be served; politically appointed managers and controlled rates.

The strategic indicators for Embasa are in table 4.5 and are defined in Appendix 4-II.

The figure for connection per employee in LAU companies is 213, higher than the figure for Embasa.(170 for 1991; 187 for 1992 ; and 206 for 1993). These figures decrease when the number of staff hired temporarily from the private sector is taken into consideration. Contracting labour force through service contracts is often used to overcome constraints caused by legislation for contracting staff. Although showing a tendency to improve, these figures fall short of a high level of efficiency.

Salary costs in LAU companies has an average figure of 40%. At Embasa, it was 64% and 68% in 1992 and 1993, respectively.

Half of the water treated in the company is lost, according to the percentage of unaccounted for water, when in LAU companies this percentage is 34%.

The analysis of some financial indices^{4.1} shows inefficiency in the company.

Indicators of good management practices include low level of receivable accounts and adequate level of internally generated funds, enough, at least to cover operation and maintenance costs. A summary of some indicators for Embasa is shown below:

Table 4.4 Embasa- Some Financial Indicators- Summary

	1992	1993
Bill collection efficiency (%)	75	79
Operational cost/ Operational revenue (coefficient)	1.53	1.14

source: Embasa, 1992, 1994a, 1994b, 1994c

^{4.1} The analysis of financial indices is based on Yepes, op.cit and Johnson, 1990.

Table 4.5

EMBASA- STRATEGIC INDICATORS

Discrimination	Unit	Years		
		1991	1992	1993
Urban population	1000 inh	7,008	7,148	n.a.
Population served (water supply)	1000 inh	4,368	4,558	n.a.
Service coverage (water supply)	% urban pop.	62	64	72
Population served (sewage)	1000 inh	443	603	669
Service coverage (sewage)	% urban pop.	6	8	11
Consumption per capita	lcd	267	278	na
Percentage of metering	%	51	48	47
Unaccounted for water	%	47	50	50
Connections (x 1000)	number	1,043	1,100	1,174
Staff	number	6,141	5,891	5,702
Connection per employee	conn/emp	170	187	206
Connection per labour force (including people hired from private sector)	conn/emp	na	146	180
Employees per 1000 connection	emp/1000con	5.88	5.35	4.85
Total production	m ³ x 1000	35,024	38,001	41,473
Total collection (sewage)	m ³ x 1000	n.a.	n.a.	3,483
Average Tariff				
Water	US\$/m ³	0.43	0.39	0.40
Sewage	US\$/m ³	0.27	0.50	0.51
Average cost per cubic metre (water)	US\$/m ³	0.58	0.73	na
Bill collection efficiency	%	75	75	79
Billed production (water)	m ³ x 1000	n.a.	n.a.	18,636
Billed production	US\$ x 1000	99,603	92,147	93,236
Operational costs	US\$ x 1000	91	200,915	192,936
Salary costs	%	na	64	68
Operational cost / operational revenue (working ratio)	coefficient	0.76	1.53	1.14
Total billing per volume produced	US\$/m ³	0.24	0.2	0.19
Total revenue per connection	US\$/conn	100.7	88.6	n.a.
Total revenue per employee	US\$/emp	n.a.	10,777	10,407
Days receivable ratio	days	na	69	67
Intensity of use of water network	m/conn	9.2	7.0	9.2
Intensity of use of sewage network	m/conn	11.1	11.6	12.42
Rate of return on assets	coefficient	-0.02	-1.68	0.94
Short term liquidity	coefficient	0.29	0.27	0.37
Debt service ratio	coefficient	n.a.	1.00	24.40
Personnel costs / operating costs	coefficient	0.44	0.23	0.32
Long term debt ratio	coefficient	0.47	0.27	0.46

Note: n.a. data not available
 (emp.) employee
 (oper.) operating
 (conn.) connection

Source: Embasa, 1992; 1994a; 1994b; 1994c; Cabes XVII, 1994

The low level of bill collection efficiency, in value, leads to a high level of receivable accounts. It means that more than 20% of the invoices delivered by the company do not turn into revenue. The days receivable ratio was 69 days in 1992 and 67 days in 1993. This indicator excludes debts from the public sector and occurred in an environment with high inflation.

In such a situation, funds generation does not cover operation and maintenance costs. On the contrary, funds must be supplied from the treasury for covering these costs, meaning a bankruptcy situation in the company that, in fact, is not conjectural but has existed for many years, as can be seen in table 4.5 Embasa, Strategic Indicators, which shows the evolution of indexes since 1991.

4.4.1.1 Tariffs

Apart from problems related to inefficiency by personnel and unsuitable managerial approach, the setting of tariffs also adds to the poor performance of Embasa.

Table 4.5-Embasa- Strategic Indicators, shows the decreasing rate of metered connection since 1991, which dropped from 51% to 47% in 1993. This is especially important for Embasa when examined together with the average tariff per cubic meter (US\$0.43 in 1991; US\$0.39 in 1992; US\$ 0.40 in 1993) and the tariff structure in table 4.6 Embasa-Tariff Structure.

According to the structure, non metered connections are likely to pay less than metered ones, especially in the residential households.

The social tariff is charged for shanty houses, which are described according to their size in square meters, their location in the town and are defined as having only one tap (or no internal tap).

Sewerage service is charged as a percentage on top of the water bill. The rate is 90% for those connected to the main system and 45% for independent systems which were financed by the customers and operated and maintained by Embasa, i.e., customers do not pay that part of the tariff related to capital construction costs.

4.4.2 The Condition of Water and Sanitation Services

The economic situation in the capital city and in the major economic centres is quite different from the situation in the rest of the state. Either because of the climate, or due to the incapacity of generating wealth through a sustainable economy, some cities remain in a difficult situation, with a low level of income. The level of infrastructure in different parts of the state generally reflects the level of economic growth.

Table 4.6 **Tariff Structure**

Household	Consumption (m ³ / month)	Tariff (US\$)
<u>Metered Connections</u>		
Social (poor)	0 - 10	0.39
	11 - 15	0.09
	16 - 30	0.14
	31 - 45	0.26
	45	0.37
Residential / holiday property	0 - 10	2.08
	11 - 15	0.42
	16 - 30	0.51
	31 - 45	0.60
	45	0.82
Commercial	0 - 10	6.99
	10	1.43
Public building / construction site	0 - 20	22.53
	20	2.02
Industry	0 - 20	18.16
	20	1.53
<u>Non Metered Connections</u>		
Social (poor)		0.39
Residential / holiday property		3.54
Commercial		6.99
Public building		83.24
Construction site		18.16
Industry		18.16

Note: Prices in March, 1994

Source: Embasa, 1994a

In Salvador, the capital city, 95% of the population have access to safe water, with house connections. This, despite the stated problems on reliability in the system, concerning quality and quantity of water delivered to certain parts of the city, the level of unaccounted for water and the lack of customer orientation.

The per capita consumption in the state was 278 lcd in 1992 (see table 4.5), and in the capital city 340 lcd (Cabes XVII, 1994). These figures are considered very high, more than enough for health purposes, despite the growing demand for services in the main urban areas.

This is the pattern in the main cities in the state, the most important economic centres, where designing of water and sanitation systems considers a 'per capita' consumption of 250 lcd.

This pattern remains a consequence of the technology enforced during Planasa, which led to the use of technologies often inappropriate to a demand driven service, but which made the country at that time a contracting engineers' paradise.

On the other hand there are 127 small municipalities and districts in which water supply is not managed by the state owned company, but by the municipality themselves or other institutions. Actually, these places are more related to rural areas, as their total population is 726,000 inhabitants, representing 13.7% of the total population served in the state. (Cabes XVII, 1994).

Regarding sanitation, only 8.44% (1993) of the urban population in the nine main cities of the state had access to the service, which means 603,000 inhabitants in 1992. (Cabes XVII, 1994). There are 511 cities and districts without sanitation services. The main problem in the major cities is related to the network, as the main sewerage systems, conventional sewerage in the main cities, are under utilised. In Salvador, the current system carries less than 10% of its capacity, and serves about 9.8% of the population (Embasa, 1994a). The capacity of the main pipe of the conventional sewerage separated system is 7.8m³/s. The network of the system has not been completed due to lack of funds.

The remaining 9.2% of the population that have access to sewerage use independent systems operated and maintained by Embasa in different parts of the city. These systems comprise 75 sewerage treatment plants from 5.0 m³/sec to 50 m³/sec, 25 pump stations and 5,300 septic tanks, capacities of which vary from 1.5 m³ to 40 m³. Some data on the human and material resources needed for operation and maintenance of both systems are in table 4.7.- Embasa- Indicators of Department of Sewerage.

These systems have low productivity as they do not generate economy of scale. The operation of such a number of small systems distributed in a rather large area, seems to work more efficiently when in the hands of small private operators probably working locally, rather than operated by a large company with a heavier structure.

Table 4.7 EMBASA- Indicators of Sewerage Department - Salvador/Bahia

Discrimination	Quantity
Sewerage treatment plants in condominial Systems	75
Pump stations in condominial systems	25
Pump stations in the main sewerage system	09
Employees in operation and maintenance in the pump stations and treatment plants in condominial systems	24
Employees in operation and maintenance of pump stations in the main sewerage system	33
Employees in maintenance of network in condominial systems	34
Employees in maintenance of network in the main sewerage system	40
Population served through condominial systems	228,303
Population served through main sewerage system	243,796
Extension of network in condominial systems (m)	276,044
Extension of network in the main system (m)	285,724

Note: data refers to March 1994

Source: Embasa, 1995 Department of Sewerage

For the poor part of the city, specifically the part with illegal settlement and shanty houses, where the normal standard is the open sewer, the municipality intervenes, collecting sewage in a main pipe discharging in the nearest canal. This solution, incorrect from the technical point of view, is highly utilised by municipalities that respond to the demand of this part of the population, who just want to take out open sewage from the streets. And this population do not pay for this service, as there is no maintenance.

There is still a large percentage of the population who produce individual solutions for sanitation problems. The general solution is the use of cesspits which are emptied periodically. In major cities this service is generally provided by middle sized private companies which use special equipment for cleaning. The state owned company is also in the market, competing with the private companies. In small cities this service is usually made by individuals. In the absence of public service, the population find their own solution for sewerage services.

4.4.3 Regulation

Water quality regulation is defined by the Ministry of Health and monitored by the Secretary of State for Health. The quality of water delivered must comply with the directive n.36/90 which is monitored at regional level by the Secretary of Health.

The main indice used by Embasa is the concentration of Chlorine in the network, that should be 0.2mg/l in 95% of samples. According to Embasa (1994b), the company has been achieving this figure. Currently, Embasa checks the quality of water delivered and the quality of effluents and sends the results to the Secretary of Health.

Environmental regulation is defined by the Central Government through its Environmental Regulatory Body (*Conselho Nacional de Meio Ambiente- CONAMA*) National Council for Environment, and monitored regionally by the environmental resources centre (*Centro de Recursos Ambientais - CRA*), which checks discharges and places sanctions on those, mainly industries, that do not comply with the regulations. Embasa and CRA work well together in analysing projects and authorising new settlements. Nevertheless, it is difficult for CRA to push and punish Embasa, as they work 'for the same boss', a similar situation to that described for England and Wales.

4.5 THE VIEW OF THE PRACTITIONERS

This section is based on the information of some people involved in the provision of water and sanitation services in Bahia and in Salvador. It attempts to assess their views on the current situation of the service and their views of the future through an analysis of

their responses. The questionnaires used in the interviews and a summary of each of the responses are in appendix I-1.

Seven interviews were conducted with the following: the Secretary of State for Water Resources Sanitation and Housing; two senior managers, former directors of the company, each three times director of the company; a member of the board of directors of the company; a member of the state legislature, involved with water and sanitation problems, who presented a proposal for a new sanitation policy for the state; the Secretary of the Council for Infrastructure; a member of the academy involved with sanitation problems in the state, who is co-ordinating the preparation of the Municipal policy for Sanitation. The views of the employees in the sector were assessed by examining publications produced by the local union and the National Executive of workers in sanitation and environment.

The section is organised by or subject discussed in the interviews, and whenever possible, by similarity and diversity of ideas, as it was noticed that the former Embasa's directors and the current director together with the Secretary of State for Water Resources Sanitation and Housing tend to have similar points of view, whereas the Secretary of the Council for Infra-structure, the member of the state legislature and the union tend to agree in most of the subjects.

The main areas covered in the interviews were:

- the current level of services;
- the current policy and the current situation- strong and weak points;
- the need of setting up a new policy and what its main concerns or its main characteristics should be;
- the possibilities of more private sector involvement;
- the role of the state in the event of more private involvement.

There were some points in common among all the interviewed. One of them was related to the necessity to consider sanitation in a broader context, water and sanitation services together with drainage, solid waste and vector control. Also most of them agree that water and sanitation services should be seen as part of a comprehensive health policy. For them it is not effective to spend money for providing water and sanitation infrastructure, if it is not part of a whole chain related to sanitation and health.

- **The current level of services**

Most of the interviewed considered the level of provision of the water service to be from fair to good while sanitation services were considered to be bad in Salvador.

In fact, the production of water in Salvador is higher than necessary, according to an Embasa director and a former director. Nevertheless, it was noticed that there is discrimination in delivering the service, as many areas in the city have problems with the service related to quantity, regularity and quality of water delivered, number of leakages and time for solving problems. In a study conducted by the university, in some areas of the city, more than 50% of the water samples had faecal coli, which are related to the intermittence of the service and the quantity of leakage. Sometimes, there is no water for two months. According to a former director, "....the quantity of water produced in town is enough.....we need to upgrade the network in some areas in the outskirts of town and slum areas..." The problems are concentrated in the poor neighbourhoods. According to the Secretary of the Council for Infra-structure, the level of the service depends on where you live.

Outside Salvador, water services are not considered good, as many cities do not have the service at all yet. Besides, the occurrence of some diseases which were supposed to have vanished indicates a lack of proper service.

Regarding sanitation services, they are considered bad or almost inexistant both in Salvador and in the state. In a survey made by the council at the end of 1993, sewage services were regarded by 60% of the inhabitants as their biggest priority.

The current policy

It is a fact that there is no current policy for sanitation neither for the city nor for the state, although it is stated in both constitutions. Because of the lack of policy, there is controversy about the efficiency of investments made during the last four years, although it was recognised that a great amount of resources were used in water and sanitation services in the state (10% of the state budget, i.e. about US\$ 300million). All interviewees recognised the lack of policy as one of the weaknesses of the sector.

For the director of Embasa and for the Secretary of State for Water Resources Sanitation and Housing, investments were made without a plan, supporting the claim of the population.

According to a member of the state legislature, the co-ordinator of the policy for Salvador, and the union representative, expenditure was based only on short term political aims, and in accordance with the will of the Governor. There was no technical or social support for allocating the resources or for choosing the technological pattern. Often this resulted in rebuilding instead of upgrading systems.

The lack of a national and regional policy was regarded by the majority of those interviewed as the main constraint on the system.

For the Secretary of State, the lack of a national institutional organisation causing the management of the sector to be divided among the three levels of government (central, regional, local) is not good, as Brazil is an under developed country, where the succeeding administrator does not give continuity to the plans made by his predecessor. It is therefore necessary to make a framework, to discipline the sector. For him, it is also necessary for the central government to prioritise investments in water and sanitation services in its ten-year planning.

. Strong and weak points

One of Embasa's directors pointed to the current regional government's prioritisation of sanitation as being a strong point in the present system, in addition to the good operational and technical levels of the regional state companies.

Weak points in the system are considered to be the lack of planning for investments and the tariffs. According to a former director of Embasa, most people in the state capital, as well as in the inland cities, cannot afford to pay tariffs related to the cost of the benefit.

Another weak point is the sewage service and the lack of organisation of the company and the system; as investments are made only in construction and not in these other vital areas.

For the co-ordinator of the Sanitation Policy for the capital city, the current system is still too centralised and creates a culture in the sector where decisions are taken on a technocratic basis, without community participation, even making the discussion about different forms of management difficult. For example, the question of "municipalisation" i.e. a greater participation of the municipalities in the system since they are concessionaires. Those who support this idea have difficulties in discussing the issue with those who support a regional state company.

The size of the company and its lack of autonomy was also indicated as a constraint in the system, by a former director. Embasa has 5,600 employees (March, 1994) throughout the state. In his words, "...the lack of specific legislation makes the company vulnerable to political use..." Although the company defines the tariffs, which must be approved by the governor, it is considered difficult to charge for the service. Besides, investments are not made through tariff revenues.

. Need for setting a new policy

The need for setting a new policy at the national, regional and local level was stressed by all the interviewees, as it is seen as the main current constraint. Some of them emphasised the lack of a central organisation to control and deliver financial resources; others mentioned the necessity of creating a flexible national policy.

For all of them, the policy needs to be very flexible, exactly the opposite of the previous policy, which was centralised through the national government.

Some characteristics of a new policy were mentioned by the interviewees:

1. the necessity for local authority participation. The current system is derived from the former policy, where the council gives the concession to the regional state company to take over the service. Currently, the municipalities have no voice either about the investments that would be made or about tariffs. Nevertheless, there are different view points on it. The Secretary of State for Water Resources Sanitation and Housing, thinks that the Local Authority should maintain its role of concessionaire; former directors of Embasa think that the current concession contracts must be analysed and that some municipalities may think the terms of the contract are not good, deciding to run the service by themselves as a *régie* or under a delegated management contract. The last possibility is not well viewed by the union, as from their point of view the local authorities are more difficult to control which could give more chances for an involvement of the private sector, which they are completely against. Besides, most of the cities can not afford the service.
2. flexibility. The policy must be flexible enough to allow each state to decide the most suitable model. Although the broad idea is the same, there are important differences about some points, such as community participation. Whereas the Secretary of State thinks that in a representative democracy the elected can decide and act on behalf of the citizen, the union asks for community participation, both during the setting up of the policy and for decisions on investments, model of management, etc.
3. universalisation and equity of the service. The aim of the policy must be that 100% of the population are served with the minimum necessary for health purposes, independent of the level of income.

• **Possibility of greater private sector involvement**

This was the point which created the greatest diversity of opinion. For the Secretary of State for Water Resources Sanitation and Housing, it is time for a greater private sector involvement, providing the service for the part of the market that can pay, making the government free from this obligation, released to deal with education and health. Although being aware that private sector involvement is not the solution for the water and sanitation problems in the state, he argues that there are two factors to support his idea. The first is that it would force the end of cross subsidies in tariff, which he sees as

one of the main weaknesses in the system. The tariff now is set for the whole state as an average tariff. Because of it, even though the cost of the service is different in different cities, the customers pay the same tariff. In his opinion the customer should pay the real price and the Government should run the service in those places where it was unaffordable or should subsidise the population unable to pay the real cost. The second factor is that the level of service for those who could pay would be upgraded in many cases through lower prices.

On the other hand, the union is completely against a greater private sector participation, as it is seen as one way to exclude the poor from the service. For them, the Government can not give away its responsibility for providing such "...an important service in an essential social area" (Saneamento: saúde e cidadania, 1993). In their opinion, the consequence is always a decrease in the quality of the service and an increase in tariffs for the society. Besides, the involvement of the private sector destroys the influence of the employees' organisation.

For the others interviewed, private sector involvement is a fact. Apart from the traditional involvement of contractors, consultancy and designing, the current trend is towards private sector involvement through "*terceirização*" i.e. giving some tasks to a third part or company. In fact, it works as contracting out, specifically for services such as metering, network maintenance, invoicing, etc. This sort of involvement has been increasing lately and it has been accepted by the system, with the exception of the union. For them, it should not be used because it is not legal to contract services on a permanent basis.

For the former Embasa's directors, the "*terceirização*", contracting out service, should be used in those services which require high productivity. It was meant, at the beginning, for services different from the main activities of the company, such as operation and maintenance.

According to a current director, when any service is provided by the private sector, it is easier to ask for a better service for the customers.

The "big step" would be a management contract for operation services. This issue divides opinion. The Secretary of the Council for Infrastructure considers that, in spite of it being a trend, the state should not give away operation activities for security reasons. For a former Embasa's director, those contracts will check the capacity of the private sector to participate in a further process of privatisation, but he does not relate the quality of the service to public or private management. For him, both of them must provide a good service. The private sector is considered a partner. Privatisation was also seen as implying greater efficiency, with more profit. But it would lead to higher tariffs and discrimination, as not everyone who is connected could pay. A private sector involvement also implies awareness on the part of that sector.

For an Embasa director, the service should not remain only in the hands of the state. The latter could share the activities without losing physical and financial control of the sector. Who owns the concession must have the control.

• **The role of the state**

There was no great divergence of opinion on this subject as it is clear that in case of a greater private sector involvement, the state would act as a regulator, setting the policy, organising and helping the implementation.

For the member of the state legislature, the state must monitor the service under society' supervision. In his opinion, in case of privatisation the state would keep investing in areas with no affordability which would otherwise lead to increasing costs without improvement in the quality of the services, mainly for poor areas.

For the Secretary of the Council for Infrastructure, only the state could invest in areas where there is no return of investment. Moreover the state's role is planning, investment and operation. Also, the state is responsible for the environment.

An ex-director of the company said that in such an irregular income distribution as in Brazil, the state can not desert the service. "The poor are a Government responsibility".

For the Secretary of State for Water Resources Sanitation and Housing, the state will always be the concessionaire for using the water resources, whereas the local authority are the concessionaire for the urban water and sanitation services.

By way of conclusion some issues, comments and opinions which were expressed in the interviews, will be discussed.

- Investments are predominantly directed towards construction rather than to core activities such as operation and maintenance. Some community leaders have stated that they 'want water in the pipes, not pipes in the street'. Besides, there is a lack of investment in institutional strength, of upgrading an organisation seen as inefficient, with an excessive number of administrative staff. There is distortion in the distribution of salaries, favouring unskilled and administrative personnel.
- The idea of preserving the state owned company on a regional basis. The interviewees from different sectors used different reasons for preserving the state owned company in a regional basis: for some it is necessary due to the technical knowledge gathered through the years; for solving supra-communal problems and regional peculiarities, such as lack of water in a given city, integrated systems which serve different cities, etc.; but many of the concerns are related to corporatism.

- The flexibility of the new policy and the tendency to decentralisation in contrast to the former centralised policy with no local authority involvement.
- The necessity for local authority participation. This trend creates a duality for the union, for example, as theoretically they support this idea because, for them, the service must be managed by the level of authority which is nearest to the citizen. The idea is also strongly supported by private contractors who seek the opportunity of taking over the service through any sort of delegated management, as the majority of the council do not have the technical or financial expertise to operate the service. This consequence of decentralisation is seen by the union as a risk.
- The tariff structure with or without cross subsidies. For some people there should be no cross subsidies through tariffs, as in some places the cost of water is much lower than in others, as the catchment is near the city or the transmission is done by gravity, etc. For those who support this idea, the customers in such places should get the benefit from it and the tariff should be related to the real cost in each place. In those cases where the population could not afford to pay, Government should subsidise the system. For those who do not hold this point of view, cross subsidies through tariff is one way to balance inequalities in society and a means to facilitate investments in the sector.
- The effect of private sector involvement on the cost for customers. As there is no comparative study on the cost of "*terceirização*" the government and the company say that the cost of the tasks provided by private companies is lower than those which are provided by its own staff due to the higher productivity of the private sector. They also say that if the whole system were operated by private companies, it is likely that tariffs could decrease, due to gains in efficiency and productivity. On the other hand, some people say that a greater private sector involvement would certainly lead to higher tariffs and worsening in services, mainly for the poor, as the private sector would invest only in areas with a quick return of investment. For them, the customer would be adversely affected by private sector involvement.
- There was a remarkable lack of faith in Brazilian entrepreneurs as being prepared to make long term investments, putting their capital at risk. Some comments on Brazilian private companies follow: "they are used to getting quick and easy profits from public goods. Why are they going to invest?"; "...so far, they have been saying that they want to operate and build in a lower cost environment (compared to public companies) but the Government is supposed to invest".

- The issue of community participation arose in different ways. Some persons want direct control by the community on investments and operation through participation of community leaders, whereas others think that the communities should be consulted about new investments and services. For the Secretary of State for Water Resources Sanitation and Housing, the elected representatives are there to represent people's views.

4.6 ACTIVITY AND RESPONSIBILITY MATRIX

The Activity and Responsibility Matrix for the current system in Brazil shows that there is some overlap in activities and a lack of communication and relationship between some of the bodies involved. The Local Authority is the concessionaire of the service, but does not participate in decisions on investment made by the state owned company. Action regarding sanitation for the poor areas is dissociated from the global solution employed by the state owned company. On the other hand, Embasa, responsible for the services, does not have autonomy for setting the tariff or deciding investment.

4.7 MAIN PROBLEMS IN THE SYSTEM

This section points out the main problems faced by watsan in Brazil, more specifically in Bahia state and Salvador city, as an introduction to the next section, where the trends towards solving the constraints are stated.

Currently, the main problems could be summarised as:

- lack of policy and consequent lack of institutional and financial framework in the sector, together with the lack of financing and clear rules;
- division of responsibility among the different levels of government.

The gap left by Planasa has not been filled. After a long period of decisions by the central government, when the companies were responsible for the executive part of the policy, the states became responsible for the whole system, but without following a plan or a stated policy. As a director of Embasa said, the state has been investing in the sector just as a response to localised pressures, without following any plan.

FIG. 4.2

ACTIVITY AND RESPONSIBILITY MATRIX
BRAZIL- The Current System

Activities	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
Agencies								
Central Government	R	R	R	--	--	--	IV	--
Regional (State) Government	IV	IV	IV	IT	R	IV	R	IV
Local Authority or Syndicate of Communes	IT	IT	IT	--	--	--	IT	IT
State owned Company	IT	IT	IT	R	IV	R	IV	R
Private Company	--	--	--	--	--	IT	IT	--
Financial Basin Agency	--	--	--	--	--	--	--	--
Régie (Municipal Company)	--	--	--	--	--	--	--	--
Regulators	--	--	--	--	--	--	--	--

R = Responsibility IV = Involvement. IT = Interest.

Some of the key problems which need to be addressed in any new policy are:

- . institutional issues;
- . lack of regulation, with clear definition of roles and responsibilities of each level of government required;
- . lack of clear financing and investment instruments ;
- . financial situation of regional companies and the debt of the public sector;
- . deficit of population served, mainly regarding sewerage and the consequent necessity to universalise the service;
- . setting of the tariff;
- . definition of adequate and appropriate technology;
- . community and municipal participation.

The eternal dilemma faced by the authorities in high urbanised low income countries is to try to balance the contradictions between the different demands from high income and low income householders in the same geographical area where the service must be provided for different markets with different expectations and willingness to pay (Carteado, 1993).

4.8 DISCUSSION

Because of the lack of policy for urban watsan, there has been a discussion within the sector about new arrangements for the services in the country. This section discusses some of these trends and analyses possible suitable approaches for Bahia. Alternatives vary from decentralisation, with operation of local authorities, to placing shares of the state owned companies on the stock market for financing the sector; from compulsory loans to community decisions and participation on the level of services to be provided.

Flexibility seems to be the key word in the new trend, in order to accommodate so many different situations in the country regarding differences in household incomes and among regions.

These differences, together with the necessity to universalise the service, independent of the level of income, makes the idea of having just one strict institutional and financing framework for the sector very difficult.

After a centralised masterplan, where decisions were taken in the capital city of the country, and states and municipalities were only executives, these lower levels of

government are willing to play a more important role, as they see themselves as being closest to the citizen/customer and consequently more able to understand his/her situation and more likely to be more sensitive to community participation and local solutions.

Those who support decentralisation see the national and regional governments defining the general policy and the local government, which is legally the concessionaire, finding their own particular solution for running the service, either through a '*régie*' or through a delegated management.

The flexibility in the institutional framework should allow the different levels of government (local, regional, central) to have freedom to discuss and decide with the actors involved, including customers, potential customers and the private sector, the most suitable level of service and alternative of financing.

A variant of this alternative is the one within which the distribution of capital sources takes place at the regional level, the states, for the bulk part of operation, catchment and treatment plants, being the local authority responsible for the distribution network. The role of central government would be to define the general rules and to regulate the parts of the systems which require a general view in a supra state basis, such as river basins and discharges.

Some of the professionals in the sector still support the idea that part of financing should be through the treasury, as a grant. It would be used to guarantee the universality of the services, but one important trend is that there is no condition for financing the sector through tax policy only. The debt of the public sector and the financial situation of the country does not allow it. Thus, it seems the trend will lead to financing through a mixture of public funds and credits, and a tariff which allows the recovery of operation, maintenance, and part of the investment costs. The new thing in this case would be the exposure of the society to the two very different markets with different expectations about the level of services.

Regarding the setting of tariffs, the trend seems to be a balance between a market based and a social based approach, tariffs recovering operation and maintenance costs.

Nevertheless, cross subsidies in this sense, did not solve the problem of the poor. As stated by Carteado and Franceys (1994), in many cases, industry ends up paying more by constructing its own facilities to ensure a reliable supply, and the poor continue to receive a very low level service, sometimes even paying more to water vendors.

Also, the system leads to discrimination in delivery of the services, between poor and rich households. Jacobi (1989) studied the difficulties faced by low income households in poor areas of São Paulo city in order to get water connections. Carteado (1993), quantified the number of complaints made by customers because of the lack of water in

high income and low income areas of Salvador, Bahia, from 1976 to 1986, which demonstrated the discrimination.

A beneficiary of a highly subsidised system is the middle class, which gets high standard service at low price. As is shown in table 4.8 below, the tariff charged by Embasa does not cover their operation and maintenance costs.

Table 4.8 EMBASA - COST AND TARIFF OF SERVICES - SUMMARY

	1991	1992	1993
cost of water (US\$/m ³)	0.58	0.73	n.a
average water tariff (US\$/m ³)	0.43	0.39	0.40

Source: Cabes XVII, 1994; Embasa, 1994c

The problem of the provision of services for the poor can be assessed in different ways. The customer must pay for the service, according to his or her capability and willingness to pay. If the government is to subsidise part of the tariff, it must be done in a clear way, as the subsidies and social tariffs cannot be used as an excuse to cover low efficiency and political abuse of the system. Moreover, its destiny and its effect over the level of government must be clearly revealed.

Comparative competitiveness among the state owned companies has been thought of as a tool to increase efficiency and improve managerial approach, together with the use of compulsory loans, managed by the central government and by the federal states, for financing bigger projects.

Many of the proposed alternatives imply private sector involvement:

One of these is the possibility to solve problems related to lack of capital investment by putting shares of the companies on the stock market. It is seen as a tool for getting private capital to finance the investment for upgrading infrastructure.

Nevertheless, as a prior condition, it would be necessary to balance the deficits of the companies, writing off debts and balancing their situation related to number of employees, inefficient management, etc.

One other alternative, that has already been passed in the national parliament, leads to regulations by which the private sector could be involved in the provision of public services, establishing a revenue pattern.

The traditional form of private sector participation in the sector that has already been enforced is through contracting out services, where the state owned company contracts private companies for specific tasks such as meter reading and bills collection, operation of treatment plants, besides contracts for projects, constructions and consultancy or for

temporary work. It is not common in the country to use the private sector for operating watsan services through leasing or concession contracts. As mentioned earlier in chapter I, the first concession contract was signed in April, 1995.

Concession and management contracts have been seen as an option to get private capital to finance the sector, as long as the state remains in its role as finally responsible for the provision of the services. The participation of the private sector could be in the existing physical system or exploring the margins of the services, for future investments, in BOO or BOT schemes or taking over concessions from municipalities.

Similar to some of the previous major changes in the institutional framework, the influence of international donors may be about to play a key role in the definition of the next profile of managing watsan in Brazil. Water supply and sanitation have been responsible for a great amount of the Inter American Bank and the World Bank expenditure in the country in the period 1986-1993 (Dain and Lima Verde, 1993).

The influence of these organisations can be detected in the current concern about liberalisation of the economy and the market, a more market based approach for the sector, etc.

It is known that the current approach in these international organisms tends to encourage the implementation of tools to increase the level of efficiency in the companies and more private sector involvement. In Bahia, Embasa is one of the three regional state owned companies in the country selected for receiving finance from the World Bank, in a programme for modernisation of the sanitation sector, including institutional development aiming to increase efficiency, profitability and competitiveness within the companies in order to receive international grants and funds from the central government.

This means, to some extent, an approach close to the one used in England and Wales, seeking comparative competitiveness among the private companies.

The alternatives discussed, apart from the ones supported by the employees' unions, directly or indirectly, lead to a bigger private sector participation in the provision, financing and operation of water and sanitation services.

An issue in the country is that due to the culture and to recent experiences, Brazilian society has a suspicious attitude towards private companies. The involvement of the biggest contractors in the country in corruption made society distrust, to some extent, the private sector. It becomes a constraint, because for the amount of investment involved in some actions involving water and sanitation, only big companies, national or international, are able to make long term investments with a long term rate of return.

As one of the interviewees said, it is necessary to see a Brazilian entrepreneur putting his money at risk. Their common attitude (the entrepreneurs) is to recover their money as soon as possible, especially if it is from the Government.

Brazilian entrepreneurs are not risk takers. And it is one of the main constraints against more private involvement in operation and maintenance in Brazil.

Since the service has a strong social impact, it is possible that public authorities will tend to take action to back short term electoral interests that could restrict investment.

The investigation on Brazilian and Bahian watsan services confirmed that the major problems in the systems are institutional, mainly due to the negative managerial characteristics typical to public bodies cited in Chapter I. In addition, for the specific case of Bahia state, the lack of any defined policy that permits allocation of resources and defined rules for managing the services since 1990, contributed to a process of deterioration in the services, followed by a large expenditure made by the state Government in rehabilitation and construction of new systems, that did not necessarily achieve the highest cost benefit level. According to the hypothesis of this thesis, a higher level of private sector involvement will lead to a better managerial approach to solve the current problems of the service.

4.9 SYSTEMATIC ANALYSIS- BRAZIL, BAHIA

- **National Policy Environment**

Brazil has a stabilised federal representative democracy. On the other hand, the country has an unstable economy with a high rate of inflation. It has experimented with many different economic programmes in order to stabilise inflation, and since 1986 it has had six different currencies. (^{4.2}cruzeiro, cruzado, cruzado novo, cruzeiro, cruzeiro real, and the current one, real). Although rated as the eighth economy in the world, the large gap between rich and poor (shown in table 4.9 Political and Economic Indicators- Brazil) represents a big social problem.

The economic pattern of Bahia follows that of the entire country, with industrialised rich areas surrounded by poverty in the big urban agglomerations and in small cities, where the main economic activity is traditional agriculture. Many of these small cities are located in semi-arid areas with frequent occurrence of draughts.

^{4.2} The average annual rate of inflation (1980-1992) was 370%, according to the World Development Report, 1994 (WDR,1994).

Table 4.9 Political and Economic Indicators - Brazil

	YEAR	
Population (million)		
Total	1992	153.9
Urban	1992	118.5
Urban (as a % of Total)	1992	77
In urban agglomeration of one million or more (as a % of)		
Urban	1992	51
Total	1992	38
Average annual growth rate	1980-92	3.3
Access to (in urban areas as a % of total population)		
Safe drinking water*	1989	86
Sanitation*	1989	31
Household income		
Share of top 20% of households	1992	67.5
Share of bottom 40% of households	1992	4.9
Share of bottom 20% of households	1992	2.1
GNP per capita (US\$)		
Total	1992	2,770
Upper medium income group	1992	3,870
High income group	1992	21,960
Energy consumption per capita (kg of oil equivalent)		
Total	1992	681
Upper middle income group	1992	1,649
High income group	1992	5,101

Source: World Development Report (WDR), 1994

(*) Cebes XVII, 1994

- **Legislation and Organisational Autonomy**

Urban water and sanitation services in Brazil are provided by municipalities or by state owned companies, although responsibility for the service in urban areas lies at the central, regional and municipal level, which seems to be dubious. Nevertheless, it is the Municipality which has the right to run the service, under direct management or through concession.

In practice, due to the former master plan for the sector, (Planasa), in most of the urban areas, mainly in the North East where Bahia is located, the service is run by regional state owned companies (see table 4.10 and section 4.4)

Table 4.10 BAHIA - PROVISION OF WATER AND SANITATION

Population served	Total	State owned company	Municipalities and others
Water supply	5,284,384	4,558,384 (86.3%)	726,000 (13.7%)
Sanitation	603,000	603,000 (100%)	0 (0%)

Source: Cabes XVII, 1994

Note: Data refers to 1992

The current legislation (1988) also states that the country, the state and some municipalities (depends on the local legislation) shall set up a specific policy for the watsan sector, although they have not been set yet neither for Bahia, nor for Salvador, the state capital.

There is no competition in the system, which is considered to be centralised, as decisions are taken by the company and the Secretary of State without the participation of the local authorities (the delegating commune).

The regional state owned company is supposed to be quite autonomous, (one principle of the former national sector policy was self-sustainability), but in fact it is not, as there is considerable political interference in its management. Approval of tariffs, salary policies, hiring of personnel and investments are decided by the Secretary of State for Water Sanitation and Housing, with the approval of the elected state Governor.

As there is no sector policy, decisions are generally taken in accordance with short term political interests.

The revenue collected from customers is forwarded to the general state budget, through the treasury, while the assets belong to the company.

• Long Range Demand and Technological Requirements

Due to the rate of population growth and the high population in urban areas in Bahia, the necessity for infrastructure, especially water and sanitation services, is increasing.

On water supply, although the figures which represent the access to safe drinking water are not very low (see table 4.2), it is necessary to analyse the level of actual access to water, as it was noticed that in some cases the neighbourhood or a specific area has the network, the pipes, but not the water, as reported by Lobo (1993) and Moraes (1994). (see box 4.1)

Box 4.1

Concerning the water service in Bahia

- . "...it was noticed in a research that in many poor neighbourhoods, there is no regularity in provision of water...Many communities in Salvador have water three or four times per week, during four or five hours...One of the consequences is a drop in the quality of the water due to the intermittence of provision...
- . The leaders of the communities are used to saying that they want "water in the pipes, not only pipes in the street"... (Moraes, 1994)

Concerning the service in Brazil

- . "... in 1990, almost 20 million people in urban areas did not have the water connections...It is necessary to deliver water to these people, let alone the ones who are supplied almost only for statistical purposes. It is necessary to provide the service "with water, not with pipes"... (Lobo, 1993, p.6).

As regards sanitation, the figures show a relatively low level of provision. It seems to get worse especially as part of the raw sewage collected returns to water flows.

Thus, the wide range of physical and social environments in the state demand suitable selection of appropriate technology that will meet each necessity. Technology can be provided by the national industry and by the technical personnel in the sector.

• Organisational Culture

There are some beliefs and attitudes that are normally accepted throughout the system that could be seen as part of the organisational culture of the sector. There seems to be a general trend in designing and planning general solutions for water supply and sewerage systems, which demand a high degree of capital investment. There is also a common

attitude to information in the sector. The company can provide different figures for the same indicators.

Information in the company does not seem to be available for all those who require it, although it is a public body.

- **Commercial Orientation**

The system in Bahia has a low level of commercial orientation. The state owned company, although supposed to work in a commercial oriented approach, does not, neither at policy level nor at operational level.

The data in table 4.5 shows the gap between operational costs and revenues. Political interference regarding level of tariff and policy for in debt customers and illegal connections contributes to poor performance of the company collection efficiency, level of unaccounted for water, etc.. Box 4.2 cites an example of this.

Box 4.2

About commercial and consumer orientation

- A low income household with seven people at home in a poor neighbourhood had a metered water connection. The head of the household made a complaint to the water company, as his bills were showing a consumption of 92m³/ month to 100m³/ month. He complained for three months without any response. As the bills were not paid, the company disconnected the supply. Further, the customer gave up complaining to the company and made an illegal connection, obtaining his water at zero cost..... (Moraes, 1994)

- **Consumer Orientation**

The system in Bahia has a low level of consumer orientation. Although there are, in its organisational chart, hot lines and departments to facilitate interaction between consumers and the company, in fact, many of those bodies do not work. Staff are not completely aware about their role in the community. They just do things as part of their duties, without thinking of the population as their customers. The company does not have a good public image and the media frequently report complaints about the time taken to solve leak problems, the quantity of mistakes with billing and the time taken to deliver requested services, such as new connections.

Very often, consumer's requests are dealt with through personal relations. In cities where the municipality runs the service, about water are dealt with in a personal way, using personal influence.

Box 4.3 shows some views on customer's service.

Box 4.3

About customers' service

- The quality of the service (concerning time for recovering leakage, reply to complaints, etc.) depends on the area income...(Bastos, 1994)
- ...recently, the company asked the customers to show their receipts from two years ago, otherwise they would be disconnected....All because of a mistake in the billing system. (Villas Boas, 1994)
- ...the relationship between the company and its customers is poor. Customers need to know their rights and duties. (Lessa, 1994)
- ...the average time for a connection to be made is three months (Vianna, 1994)

4.10 THE BRITISH, THE FRENCH AND THE BRAZILIAN SYSTEMS- BRIEF COMPARISON


This section compares and analysis some data on the three studied systems. An Activity Responsibility Matrix (fig. 4.2), shows the share of responsibilities for tasks among the bodies involved in the provision of watsan services in each country. For France, though there is a variety of existing arrangements, the '*Affermage*' contract was chosen to represent the system as previously cited, it is the main type of contract for providing services nowadays. Comparisons are also made through some quantitative (objective) indicators of the three systems, despite the stated difficulty in finding compatible and comparable data for the three countries. Some data are related to the countries, whereas other are related to the provider company. They are displayed on tables 4.12; 4.13; 4.14; and a summary of some political and economic indicators are in table 4.11. For England and Wales, when information refers to the companies, it is data from Thames Water Services Limited (Thames), and Wessex Water Services Limited (Wessex). Both of them are water and sewerage private companies. Thames is the largest company in population served, both for water and sanitation, and Wessex is the smallest for the same indicators. In France, wherever possible, data refers to Compagnie Générale des Eaux (Générale) and Société Lyonnaise des Eaux (Lyonnaise) which are the biggest French companies in the service (see chapter III). Concerning Brazil, data is provided for the country as a

FIG. 4.3

ACTIVITY AND RESPONSIBILITY MATRIX - SUMMARY

ACTIVITIES AGENCIES	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
Central Government	IT	IT	IV	--	--	IT	IT	IT
	R	R	R	--	--	--	--	--
	R	R	R	--	--	--	IV	--
Regional (State) Government	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	IV	IV	IV	IT	R	IV	R	IV
Local Authority or Syndicate of Communes	IV	IT	IT	--	--	IT	IT	IT
	IT	IV	IT	IV	R	IT	R	IV
	IT	IT	IT	--	--	--	IT	IT
State Owned Company	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	IT	IT	IT	R	IV	R	IV	R
Private Company	IT	IT	IT	IV	IT	R	R	R
	IT	IT	IT	R	IV	R	IT	R
	--	--	--	--	--	IT	IT	--
Financial Basin Agency	--	--	--	--	--	--	--	--
	IV	IV	IT	--	--	IT	IV	--
	--	--	--	--	--	--	--	--
Régie (Municipal Company)	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
Regulators	R	R	R	R	R	IT	IV	IV
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--

 England and Wales

 France (*Affermage*)

 Brazil

R = Responsibility

IV = Involvement

IT = Interest

TABLE 4.11 Political and Economic Indicators- Summary

	Year	UK	France	Brazil
Population (millions)				
Total	1992	57.8	57.4	153.9
Urban	1992	51.4	41.9	118.5
Urban (as % of total)	1992	89	73	77
In urban agglomeration of one million or more. As % of Urban				
Total	1992	26	29	51
Average annual growth rate (%)	1980/1992	0.3	0.4	3.3
Household income (% of income)				
Share of top 20% of households	1989	44.3	41.9	67.5
Share of bottom 40% of households	1989	10	11.8	4.9
Share of bottom 20% of households	1989	4.6	5.6	2.1
Access to (in urban areas as a % of total population)				
Safe drinking water	1990	100	100	65.7*
Sanitation	1990	100	100	29.49*
GNP <i>per capita</i> (US\$)	1992	17,790	22,260	2,770
Energy consumption <i>per capita</i> (kg of oil equivalent)	1987/1992	3,743	4,034	681

Source: World Development Report WDR, (1994)
 (*) Cebes XVI, 1991

TABLE 4.12

The British, French and Brazilian Systems- Some Objective Indicators

Indice	Year	England and Wales ¹	Year	France ²	Year	Brazil ^{3(a)}
1.Responsible organisations for Watsan (approximate number)	1992	39	1992	15,000	1992	Brazil - 7482 Bahia - 10
2.Responsible organisations for Watsan (approximate number per million of inhabitants)	1992	01	1992	276	1992	Brazil - 73 Bahia - 2
3.Population served (water supply) (1,000 inh)	1993 1993	Thames 7,225 Wessex 4,123	1993 1993	Générale - n.a. Lyonnaise - 14,000 (in France, only) 40,000 (world-wide)	1992 1992 1992 1993	Brazil - 101,626 By state owned companies - 79,883 Bahia - 5,284 Embasa - 4,584
4.Employee - (number)	1993	Thames 10,000 Wessex 1,800	1993	Générale - 200,000 Lyonnaise - 120,000 Lyonnaise - 8,500 (in Watsan in France only)	1992 1992 1993	Brazil - 97,598 (state owned companies only) Embasa - 5,891 Embasa - 5,702
5.Population served/employee (inh/emp)	1993	Thames 722 Wessex 624	1993	Lyonnaise - 1,647	1992	Brazil - 818 (state owned companies only) Embasa - 804
6.Average water bill (£/m ³)	1992-93	0.54 ^b	1992-93	0.60 ^b	1992-93	Brazil (state owned companies only) - £0.30 Embasa - 0.26
7.Price increase (%)	1991-92	12.47	1991-92	5.78	1991-92	Brazil - n.a. Embasa - (9.30) ^c
8.Average household size (persons per household)	1980-85	2.9	1980-85	2.9	1980-85	Brazil - 4.2
9.Average Annual Tariff (US\$/year)	1992-93	90.18	1992-93	100.2	1992 1992-93	Brazil - 72.3 (state owned companies only) Embasa - 62.66
10.Average Annual Tariff/GNP (%)	1992	0.50	1992	0.45	1992	2.61 (considering 4.2 persons per household) 1.80 (considering 2.9 person/household)
11.Profit/losses (US\$ million) ^d	1993	Thames 370 Wessex - 121	1993	Générale - 711 Lyonnaise - 444	1993	Embasa (302)
12.Profit/losses population served (US\$/inh)	1993	Thames - 51 Wessex - 121	1993	Générale - n.a. Lyonnaise - 11.1	1993	Embasa (66)
13.Profit per employee (US\$/emp)	1993	Thames - 38,000 Wessex - 70,000	1993	Générale - 3,535 Lyonnaise - 3,700	1993	Embasa (53,000)
14.Operational profit/losses/operational revenue (%)	1991 1992	Thames 22.7 Wessex 34.7 Thames - 26 Wessex - 35.6	1991 1992	Lyonnaise - 6.3 Lyonnaise - 6.0	1991 1992	Embasa (121) Embasa (40.67)

Note: see notes and sources on next page

TABLE 4.12(cont.)

The British, French and Brazilian Systems- Some Objective Indicators

SOURCE:

1.1; 1.2	Müller & Scheele (1993);
1.3	Cabes XVII (1994);
3.1	OFWAT (1993b);
3.2	Lyonnaise des Eaux-Dumez (1994);
3.3	Cabes XVII (1994) and Embasa (1994b);
4.1; 4.2	Financial Times Newsletter (9.2.1994); and Lyonnaise des Eaux-Dumez (1994);
4.3	Cabes XVII (1994);
6.1; 6.2	NUS, in European Water Pollution Control (1992), v.2, n.3, p.4.1, quoted by Mueller & Scheele (1993);
6.3	Cabes XVII (1994) and Embasa (1994b);
7.1; 7.2	NUS, in European Water Pollution Control (1992), v.2, n.3, p.4.1, quoted by Mueller & Scheele (1993);
7.3	Embasa, (1994c);
8.1; 8.2; 8.3	WDR (1994b), Social Indicators of Development.
9	The Average Annual Tariff was Calculated in the following way:

Average Annual Tariff (AAT)= Total Annual volume (TAV) per household (m³/year) * Average Tariff (£/m³)

TAV= per capita consumption * 365* average household size
per capita consumption 157lcd (according to OFWAT (1993b), Facts and Figures)

11.1; 11.2	Financial Times Newsletter, (9.2.1994);
11.3	Embasa (1994c);
14.1; 14.2	Lorrain, Dominique (1994b). For further information on calculation see appendix 4-3;
14.3	Embasa (1994b).

NOTES:

- a Data refers to the country, the state or to Embasa, due to unavailability of data;
- b Prices are based on a model supply for a consumer using 10,000m³/year;
- c There was a decrease in tariffs;
- d Figures in brackets have a negative value.

Table 4.13 FINANCIAL PERFORMANCE OF THE BRITISH WATER COMPANIES AND LYONNAISE DES EAUX

Company	Operating revenue (£ Million)			Operating Profit (£ Million)			Operating Profit Operating revenue (%)		
	90/91	91/92	92/93	90/91	91/92	92/93	90/91	91/92	92/93
Year									
Thames	835	899	1,040	190	134	248	22.7	26.0	23.8
Severn	627	822	905	194	259	292	30.9	3.5	32.3
North West	599	789	878	219	276	324	36.6	35.0	36.9
Anglian	461	523	583	170	199	212	36.9	38.0	36.4
Yorkshire	389	441	482	111	134	155	28.5	30.4	32.1
Welsh	293	342	382	139	176	181	47.4	51.5	47.4
Southern	251	291	319	90	106	119	35.8	36.4	37.3
Wessex	167	191	206	58	68	81	34.7	35.6	39.3
Northumbrian	167	203	252	34	55	73	20.3	27.1	28.9
South West	144	167	194	51	65	83	35.7	38.9	42.8
Lyonnaise des Eaux	489	514	597	29	32	36	5.9	6.3	6.0

Sources: Nat West Securities; Financial Times, Performance Reports quoted in Lorrain, (1994b)

Method(quoted in Lorrain, op.cit): We have compared the operating profits, which correspond to water activity, and not the pre-tax profits, used by investors as a performance indicator, as they incorporate movements of funds coming from subsidiaries, which would include activities other than water supply and sewerage which are not regulated and of which the extent varies widely between the French company and its English counterparts.

Note: Figures related to Lyonnaise des Eaux, originally in French Francs, were converted into sterling for each year according to the average exchange rates in table 7.1A (Average rates against sterling) , in Financial Statistics (1994).

Table 4.14 **ANNUAL WATER CHARGES PER HOUSEHOLD IN SOME CITIES (in ECU)¹**

England and Wales²	ECU	FRANCE	ECU	BRAZIL³	ECU
London	136	Paris	111	Brasília (capital city)	77
Bristol	189	Marseille	185	Porto Velho	18
Manchester	199	Paris/ Banlieu	225	Salvador	60
Newcastle Upon Tyne	210	Nice	232	Rio de Janeiro	65
Cardiff	261	Lyon	234	São Paulo	126

Source: Achtenribbe, G. (1992), p. 361, quoted by Müller & Scheele (1993); Cabes XVII (1994); Embasa (1994b)

- 1 Charges are for a family of two adults and two children living in a house and consuming 200 m³/year.
- 2 Data refers to metered connections.
- 3 Data refers to charges of the state owned company of each state.
Charges were calculated taking the average tariff (US\$/m³ in 1992 taken from Cabes XVII converted into ECU according to table 7.1A (Average rates against sterling) in financial Statistics (1994), for the year 1992.

whole, together with some information on Bahia state and for Embasa, the company which supplies about 86% of the population served in the state, (Cebes XVII, 1994).

Responsible Organisations

The highly decentralised approach for water and sanitation services in France can be seen through the quantity of water organisations in the country (15,000). Regarding Bahia, although having as an average, the figure of two organisations for each million people, it does not mean a decentralised approach within the sector, as Embasa is responsible for the vast majority of population served and the nine remaining organisations supply only about 730,000 inhabitants.

Employees

The huge French companies have a much greater number of employees than any other analysed. This is mainly due to their internationalisation process and the diversity of urban services and engineering business they are involved in, discussed under heading 3.5. Nevertheless, data provided from Lyonnaise des Eaux-Dumez on the number of employees actually working in the watsan sector in France permits the assessment of its efficiency when relating population served to number of employees, as compared to the same indicator for Brazil and for Embasa, which represents half of the figure. The analysis of the figures for the

British companies, considered low, must take into consideration that the number of employees includes those working in the non core business of the companies.

Thames Water has diversified its activities into building overseas water plants and waste management, and Wessex Water has been working in waste management business (The Sunday Times, 15.5.1994). Although the non core and overseas business does not represent the same for the British companies as they do for the French ones, it is likely that the indicator was highly affected by the number of employees in other areas within the British companies.

Tariffs

Analysis of indices number 6 to 10 on table 4.12, and tables 4.13 and 4.14 shows the gap between prices in Brazil and Europe. In Brazil only São Paulo state, the richest and most industrialised in the country, has a similar tariff to Europe. Nevertheless, the percentage of GNP expended in the provision of watsan service in Brazil is about four times that in Europe. This indice is more important when related to the pattern of income distribution

(see table 4.11, which shows that the bottom 40% of the households share around 5% of the income in the country).

In Europe, the average price in France is higher than that in England. Nevertheless, due to the value of GNP per capita in France, (about 25% higher than in England), the percentage of GNP used in the provision of watsan services is lower than that in England and Wales.

Profit

In Europe, the big French companies show actual profits higher than those of the British companies, while the Bahian state owned company shows a loss of US\$302million. However, when the figures related to the European countries are analysed against the number of employees or population served, the British companies demonstrate greater profitability than the French ones. A big issue in England is the high level of profitability of the private providers. This level of profitability is also due to the concentration of geographical area and the centralised management within which the British operate, while the French companies work in a more scattered area and deal with each of the Municipalities or *Syndicate des Communes*.

Concerning financial performance in watsan, the negative figures shown by Embasa are remarkable, when compared to the private companies. This financial situation, already analysed in this chapter, supports the findings of Haarmeyer (1994) and Ingram and Kessides (1994), on the position of public bodies that do not face the possibility of bankruptcy, and where irresponsiveness, mismanagement and lack of autonomy is made up for by subsidies and writing off of debts.

CHAPTER V

A PROPOSAL FOR MANAGING URBAN WATER AND SANITATION SERVICES IN BAHIA, BRAZIL

5.1 INTRODUCTION

This chapter describes a proposal for an institutional arrangement for urban water and sanitation services in Bahia, Brazil, with a higher private sector participation.

The general objective of the proposal is to promote the provision of drinking water and collection and treatment of waste water at the lowest cost with reliability and long term sustainability; with an increasing improvement in the rate of population served, and in the quality of the service offered.

The aim of the proposal is for the service to achieve a high level of performance with better service to the customers at lower cost, according to the pattern in the "Qualitative Analysis of sector" used for assessing the English and Welsh and French systems; and current approaches for urban watsan services in Bahia, Brazil.

It is based on the findings of investigation carried out in the European countries adapted to Brazilian situation and managerial culture.

The proposal considers different issues, organisational autonomy, commercial orientation, consumer orientation and market based management.

Some aspects have been prioritised among the variety of issues dealt with in these suggestions for managing the service. The key issues addressed in the proposal are a consequence of the literature review and the field research, with special attention given to the problems which arose during the interviews in Bahia, when influential people in the sector pointed out some of the key constraints which prevent the sector from achieving a higher level of efficiency and effectiveness. They are related to the autonomy of the organisations involved in to the provision of services, to strategic choices regarding decentralisation, and to commercialisation.

The proposal attempts to solve the prioritised problems in the watsan sector, which were assessed in chapter IV, taking into consideration the characteristics of the state.

The chapter is organised in the following way:

Firstly, the main problems in the system are stated, together with the priorities chosen for solution in the new arrangement;

Secondly, the principles of the proposal are stated and discussed;

Thirdly, the proposed arrangements for solving the problems are briefly outlined.

Then, the proposal itself is described, initially through the description of duties of the formal bodies involved in the provision of services, and then through the characteristics of and solutions given to issues, such as setting of tariff, regulation, etc. in each of the different institutional arrangements proposed for the state.

Afterwards, the Activity and Responsibility matrix of the institutional arrangements is shown.

In a further section some of the key issues in the proposal are discussed.

Some current conditions that facilitate or adversely affect the implementation of the proposal are then described.

Later, a strategy for implementing the proposal is briefly discussed.

Finally, the strong and weak points of the proposal are assessed.

5.2 THE PRIORITISED PROBLEMS- OBJECTIVES AND PRIORITIES

The main general problems in the system are those defined under heading 4.7. As can be seen, the problems are related to the lack of institutional arrangement in the sector, ratifying the findings of the research confirmed throughout this thesis.

Of the number of problems faced by the urban watsan sector in Bahia, many are caused by the lack of policy in the sector, and some have been prioritised for treatment in this proposal.

For the system as a whole, the major elected problems are:

- lack of autonomy of the state owned water company;
- the company's inefficiency regarding financial management; in delivering the service to a reliable standard;
- lack of investment in operation and maintenance;
- high level of unaccounted for water.

As has been shown in the last chapter, there are different, well-defined, problems in the big and in the small cities. That is the reason why the proposal offers an alternative for management of the sector: *the first* method is supposed to be more effective in cities where the service is more likely to be profitable.

It would apply in big cities and in major economic centres in the state where the main problems are not related to the quantity of water produced. The *second* approach should

be more suitable for small cities with low income where the service is less likely to reach self sustainability.

The specific issues elected to be solved first are:

In the most populated cities (more than 100,000 inhabitants) and economic centres:

- quality of water delivered;
- quantity and regularity in water delivered, mainly for low income areas;
- high level of unaccounted for water;
- lack of customer orientation;
- lack of market-based orientation;
- high number of population without sanitation services.

In the small cities, with low income and/or located in the semi-arid area, the elected problems to be solved are related to:

- high number of unattended (unsupplied) population related to the necessary quantity and quality of water for health purposes;
- high number of unattended (unsupplied) population regarding sanitation services;
- quality of water delivered.

5.3 PRINCIPLES OF THE PROPOSAL

The investigation carried out on both European highly privatised systems provided some answers to the issues outstanding in Bahia. Results of analysis of the British and French systems suggests that both of them have useful characteristics that can be adapted and used in Bahia state in order to solve the institutional problems of the system. It is these institutional problems which are regarded in this thesis as the main constraints on the present system. It is for the solution of these problems that an extension of private sector involvement is sought, in the belief that it will produce improvement of effectiveness if investment, efficiency of service, and of those characteristics typical of successful organisations in the watsan sector.

One of these characteristics is flexibility related to the type of management and to the use of subsidies. This attribute, taken from the French system, became the main principle of this proposal, as it permits accommodation of the different situations existing in Bahia state related to the economic situation, to the size of cities, to their location, the climate, etc..

The flexibility in type of management- This is defined in two levels: *the first* is related to the systems currently managed by the municipalities. In these cases, the community could choose between direct management or a delegated management, involving the

private sector in the provision of the service. A community could also decide to give the concession of the service to the regional government.

In the latter case, the regional Government would take over responsibility for the service and would delegate it according to one of the main management systems defined in this proposal, both with private sector participation, depending on the defined criteria, which will be detailed later.

The second level is related to the systems in which the regional Government already holds the concession and the service is run by the state owned company- Embasa.

In these cases, in which are included most of the urban centres and 82% of the urban population in the state (Cebes XVII, 1994), the management of urban water and sanitation services could take two different approaches. This scenario is the main concern of this proposal. The approaches are: **A-Management Contract with profit sharing**, (*Régie Intéressée*) to be used in the major cities, whereas approach **B-Management Contract** (*Gérance*) is to be used in the other cities. Figure 5.1 shows the structure of the system.

The management contract envisaged in this proposal is very much similar to the pattern defined by Coyaud (1988), comprising the characteristics cited in chapter III. As opposed to affermage and concession contracts, under management contracts the private operator carries little commercial risk. Management contracts can give complete responsibility for carrying on operation and maintenance activities to the private operator and are convenient for both public authorities and private operators to assess the system as a whole before making a more comprehensive commitment such as in an *affermage* or concession contract.

Compensation for the private company is generally linked to a physical output such as volume of water delivered and collected for, so that the operator is encouraged to operate efficiently, but it without commercial risks.

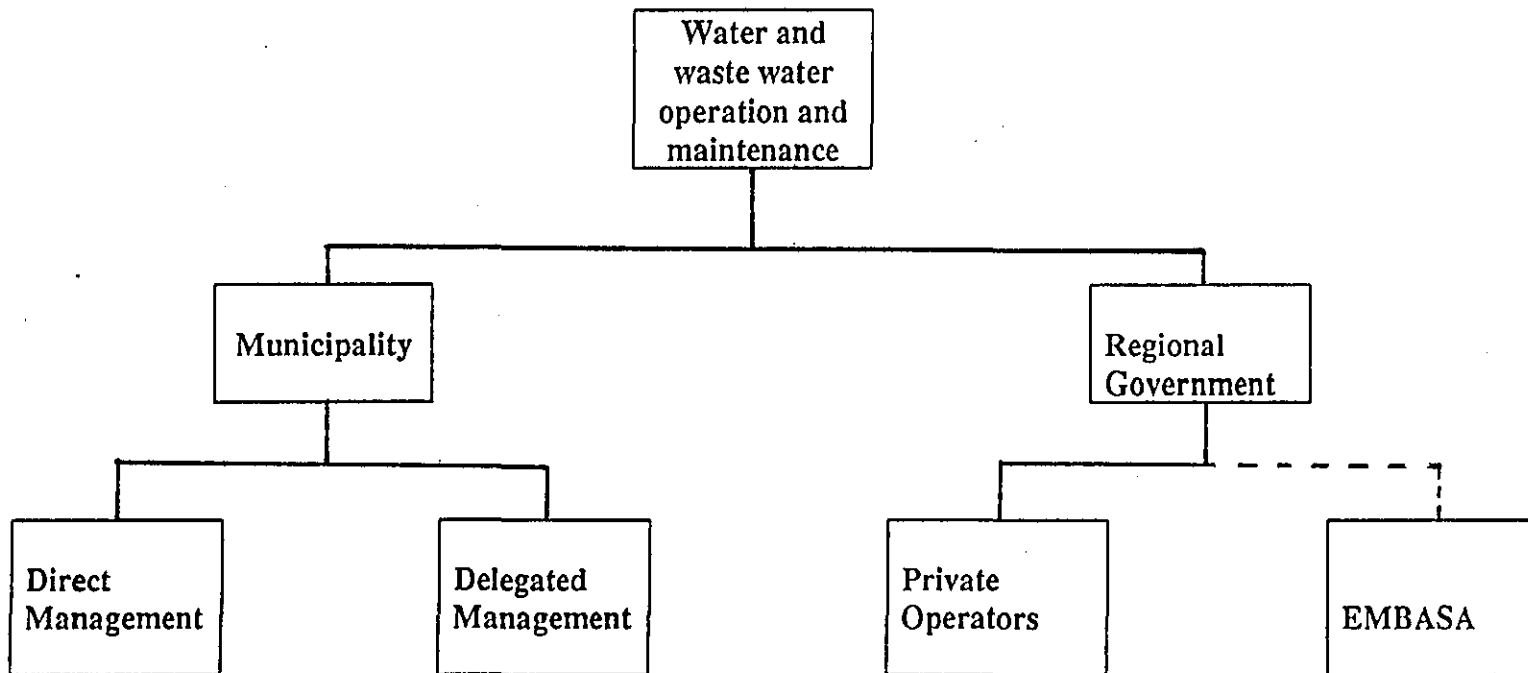
The main difference between the two proposed approaches is in the level of risk taken by the private company. In system A, the private company shares the commercial risk with Public Authorities, while in system B, the private company has little financial commitment and therefore takes little risk.

In major cities, the private companies have more opportunity for higher profits, so it is worth taking bigger risks.

In management contracts, in smaller cities, the level of uncertainty for a private company to make profit is very high. This means that contractors would not price services at a lower level. To make up for the risks involved, they would charge a very high price for their services. Thus, in these cases it is more efficient for the Government to carry the

FIGURE 5.1

THE PROPOSED SYSTEM FOR MANAGING WATSAN IN BAHIA/BRAZIL



risks of the service, without having the day to day problems related to operation and maintenance.

The use of subsidies- Although against the use of subsidies in principle, the proposal seeks the possibility of utilisation of this tool in specific cases, provided that it is applied according to a defined criteria in an appropriate situation, with definition of level of use, the budgets, the amount and the purpose.

This key feature in a model becomes even more important in a country like Brazil and a state like Bahia, with such income distribution profiles (see chapter IV and table 4.9) and with a growing demand for services in urban areas. Further details on the rules of the use of subsidies in this proposal are discussed later under subheading 5.5.3. Nevertheless, the broad utilisation of subsidies is not encouraged in this proposal. Such use generally produces a negative social effect. It becomes a subsidy to the service, provided for the high and medium income domestic consumers with household connections, since the poor, having an unreliable, if any, service, continue to use water vendors or water from unsafe sources (Franceys, 1993a; Saunier, 1991).

It is important not to confuse social objectives with the cost effective provision of services, as in practice, subsidies can distort the efficient allocation of resources.

5.4 THE SOLUTION OF THE MAIN PROBLEMS

For the main cities:

Most of the problems faced by the system in the bigger cities are related to inefficiency in managerial skills. The centralisation in management, with one single company and general directives for the whole state, including the same tariff, are constraints against the achievement of higher performance standards.

Autonomy, flexibility and agility seem to be essential for these areas.

The necessary investment is in operation and maintenance rather than in capital investment, as the quantity of water already produced is sufficient. Investment for upgrading the system should be aimed at the issues related to the network, monitoring of physical and commercial losses and in training for customer orientation, with special attention to the provision of a quality service and the lifeline quantity of water necessary for health purposes, for the poor urban population, according to their willingness to pay.

The unfulfilled demand must enter into the system, again with a level of service compatible with the willingness to pay, respecting the minimum quantity of water necessary for health purposes within a market based approach.

A greater private sector involvement will help in improving the quality of service through gains in productivity and flexibility.

On the other hand, it was reported in the interviews that experience in the state owned company has demonstrated that many of the operation and maintenance tasks reach higher productivity when conducted by private companies under services which are contracted out. This method is often used when it is necessary to improve productivity in a specific task such as meter reading, billing collection or leakage controlling. This procedure was also suggested by one of the former Embasa directors interviewed.

The private sector will be used for increasing the level of service to the customers, therefore emphasising the market based approach of the system, through an increase in productivity.

For small cities

The market based system is again a principle in these cases, but now with a different approach. Communities need to be listened to decide which level of service they want and are willing to pay for. Even in urban areas, technology could provide alternatives for the citizens according to their ability to pay.

The main concern in these cities is the unattended demand. Thus, investment in appropriate technology for water and sanitation is necessary. In these areas, priority in investment will be in providing water, with a physical network where necessary, to the population, together with a suitable solution for sewage, using either individual or condominial sewerage systems.

Due to the low levels of income in the cities and the likely difficulties in reaching water sources in the semi arid regions, subsidies are likely to be necessary in these areas, to guarantee an affordable service for everybody, to keep them above the lifeline level watsan.

In the majority of cases the main issues coincide with those described by the literature concerning low income and peri urban areas.

5.5 DESCRIPTION OF THE PROPOSAL

The proposal offers some difference in the institutional arrangements for different situations. Some of the features are for the whole state, whereas there are different solutions for the different situations within the state.

Thus, for some activities, the description stresses different ways of dealing with them in the capital city and main cities in the state; as opposed to small cities.

To solve the prioritised problems the proposal suggests a management contract with profit sharing, (*régie intéressée*) as a preparation for a possible leasing (*Affermage*) contract in the medium term for the main cities and a management contract (*Gérance*) for the other cities in the state.

The description of the proposal is given in two parts: Firstly, the system is explained through the formal bodies involved in the provision of the service and their main duties; then, both alternatives for managing the watsan services are detailed.

The regional Government sits on the top of the structure and is formed by the governor, the secretaries of state and the legislature.

It is a duty of the legislature to approve laws, providing the legal framework required for different forms of private sector participation, according to the limits defined in the National Constitution. The importance of having a consistent legislation for the sector can be seen in Franceys, (1993b) and Burchi (1991).

An Administrative and Technical Department (ATD) is required, placed in the Secretariat of State for Water Resources, Sanitation and Housing, having the duty of overseeing the administrative and technical aspects of the contracts including monitoring the operating accounts. It should work following rules established in the legislation and in the contracts.

The proposal suggests that a Fund should be set up for use in the sector. The sources of the fund should be defined by law, and could be similar to those in the previous policy. As a starting point, the fund could be formed by:

- 0.34% of the GDP (Gross Domestic Product) which has been the average expenditure in the service in the last 22 years (Bahia, 1994, p.15);
- that part of the profit sharing due to go back to the public authorities;
- the component of the tariff related to capital costs.

In establishing the fund, the regional legislature should also regulate its use, mainly as subsidies, that will be managed by the Secretary of State for Water Resources, Sanitation and Housing, through the Administrative and Technical Department.

A decrease in the amount of money provided by the regional treasury is envisaged in the long run due to the expected efficiency gains in the sector. As a first attempt a target could be to reduce by 20% the percentage of GDP to be used in the system in the next five years, when comprehensive analysis of the conduct of the Fund shall be carried out in order to redefine its composition.

Because the setting of tariff is not only a technical matter but also a political one, the elected Governor is responsible for its approval, based on studies made by the Administrative and Technical Department (ATD), following the advice of the Council for Water and Sanitation Services. Changes in the tariff are to be approved personally by the elected Governor.

The Council for Water and Sanitation Services is a consultative body placed above the executives, which analyses issues which could not be solved at the other levels. It is also responsible for proposing new features to upgrade the services and for advising the Governor on the main issues. The council will be formed by no more than eleven people, and should represent the interests of those involved in the sector, including:

- the state owned company that will continue to run the service in some systems, for some time;
- local authorities;
- customers, formally represented by the neighbourhood associations;
- private operators;
- Secretary of State for Health;
- Secretary of State for Water Resources, Sanitation and Housing;
- Secretary of State for Environment;
- employees in the sector;
- professional associations.

This body should meet regularly, twice a month, to analyse the service and major issues that affect it, for example, new directives, after hearing from those involved, specially the executives placed in the Secretary of State for Water Resources, Sanitation and Housing, in order to advise the Secretary and the Governor on important issues in the system. The importance of this Council for Water and Sanitation Services is related to the necessity for the system to provide a 'locus' where the different interests of those sectors involved in the service, either as providers, consumers or playing the role of regulators, or those who are affected by decisions within the sector such as the local authorities, employees in the sector, etc., can be discussed in a forum that has right and legitimacy to make representations to decision makers.

Environmental and water quality regulators are already established in the system, as noted in chapter 4. Nevertheless, the Administrative and Technical Department, working closer to the service, will be in charge of monitoring operation of the contracts, surveying the system, carrying out studies to find ways to provide better services and to control the whole system. The ATD would be the first locus for solving problems in the system. Placed within the Secretariat of State for Water Resources, Sanitation and

Housing, the Department would have the power to penalise the private operators and, in serious cases, to advise the Secretary of State on the termination of contracts.

A slim structure is proposed for this Department, with highly skilled staff with the necessary expertise to control the system. It needs to have a simple and flexible structure so that responses to the urgent necessities in the service, which need to be approved by the public sector, will not be delayed.

The Administrative and Technical Department (ATD) has as its main duties:

- to monitor the conduct of the contracts signed by the private operators;
- to carry out studies on the standards of service for customers;
- to carry out studies on the tariff structures and value of tariffs, proposing changes when suitable;
- to study and analyse the contracts, proposing changes when necessary;
- to penalise the private operators when necessary;
- to prepare bidding and contracts;
- to carry out studies on levels of subsidy;
- to analyse claims for disruption of contract with a specific private company made by any citizen or group of citizens.

Embasa, the current state owned company, still has a role to play during the establishment of the new system. The company has been running the service since 1971 and it is the owner of the physical assets. It also has knowledge of the service. Its knowledge and information on the service in the state are very important during the preparation for a higher private sector involvement. Besides, it is likely that it will continue to run the service in cities that would not interest the private sector. In this case its responsibilities as provider are the same as those of the private companies. Nevertheless, in establishing legislation, a period of time should be defined for the company to be dissolved.

The private operators are the private companies chosen to run the services according to the rules defined in their specific contracts, which are related to the type of management.

The criteria for decision on the type of management for a specific city are based on :

- the size of city;
- population density;
- level of income of the city based on VAT collected, average salaries, etc.;
- situation of assets regarding age, state of maintenance;
- potential market or expected increasing demand;
- level of uncatered for demand both for water and sanitation services;
- cost of the provision of the services related to cost of transmission- if gravity fed or pumped, quality of raw water, etc.;

- level of production of water related to the demand;
- reliability on physical and commercial files.

The actual figures and boundaries for defining the potential profitability of a specific city would be defined through studies conducted or contracted by the state owned company that currently operates the services and owns the assets.

Private operators will submit tenders and will be selected according to suitability concerning technical skills, capacity of investment and form of compensation.

A single company would be contracted for operation and maintenance tasks defined in the contract.

This proposal assumes that one single contract would be signed for each city or area of a city. It means that it would not have different companies for the operation of the bulk part of the system (transmission and treatment plants) and the network.

The private company or pool of companies (consortium) could sub contract some of its tasks to other companies, provided it is agreed with the Secretary of State for Water Resources Sanitation and Housing under the conditions stated in the contract. Nevertheless, the first private company remains responsible for the service in the view of the Government.

In both regimes suggested in this proposal the private operator would be chosen through bidding, the bids to include technical and financial proposals.

The technical proposal will deal with the knowledge and analysis of the private company concerning the specific system, and its proposal for operating and maintenance. It comprises studies of the situation of current assets, the demand, the commercial system, the master plan of the city and/or surroundings areas, etc., and its programme for operational costs during the contract, specifying the time span for achieving the benchmark performance indicators defined in the contract by the public authorities, such as level of unaccounted for water, percentage of metered connection, rate of population served, and indicators related to customer orientation, such as time for solving customer claims.

The financial proposal deals with the basic tariff that the private operator intends to charge customers, taking into consideration its operating, maintaining and commercialising costs plus compensation.

A referential tariff (RT) would be given to the private companies, which would reduce or add a factor related to its own costs and profit projections.

The referential tariff is calculated by the public authorities or consultants under contract, together with Embasa. For the main cities in the state, tariffs should be calculated based on the current methodology employed by Embasa (ROFA) described in heading 4.3.1.1 which takes into consideration operation and maintenance costs plus a rate of return on fixed assets. For the other cities in the state, the referential tariff should be calculated following the methodology of Average Incremental Costs (AIC), that takes into consideration the future costs for providing services to additional demand. They should

be applied in the current tariff structure, which provides a 'lifeline block' with a social tariff for lifeline consumption (10m³/month) and increasing charges per cubic meter above this consumption (see table 4.6). Details on the mechanism of tariff setting are in heading 5.5.1.

The company chosen should be the one which offers the greatest efficiency according to the bidding rules, and which offers the highest technical skills, which means achieving the highest indicator levels in the shortest time, charging the lowest tariff.

The state owned company- Embasa- should provide the private companies with the necessary information on the systems, so that they will be able to formulate their proposals. This information would include data on expected demand, current quantity of water production and installed capacity, the estimated level of unaccounted for water, current level of metering.

In option A, **management contract with profit sharing**, the public authority will share the profits gained with the private company, which will be in charge of operation and maintenance.

The contracts should be valid for a period of five years with possible renewal or upgrading into a leasing (*affermage*) contract.

The private operator must be committed to achieving certain performance indicators during the contract, such as maximum level for unaccounted for water (30% is normally accepted for bigger cities); minimum level of metering (the target is universal metering).

By the end of the contract, assets should return to the public sector in good condition.

Compensation to the private company comes from revenues of the service and from gains through increasing productivity due to its investment in operation and maintenance tasks such as billing efficiency, unaccounted for water, metering, commercial management, market driven management.

The efficiency and gains in productivity will decrease the value of incremental operating and maintenance costs of the private company which will be charging the same tariff. From the surplus, a minor amount, around 20% could go to the public sector and would be included in the public fund to be created for investment in the sector. The remaining 80% increases the profit of the private company. This mechanism will encourage the private operators to invest in the system.

In addition, the public sector also will receive resources for the Fund, and gains when it postpones possible capital investment.

Monitoring of the values due to the accountancy balance would be made through open book accounting, where the private contractor declares costs, and which is regularly sent to the public authorities.

In this scheme, customers become clients of the private company.

Many of the small cities in the state still have problems related to the provision of water let alone the already mentioned problem on sanitation.

In option B, the management contract proposed for small cities, the private sector would have the duty of operation and maintenance of the whole system in a contracting service.

The time span of the contract will be initially of five years, with possible extension.

Similar to the contract for bigger cities, the private operator is due to attain a certain level of performance indicators. Thus, the level of unaccounted for water should not be more than 20% (the normally acceptable level for small cities) by the end of the contract, and full metering would be an aim defined in the contract, as experience in the country has demonstrated that, despite the cost of installation, maintenance and reading, the metering system of charging is more equitable for the providers and for the customers, the households with unmetered connections tend to misuse and waste water, as they are due to pay the minimum tariff in their category, which, in the end, increases the costs of the services.

By the end of the contract, assets should return to the public sector in good condition.

Compensation to the private operator should come from the tariff charged to the customers plus a fixed fee and productivity gains.

The possibility of subsidising the service constitutes a big difference between the two proposed systems according to the rules described in heading 5.5.3.

The customers are clients of the private operator. Although differing from the normal pattern of management contracts, according to the standard described in chapter III, it is proposed that the customers become clients of the private company, so that they know where to address complaints and requests.

5.5.1 Price definition and control

This proposal suggests the use of two different methodologies for setting tariffs.

The first one is the Rate of Return on Assets (ROFA) system^{5.1}, currently used in Bahia, which considers historical costs as the best indication of what consumers should pay in the present. It is to be used in cities where physical assets for provision of services are already existing and the bulk of future investment would be in operation and maintenance. It is likely to happen in the major cities, according to the description made under subheading 5.4.

The second method is the Average Incremental Cost (AIC), to be used in cities where the bulk of future investment will be in physical assets for the provision of the services. This procedure of setting tariff considers that future costs are the best indicator of what consumers should pay now. It is more likely to be applied in small cities.^{5.2}

^{5.1} The maximum rate of return current permitted in Brazil is 12%.

^{5.2} For description of the different methods and criteria for tariff setting and calculation see Franceys (1993b) and WHO (1990).

In setting a tariff under this proposal, one should bear in mind that consumers must be aware of the cost of the resource they are using, which encourages their efficient use. Besides, one goal to be achieved is the recovering of the costs of the provision of the service through tariff setting and tariff structure.

$$\text{AT} = \text{SC} / \text{Vol.}$$

Where:

AT= Average tariff

SC= cost of service (defined by one of the methods previously defined)

Vol. = chargeable volume

Due to the economic reality of the state, it is unlikely that the tariffs will rise to the necessary level in the short term for all the systems in the state.

Besides, the “necessary level” is not known, as inefficiency and low productivity in the current state owned company responsible for the services disguises the real costs. Also, currently there is only one tariff for the whole state, without taking into consideration the cost of water in different systems, as described earlier. On the other hand the already discussed role of the State in providing welfare, makes it difficult to raise the tariffs.

Because of these factors, it is necessary to have commitment from the regional government in taking actions such as: writing off or assuming part of the debt of the state owned company; raising tariffs steadily; seeking to lower the level of subsidies, both from the industrial to domestic sector and from medium and high income to low income areas.

A referential tariff (RT) should be set by the public authority to be disclosed to the private competitors as a guide for their own costs. Embasa or consultants under contract should study each system and define the value of the referential tariff using the established criteria for each city.

Embasa, through the defined methodology, will set capital costs based on the necessary investment set out in the master plan, and on its own historical costs for provision of the service for each system.

The private company, in its financial proposal, should disclose its operational costs and its profit expectancy, together with the value of its C factor, that will be multiplied by the referential tariff. The result of this calculation should be the proposed tariff of the competitor. The competitors should also provide the calculation of the C factor. The C factor should include the level of profitability, the operational expenses and operational investment to be made by the private company.

The C factor will be applied in the current tariff structure (table 4.4) which provides increases in tariffs for increases in demands as described in section 5.5. The tariff will be set as follows.

$$\text{TARIFF (reais/month)} = C * RT \text{ (reais/month)}$$

The private operator expands its profitability through increasing productivity when, during the contract, it diminishes its operating costs but retains the same revenue, thus creating a surplus, of which a minor part (20%) should go to the fund to be created for the sector, together with the portion of the tariff related to capital costs.

In the big cities the portion related to future capital investment would not be high. In the small cities, this amount can be the major part of the set tariff.

When the level of set tariff represents a politically unacceptable value the regional Government can decide to diminish it by, reducing its part of the tariff.

Studies on the level of the economic and financial equilibrium and the consequent level of necessary subsidy for each system must be conducted by the public authorities before offering the service for tender.

Currently, Embasa uses the figure of 10 metres per connection as the reference for economic feasibility. If the necessary extension for a connection is longer than that, the customer will provide the labour force and material and Embasa will give the technical support for the extra length.

The tariff policy for sewerage systems could be the same as that currently used, with 90% on the top of the water bills for the households connected to the main systems and 45% for the ones connected to condominial systems.

5.5.2 Price Adjustments

The tariff may be adjusted during the contract if alteration occurs that justifies it. The private operator may suggest changes in the tariff structure and in the value of C. The Public authority will carry out studies that will be discussed by the council, which will advise the Governor on the approval or not of the change. If the public authority is the one that suggests changes, the private company shall carry out studies and analyse the impact of the change on the economic equilibrium of the contract.

Adjustment to the tariff due to inflation rates will be automatically made according to the law.

5.5.3 Use of subsidies

The use of subsidies is considered a necessity. The previously discussed situation of the small cities and those with a low income level, makes it necessary for the proposal to be

flexible enough to permit the regional government to decide on subsidising part of the service, as long as the use of the subsidy is clearly defined.

A subsidy should be used when the capital investment made in a water and/or sewerage system leads to an unaffordable tariff, according to the maximum percentage of the minimum national salary (5% for water services and 7% for water and sewage services) to be spent on the service for lifeline consumption. In this case, the Government, after carrying out studies, will decide which level of subsidy will be given for a specific system.

The subsidy will come in the form of a reduction in the capital costs used in tariff calculation. As capital costs are to be made through public funds, customers will be charged lower tariffs without decreasing the profitability of private companies.

5.6 REGULATION

As now, water quality regulation would be conducted by the central government through the Ministry of Health and would be monitored by the Secretary of Health.

The provider of the service is to be responsible for accomplishing the directives as part of the operation and maintenance tasks.

The Central Government remains responsible for environmental regulation in the current manner which was described in chapter 4. The regional state Government, through its environmental department (CRA), is responsible for monitoring the execution of the pertinent legislation, with the power to adopt action according to the law, to prevent the actions of those who do not comply with the stated rules, causing pollution as illegal discharge, etc. The pertinent actions, such as the value of penalties and other punishments are described in legislation.

The provider is the one to be monitored according to the regulation. It must be aware of the regulation, which could be a constraint in carrying out its duties and achieving higher profits.

The Secretary of State for Water Resources Sanitation and Housing is involved in environmental issues through the Administrative and Technical Department, as part of its duties as overseer of the water and sanitation services and the executive body in charge of monitoring regulations.

5.7 INVESTMENT

The private operator is to be responsible for operation costs (current financing or working capital) which includes services for upgrading the system. Major repairs would

be discussed with the Administrative and Technical Department which will approve the budget and will authorise the utilisation of sources from the fund in the service, sharing the costs with the private operator. The latter should be interested in upgrading the system and its performance, as part of its revenue will depend on gains in productivity. The private operator is responsible for laying the extensions in the network. When the extension is not profitable, the government can subsidise part of the cost by agreement with the community. Studies on the minimum level of profitability for an extension or increasing demand will be discussed between the private operator and the Administrative and Technical Department and will be defined in the contract. The study may be reviewed regularly.

The regional government through the Secretary of State for Water Resources Sanitation and Housing is to be responsible for monitoring capital investment. As the manager of the Fund, it is also responsible for defining sources, asking for the necessary capital from different sources, negotiating conditions of loans and grants. Its duty is to define the necessary areas for investment, to provide the necessary studies and projects and then search for the means of financing the work. The aim is that the major part of the work is financed by the revenues of the service. Nevertheless, loans should be obtained from the regional and/or central Government and Local Authorities, developments banks, etc. The financial regulation would allow for the possibility of the private sector financing the capital investment.

Decisions on investment are taken by the regional Government. Prioritising investment is a political decision based on the technical studies made by the Administrative and Technical Department.

The Local authorities are interested in this subject, generally trying to draw investment to their area. It is likely that decisions on this issue will often be made through political negotiation between local authorities and regional government.

The private operator is interested in capital investment on two counts: *firstly*, capital investment used to upgrade the system will facilitate their duties as operator of a specific scheme. *Secondly*, the private operator could act as investor, using the possibility to finance the construction of a system.

5.8 ACTIVITY AND RESPONSIBILITY MATRIX

The activity and responsibility matrix shows the relationship between the different bodies involved in the provision of the services in both proposed systems, and the boundaries within which they work.

FIG. 5.2

ACTIVITY AND RESPONSIBILITY MATRIX
BRAZIL The Proposed System - Management Contract

Activities	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of tariff preparation	Tariff approval	Operation investment	Capital Investment	Operation and maintenance
Agencies								
Central Government	R	R	R	--	--	--	--	--
Regional (State) Government	IV	IV	IV	IT	R	IT	R	IT
Local Authority or Syndicate of Communes	IT	IT	IT	IT	IT	IT	IT	IT
State owned Company	IT	IT	IV	IT	IV	IT	IV	--
Private Company	IT	IT	IT	R	IT	R	IV	R
Financial Basin Agency	--	--	--	--	--	--	--	--
Régie (Municipal Company)	--	--	--	--	--	--	--	--
Regulators	IV	IV	IV	IV	IV	IV	IV	IV

R = Responsibility. IV = Involvement. IT = Interest.

FIG. 5.3

**ACTIVITY AND RESPONSIBILITY MATRIX
BRAZIL - The Proposed System - Public Operation**

Activities	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of tariff preparation	Tariff approval	Operation investment	Capital investment	Operation and maintenance
Agencies								
Central Government	R	R	R	--	--	--	IV	--
Regional (State) Government	IV	IV	IV	--	--	--	IV	--
Local Authority or Syndicate of Communes	IT	IT	IT	IT	R	IT	R	IT
State owned Company	--	--	--	--	--	--	--	--
Private Company	--	--	--	--	--	--	--	--
Financial Basin Agency	--	--	--	--	--	--	--	--
<i>Régie</i> (Municipal Company)	IT	IT	IT	R	IV	R	IV	R
Regulators	IT	IT	--	--	--	--	--	--

R = Responsibility. IV = Involvement. IT = Interest.

5.9 DISCUSSION

The proposal has some characteristics from both the European systems which were studied.

From the system used in England and Wales, it has taken the rather centralised character where the regional government is responsible for the policy of the service in the state, and the Local Authorities, who formerly held the power of concession, become support actors. Although without a formal and independent regulatory body, one could say that the Administrative and Technical Department takes up most of the tasks of such bodies in Britain.

From the French system, this proposal takes the contract arrangements. Also, the possibility of changing the initial contract into an *affermage* contract gives some flexibility to the system together with different contractors for different situations.

One important point in this proposal is that the public sector retains the ownership of assets, even the ones bought by the private company during the period of contract.

In a new system, some important issues for which there is no related experience, must be included and adjusted. Among them the reasonable and fair level of profitability for a private company running a public service on a monopolistic basis in long contracts (France) or forever (England and Wales). The study of the two European systems did not provide the means for the setting up of an average level of "fair" profitability. As already mentioned in a previous chapter, the new English/Welsh companies, have been receiving profits over US\$40,000 per employee; the two major French companies make about US\$3,500.

In both European countries, the industry has low risk with a stabilised and compulsory market. These characteristics generally decrease profitability, due to the certainty of the business, but it does not seem to work this way in England and Wales.

The approach chosen for the setting of the tariff follows the one already in place in Bahia through rate of return on fixed assets for cities in which the major part of physical assets are already existent; and average incremental costs for those in which physical assets for the provision of services are not provided. The one in use in England does not seem to suit the Bahian situation, where capital investment should be made by the public authorities and mainly in low profitable areas. On the other hand, the French system of solving the problems without bidding or defined rules, constituting an agreement between the mayor and the private company, would not suit a more centralised approach and would make the culturally necessary transparency in the process difficult.

In the major cities, tariffs are likely to be lower than in small cities, as assets could be already fully depreciated, so customers have already paid for them. Besides, systems built during Planasa were highly subsidised. In the new systems, which are in the majority of

the cases located in small cities, the new assets will lead to higher tariffs. It is reasonable that the population in those cities should take advantage of the use of subsidies, as they were not provided in the past.

However, the setting of a tariff is not only a technical problem.

Thus, although based on the studies made by experts, the final decision should be made by the Governor.

There are many different views on regulation. The description of the British and French models of management, illustrated the opposite “schools” of regulation. The British approach, with its formal bodies, represents the school in which regulation is carried out in a micro approach to the providers, while the French system, with no formal regulatory bodies, represents the view in which auto-regulation is more efficient and the state just oversees the system.

Regulation can not be taken directly from one situation and transposed to another, as it is closely related to the social, political and economic conditions of the place. There are many combinations of actors and different forms for developing a regulation system. This proposal recommends regulation able to deal with the different situations, either with private or public provision of the services and the diverse Bahian conditions. In this case, the Administrative and Technical Department (ATD) should act in a system close to the French approach which is considered more appropriate, although overseeing both the contract and the service.

The ATD should have an overall view of the whole system, giving information to providers and others involved. It also has the power to penalise those providers that fail to attain the regulated standards stated in the contracts.

The challenge for this Department would be not to turn into one more powerful bureaucratic part in the system, where short term interests and damaging political interference could prevent its efficiency in playing its role properly. Also, over regulation should be avoided. The balance between flexibility and commitment to fixed rules must be a major concern of ATD. Whereas flexibility is necessary to allow the correction of mistakes and adaptation to changing situations, fixed rules are important in order to prevent one of the groups involved in the service from gaining control of the process.

The proposed Council for Water and Sanitation Services, in which the full range of interests would participate, provides transparency to the system and facilitates control by society as a whole. This level of participation is important in Brazilian/Bahian society due to the aforementioned fears.

The head of ATD should be chosen from professionals having authority to decide on matters, according to the guidelines defined in the policy which was approved by the state legislature, having as his main guideline the signed contracts.

The levels of services are to be accomplished by any of the providers; private or public bodies.

Competition is provided for in the proposal by using the French approach, where competition takes place for a specific water service rather than in the market generally or in the stock market as happens in England and Wales.

5.10 CURRENT CONDITIONS THAT FACILITATE OR INHIBIT THE IMPLEMENTATION OF THE PROPOSAL

Some conditions mainly related to the cultural and economic situation will facilitate or, on the contrary, will constrain the implementation of the proposal.

The proposal, which backs a wider private sector involvement than the current one in urban water and sanitation services, does not mean that government will give away its responsibilities concerning the service. This point facilitates its implementation politically as there will be no strong rupture in the sector. This solution “in between” private and public management makes the necessary political negotiation easier with the employee’s union and staff and managers of the state owned company which have a strong sense of corporativism as well as one part of society who does not accept private sector participation in public services.

Also, this first phase, with the public sector controlling the system, will allow the actors involved to adjust regulation and contracts to identify their strengths and weakness and to identify those rules which are either too stringent or too loose. This is in order to gain a better knowledge for future contracts and for possible *affermage* or *concession* agreements.

The programme for modernisation of the sector financed by The World Bank and in which Embasa is involved is also considered to be a facilitating condition. The managerial approach and the comparative competitiveness introduced by the Bank forces the company to achieve higher performance indicators.

On the other hand, although softened by the clauses of the proposal which maintain a rather strong involvement of the public sector in the provision of services, the mere idea of a private company running such an “important service for the population and strategic for security reasons” will certainly provoke strong reactions against the proposal within the system and in part of society as a whole.

Other constraints will come from the already mentioned distrust held by Brazilian/Bahian society for Brazilian entrepreneurs, as very often lately they have been linked to corruption in the country. In addition, there will be resistance from managers of the state

owned company, whose professional culture relates strongly to the encouragement of technical skills. The majority of managers today are engineers and chemists. Under the terms of this proposal such a culture will have to include other skills of a managerial and financial nature.

5.11 STRATEGY OF IMPLEMENTATION

Prior to full implementation of this proposal, a detailed preparation must be carried out in order to avoid failure of the process.

These procedures involve definition of the current situation and clear rules for the private companies. In this proposal important issues are related to:

- . the debt of the state owned company;
- . evaluation of assets;
- . clear definition on investment due to be financed by the public authority and/or by the private sector;
- . the bidding process of selection of the private company;
- . the contract;
- . negotiation; etc.

According to Triche (1992) the lack of suitable preparation of contracts has been one of the reasons for failure in attempts to involve the private sector in different countries.

The new policy would be discussed with local authorities, neighbourhood groups, professional associations, unions, within the state owned company, etc.. Not only for those people to be informed, but also to gain contributions from the actors involved.

Implementation should start from the major cities in the state, the profitable ones. This will help gain the support of public opinion, as problems in adjusting the new scheme at the beginning will be more easily dealt with. Also, these cities do not have problems in the quantity of water. Thus, the service in these cities should be used as “shop windows” for the new managerial approach. The service should be provided by big companies, with a considerable capacity for investment from the beginning of the contract and with the ability to stand losses in the early years.

In the meantime, Embasa would operate the services in the other cities under the current scheme but with a clearly defined period for termination.

The Phasing schedule on the page 147 gives a brief idea of the steps of the implementation process.

5.12 STRONG AND WEAK POINTS

The strong points in the current proposal can be highlighted through the qualitative analysis of the sector already used in this work. The proposal will provide a rather autonomous body as provider, with clear rules to be followed. In addition, the scheme encourages a market and customer oriented approach from the provider, and investment in gains in efficiency and productivity.

There is no support in this proposal for the use of subsidies in a large scale, rather the customer is made responsible as far as possible for the level of service provided.

The existence of contracts as the first reference for solving issues between private providers and the public sector is seen as a strong point. The executive governmental Department (ATD) acting as technical and administrative supporter for the government and monitoring the system according to established and agreed rules, makes it unlikely that over-regulation from one side and abuse from the private operators on the other side, would occur.

The weak point in the system is the relationship between the local authorities and private companies, which is poorly defined. Though there is provision for the local authorities to report to the regional Government or the Council concerning the quality of service provided by the private operator, the actual mechanism of this has not been detailed. Nor have they the powers to claim a proper service for the community, which would reside in the local authorities. One of the current complaints made by the local authorities is their inability to intercede in water and sanitation matters in their communities, when they are the governmental level closest to the citizen, the one who theoretically knows their requirements.

Phasing- Schedule of implementation

1. evaluation of assets
2. study of the debt of Embasa
3. definition of costs of provision of water in each city
4. definition of cost of provision of sanitation service in each city
5. negotiation of debt with banks, central government and regional government
6. inventory of assets that will be used by the operator
7. bidding preparation
8. definition on minimum tariff to be charged according to the principles in setting the tariff
9. writing off debts
10. tendering the service
11. judgement of proposals
12. definition of winner company
13. contract signature
14. hand over of operation and maintenance tasks to the private company

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

As stated in the introduction, the objectives of this thesis were an investigation of the British and French models for providing watsan services, and the development of an institutional framework for managing watsan in Bahia. This framework is based on the study of the two European countries and responds to the hypothesis that an extension of private sector involvement is the most suitable method to solve problems related to watsan in Bahia. These problems are associated, as in other developing countries, with inadequacy of organisations and institutional frameworks. The conclusions and recommendations discussed below are a result of the findings described in the previous chapters.

The findings of the research are related to the development and implementation of watsan policies, models for managing the services, and to the provision of services. The investigation showed two different models for the provision of the services, both with large private sector participation, but with differences in approach and form of implementation. The study of the Bahian watsan system and of Embasa also permitted the analysis of a state owned company providing such services in a developing country.

6.2 DEVELOPMENT AND IMPLEMENTATION OF A NEW POLICY

The French model for managing watsan services was put in place in an incremental way according to necessities and political balance. Changes in the system seem to occur without great traumas and conflicts between those involved. Private sector involvement is an issue dealt with at local level in accordance with local politics and administration. In England and Wales private sector participation was part of the Central Government policy at the time and involved a radical change in the system, imposed on society as part of a political agenda aimed at reducing the PSBR of the state and at providing investment in the sector in order to comply with EC directives.

For the French, watsan services are local public services, decisions are taken at local level, within the community, between users and providers. Being a local service, the local

representative, the Mayor, is the one able to take decisions on the subject. The central state only intervenes in those subjects related to supra communal issues such as river basin matters. This is different from the British approach where decisions are taken at central level by the regulatory bodies, without the participation of local authorities.

As a result, the research seeks to demonstrate that the most important aspect in urban watsan is not who runs the service or who owns the assets, but is the capacity building of who runs it and the coherence and internal logic of the system, which makes it work efficiently. In other words the way services are managed will define their efficiency. A management by objectives with well defined targets and where managers are accountable for their actions, seems to be an efficient way for watsan organisations to achieve high performance levels.

The general lesson learned from the study was that there is no single model that can be used to solve any specific case. A context-specific approach should be set up according to legal and institutional needs. Thus, the proposal developed for Bahia, while drawing from the differing European models, does not follow either of them faithfully.

The study illustrates that private sector involvement is not the only means for providing higher efficiency levels in watsan institutions. The tools used by the private sector to maximise profits, either in a competitive environment or constrained by regulation, end up improving effectiveness and should be used by any organisation, private or public, responsible for running the service. These tools are related to a managerial approach with clear objectives. This means that in whatever sort of watsan organisation, public or private, the management style should comprise functions, objectives and responsibilities clearly defined and easily attained to avoid confusion and overlapping of action, and that targets are set to achieve the objectives. These characteristics could be achieved in a public organisation through an institutional strengthening programme which includes setting tariffs, managers being accountable for results, etc.. Thus the ownership of assets or who runs the service is not the core issue in the provision of services.

However, in practice, public-private partnership seems to be the most efficient means of providing watsan, as it represents a short cut for putting into use the necessary managerial tools for achieving high efficiency, because experience has shown that the private sector is better motivated.

The research also made clear the need for defined legislation and rules and an institutional framework where the actors involved know their roles, without overlapping. This can exist in a formal or informal way. The first approach is the one used in England and Wales, where the Water Act 1989 and complementary legislation gave the regulatory bodies the power to resolve issues in the system. In France, although there is no formal

regulatory body, the service is organised in such a way that the Mayor is responsible for the service and different levels of Government deal with different defined issues at supra-communal or national level.

From the literature review and the study of Embasa the conclusion is made that the Bahian company is not different from other state owned watsan organisations in developing countries, which suffer the impact of institutional aspects as consequences of political implications, and of legislation which is a consequence of a political culture with Administrative Control. Regarding this point, the study considers that action must be taken to remedy inadequacies in such institutions and organisations. In this sense, it is necessary to examine those aspects of the institutions which affect performance.

Once more the problem is not technical, but depends upon the managerial approach adopted, where supply has been stressed rather than demand.

The research also revealed that important issues that have either been neglected or superficially examined by decision makers in Bahia, must be considered key points in the management of the service. Among them are the bias about subsidies and the use of an appropriate level of service and technology. The discussion on the possibility of reducing the use of subsidy has always been taboo in the sector, due to the high level of poverty in the country. Discussion on this point is regarded as indicating a position against the poor and a lack of social sensitivity. However, experience throughout the world has shown that subsidising tariffs is not always the best way to provide services to the poor. On the contrary, those who take advantage of subsidies are often the middle class, with house connections. Discrimination in the provision of water and sanitation services in Bahia was discussed in chapters IV and V.

In this sense, adequate budgetary allocation to particular sections or regions, removal of price distortions which supports a bias against the poor and the selection of more appropriate technology, can be more effective than the use of subsidies alone, which end up subsidising the or better off (WDR,1994).

In fact, the use of subsidies becomes an excuse for many of the actors within the system, mainly some politicians, some of the staff in the state owned company and large contractors. If one assumes that the service can never reach sustainability it is easier to justify putting resources into the system for big construction projects, sometimes unnecessary, for the sake of public health and to increase the coverage mainly for the poor population, who will not always be the beneficiaries and could end up paying more for the service. The assumption of lack of sustainability also favours the unresponsiveness and mismanagement of some managers that are not accountable for their mistakes.

One other problem to be faced in the system is the use of appropriate technology in the provision of services. The preference for big construction projects often makes it impossible to use lower cost technology, which in some cases is presented to the population in a biased way, as 'second class' technology that has been provided only for the poor. As a consequence, the poor are often the ones who end up having no access to the service because the high technology makes it unaffordable. (See the case of the sewerage system in Salvador, Chapter IV).

The main problem is not whether the service is running under a private or public organisation, but is to seek the managerial approach that meets the needs of the population, considering the diversity of necessities according to the level of income, at the lowest cost.

The proposal defined in this thesis, detailed in chapter V, suggests an approach in which the necessities of the customer are the main input for definition of technical solutions. Above the lifeline, the level of service should be compatible to the willingness to pay and affordability. It is necessary to include the different income profiles that define different markets with different necessities, without prejudice. Thus, the bench marks and the standard of service must be different.

The consumer or potential consumer must have channels to disclose his wishes and, which are at the same time, responsible for the level of service provided. In this sense, technology, even in urban areas should take into consideration the customer's affordability.

As Coing (1994a, 1994b) points out, the management of urban services in Latin America has been characterised by consecutive transformation which shows instability in the system. This pendulum in which the service keeps swinging, cited by Carteado (1993) referring to the management of watsan services in Salvador during the 20th century, demonstrates that the models do not succeed when there are internal contradictions and incoherence and a lack of socio-political commitment about the stability of issues such as financing, quality of service, tariff policy, etc.

So far it seems that transformation in urban services management has occurred to overcome crises or external demands without being sufficiently internalised by the bodies involved.

The author strongly believes that a defined combination of public and private sector involvement will provide the best balance in order to enable the system to achieve its

objectives to provide a reliable service to the urban population of Bahia state, according to customers' ability and willingness to pay, under a fair tariff, able to ensure self sustainability and a long life for the system.

In the proposal the main executive body is the private company, together with Embasa, which will be responsible for operation and maintenance in different cities. It is planned that cities with different income profiles will be regarded differently in the provision of the service.

Entry by the private sector should be paced so as to make it possible to monitor the changing system. This will be necessary as, initially, all the actors will be involved in a learning process: the public bureaucracy and technicians and the private providers, the consumers, who will have more responsibility within the system, and the regulatory bodies, will all have to accustom themselves to a new approach for which they have little experience. Within the implementation process, an important step is the method of disciplining and organising participation of NGO's and communities in project designing, execution of systems such as providing extensions of the network, etc.. This type of participation in urban areas is rather new and has become a trend, mainly for poor areas. Therefore, this system should be encouraged but, at the same time, rules should be set up in order to avoid overlap of functions and conflicting measures in the system. Thus, flexibility must be one of the principles of the proposal. In this sense, the Administrative and Technical Department together with the council placed below the Regional Government, have the important duty of making a permanent assessment of the system during implementation to provide changes in direction when necessary, in order to assure a long and stabilised life to the system.

6.3 RECOMMENDATIONS

The research does not assume that privatisation or a major private sector involvement are the only solutions to the inefficiency of public institutions or to serving the unattended demand.

Efficiency, good management and other good practices are not intrinsic in any form of management, private or public, centralised or decentralised. The most efficient water and sanitation service in Asia is the Singapurian public company, which has a low level of autonomy (Asian Bank of Development, 1994), for example.

The argument of inefficiency and the use of populism and clientelism of local authorities were the basis of the Brazilian military government policy for centralising the financing

and management of public services from the early 60's to the late 80's. This centralised policy lead to the same faults. (See Coing, 1991; Carteado,1993). The interviews conducted in the field research in Brazil also pointed to the lack of autonomy and political interference as one of the problems in the current system.

In the same way that one can not ensure that the private sector will run the services better than the public sector, it is impossible to restrict the problem of efficiency and effectiveness of the service to management aspects only, disregarding the political issues involved. Thus, it is necessary to ensure political commitment to the principles of the plan.

The research recommends Embasa's efficiency to be compared with that in the private companies. Also, it is important to assess the follow up of Embasa and its response to the institutional development programme currently in operation, sponsored by The World Bank. There is a doubt about whether or not a programme that was, once more, brought from an external agency, will last long after that agency's withdrawal. If the programme was not internalised throughout Embasa's staff, any improvement achieved by the company could be jeopardised by changes in the board of directors, or after elections.

Further research into the French system is needed in two ways. First, an analysis of the contracts, and the protection they provide for the customers as well as for the private companies. Second, a follow up of the Sapin Law: the changes in the relationship between local authorities and private companies and the consequences, if any, for the provision of the services, that will occur in order to accommodate this law which was brought in in 1993 to decrease the level of corruption within the system.

Apart from the already mentioned studies within the French system, a rich field of investigation would be the gains in productivity and effectiveness achieved by public bodies that had undergone different types of programme focusing on managerial strengthening. In this sense, useful research could be conducted into organisations that had used the Total Quality Management approach for services, where "the client/customer is the king", and into different managerial approaches to improve efficiency in the public sector.

Finally, the important thing is to be aware that changing the form of management is not an abstract choice or just a decision among different solutions. It is the consequence of specific conditions in a specific place at a specific point in time, in order to overcome a crisis. Hence, it is fundamental for the system to have trust amongst all those involved, customers, providers, public bodies, regulators.

APPENDIX I-1A**Questionnaire to policy makers, Embasa (board of directors and senior managers, secretary of state for infrastructure, employees union, Abes, Aesbe)- Salvador, Brazil**

- 1.How do you evaluate the level of service in water supply and sanitation in Bahia?
- 2.How do you evaluate the current policy in water supply and sanitation services in Bahia?
- 3.Which are the weak and strong points in the current system?
- 4.Which are the main constraints in the current system?
- 5.How do you evaluate the current customer service in urban Watsan?
- 6.Is there a need for setting a new policy for urban Watsan in Salvador/Bahia?
- 7.In an eventual new policy, which aspects would be stressed?
- 8.What is your opinion about the increase of private sector involvement in urban water supply and sanitation services?
- 9.Do you think that a wider involvement of the private sector in the system would help the improvement of the quality of service?
10. In which ways could the private sector increase its participation in urban water supply and sanitation services in Bahia?
- 11.Given the possibility of having a wider involvement of private sector, what should be the role of the State within the service?
- 12.In an eventual privatisation, which sectors could be adversely or positively affected, in your opinion?
13. Who would be the key actors in setting a new policy for urban watsan in Salvador?

APPENDIX 1-1A**QUESTIONNAIRES TO COMPANIES AND COMPANIES'
ASSOCIATIONS - Europe**

Company :

Interviewee:

Status:

Date:

- 1.How do you compare the level of service in urban water supply and sanitation in your region before and after privatisation?
- 2.Do you think the tariff is adequate? Why?
- 3.What are the differences in management style before and after privatisation?
4. How did customer service change after privatisation?
- 5.Which are the strong and weak points in the current system?
6. What are the main constraints in the current regulation that prevent the service from achieving a higher level of efficiency ?
- 7.Which are the key points or issues neglected by the policy makers at the time of privatisation?
- 8.What should be the role of the regulators?
9. In which ways could the private sector expand their business in the sector?
- 10.Within the different kinds of private sector involvement in water supply and sanitation services in France, which one do you think is the most suitable? Why?
11. Which one is the least suitable? Why?

APPENDIX I-1A

QUESTIONNAIRES TO REGULATORS- EUROPE

Institution:

Interviewee:

Status:

Date:

- 1.How do you compare the level of service in urban water supply and sanitation before and after privatisation?
- 2.Which changes in management style could you notice before and after privatisation?
- 3.Which are the key issues the regulators must watch carefully on behalf of the customers?
- 4.What practical problems have arisen in the implementation of privatisation policy ?
5. Which ones are the strong points in the current regulation?
6. Which ones are the weak points in the current regulation?
- 7.What are the main constraints the regulators face in the current system that prevent the service from achieving a higher level of efficiency ?
- 8.Do you think that the tariff is adequate for the level of service and customer's willingness to pay?
- 9.Within the different kinds of private involvement in water supply and sanitation services in France, which one do you think is the most suitable? Why?
10. Which one do you think is the least suitable? Why?

APPENDIX I-1B

SUMMARY OF INTERVIEWS

Name: José Hamilton da Silva Bastos

Position: Secretary of the Council for Infrastructure in Salvador, Bahia, Brazil

Duration of interview: 40 min

About the current level of services

There is a reasonable service as far as the quantity of water is concerned, but there are many doubts about the quality of the water and the quality of the service. The local authority who gave the concession to the regional state, in 1925, had never followed the service nor participated in any decision on it. We are now discussing how to review the concession contract in order to get the local authority to participate in the service. Regarding sanitation, there is a low level of utilisation of the general sewerage system. The higher part of the sewerage goes to the drainage system which the local authority is responsible for. There is a conflict as water supply, sanitation, drainage and solid waste are not treated in an integrated form which does not lead to the best solution and which causes conflicts.

About the current policy and current situation- Strong and weak points

There is no policy at the moment. The Local authority (council) together with the University (Federal University of Bahia) is setting up the Municipal Water and Sanitation Policy which will comprise of studies on the management method. The possibility of privatisation has been discussed. Even if we decide on public management, the method must be well defined.

The current customer service depends on which region of the city you live in: in the high and middle class neighbourhood the service is good, except for the time Embasa needs for responding to customer's complaints and solving leaking problems. In the poor neighbourhood, 'favelas' and shanty houses there are many complaints related to interruptions of service, delays in attendance to services besides the already mentioned problems of leakage. Also, there are complaints on the quality of water delivered, and the population is relating the presence of cholera to the quality of water. Embasa says that it is due to the illegal connections.

About the possibility of more private sector involvement

The private sector has a strong tradition. The natural tendency is the 'terceirização', contracting out for some services. But operation tasks should not be contracted out, they should remain on the hands of the state. Only tasks outside the core business should be contracted out. There is also the social question, it is necessary to socialise the service. If the public sector does not provide good service for part of the population, consider the private sector.... The state is responsible for the health of the population and this must be kept in public hands - at local, regional or central level of Government. The private sector would go only for the profitable areas.

About the role of the state in the event of more private sector involvement

The state should have the duties of planning, investing and operating. The latter due to the return of investments. Only the state could invest in non profitable areas. The state should also look after the environment. In our situation, unlike from the first world, the private sector will act only in very profitable areas.

Name: Cesar Augusto Rabello Borges

Position: Secretary of State for Water Resources, Sanitation and Housing in Bahia,
Brazil

Duration of interview: 30 min

About the Current Level of services

During the last few years there has been a great improvement in the level of services regarding quantity and quality of water supply delivered. Regarding sewerage, there is not enough coverage, demanding a huge effort in the near future.

There is a need for thinking on sanitation in a broader spectrum, i.e., including urban drainage, solid waste and vector control.

The first concern of the administrator is water supply, which is not get available to all the cities in Bahia.

In the semi arid region, comprising about 60% of the state, water is scarce, both surface and groundwater. The ground water in those areas tends to have salinisation problems. Thus, it is necessary to build long transmission systems (120km, 130km) to get water of good quality in the necessary quantity, which is very expensive. Moreover, most of the water supply systems were built to last for 20 years and most of them were built from the late 60's to 75, under the Planasa system. Now, the systems are declining and there is no external source for financing rehabilitation and reconstruction, as the

central government has no money and the international agencies take a long time to make decisions on investments.

That is the reason why the regional government (1990-1993) decided to invest 10% of the state net revenue in water supply and sanitation...

About the current policy and current situation- Strong and weak points

There is the need to organise the sector, the central government should set up a ten year master plan prioritising investments in water supply and sanitation.

The management is too fragmented, is split into too many levels (Local Authority, State, Central Government), nowadays. There is also the possibility of privatisation.

About the possibility of more private sector involvement

A wider private sector involvement will improve the quality of service, but only for those who could pay.

We should involve the private sector in various tasks, so releasing the State. In addition, the involvement of the private sector would force the implementation of tariffs related to the cost of the service. The current average tariff used in the state is unfair. There is no use in compensating tariffs. Each region of the state should have a tariff according to the cost of the provision of the service in that specific area. On the other hand, the households of the semi arid area can not afford to pay for expensive water....then, the state should pay the difference. The private sector has one task to do, the regional public sector has another, and the local authority has yet another ...

About the role of the state in the event of more private sector involvement

The state will always be the concessionaire, as it is responsible for the sources of water. The local authority holds the concession for the exploration of water supply and sanitation services.

The state should play the role of regulator, organising the exploration of the services.

The private sector should be responsible for operation and maintenance tasks.

About the sectors that would be adversely and positively affected with private sector involvement and the key actors in setting a new policy

The system would improve its efficiency and effectiveness.

The key actors should be the elected representatives. The Executive, the Legislature and the Parliament should deliberate and start the privatisation process. The executive should release itself from the responsibility of running the service, sometimes

inefficiently, and use privatisation that has been working well in many countries. Privatisation increases efficiency within the service. It should work in urban areas which can be self sustainable.

Name: Carlos Alberto de Carvalho Heleno

Position: Former's Embasa Director

Duration of interview: 50 min

About the Current Level of services

The service in Salvador is good. There is a need for a network in the outskirts of town in order to rationalise the provision of the service. The production of water is higher than necessary.

About the current policy and current situation- Strong and weak points

There is no central institutional body to organise the sector and provide resources, as there was under Planasa.

The policy has been made by the states with resources from the state treasury.

There are some attempts to set up a national policy.

The strong point is the prioritisation that this Government (1991-1994) gave to water and sanitation. The tariffs are a weak point. Bahia state is half in the semi arid, with a poor population. In addition, in Salvador, the number of poor is very high. It makes the possibility of setting tariffs related to the real cost of the service very difficult. The cost is not affordable for the population. On the other hand, the service can not rely only on the treasury, it is necessary for the company to have its own resources in order to be self sustainable and provide resources for investments.

There are organisational and financial constraints. To have a good service, it is necessary to charge high tariffs. Sometimes it is necessary to contract out. The biggest difficulty is the lack of a national policy.

Water and sanitation services always depend on the government. Without a well defined framework, the sector is weak.

As water and sanitation had been neglected, there were big problems in the systems due to their degradation. The customer service is not good. Failure in the system is more likely to be noticed by the customer.

About the need of setting up a new policy and what its main concerns or its characteristics should be

There is a need to set up a national policy for water and sanitation. Bahia state should keep investing in the sector. Aspects such as centralisation, decentralisation, privatisation, contracting out, should be discussed, as all of them have positive and negative aspects. Cross subsidies should be used between cities in order to make the service viable in the whole state.

About the possibility of more private sector involvement

The government is not supposed to solve all the problems in a capitalist country, thus, the private sector must participate. On the other hand, watsan services are strategic for public health. The government can not desert from the service as its responsibility is to guarantee the service to the population. The private sector should work together with public authorities. Both the private and the public sector should run the services properly. The management method depends on the Government.

The private sector must demonstrate that it is ready for participating in the process. It has been checked under the contracting out contracts. If the private sector is not ready, if it is clear that they just want quick profits and increased tariffs, this is not good.

About the role of the state in the event of more private sector involvement

The state cannot withdraw from the service in this country. The public sector must be an active participant due to the level of income distribution. The private sector would not be concerned to the provide services for the poor. It is a government responsibility.

About the sectors that would be adversely and positively affected with private sector involvement and the key actors in setting a new policy

Under privatisation, some systems would increase the level of efficiency, but only for those who could pay. However, they could not charge a tariff which would cover the cost of a high standard service, as it is unaffordable for a large part of the population. The problem is not to privatise. Privatisation is profitable, but creates discrimination and considerable difficulties for parts of the population. Privatisation can not be an objective. Water and sanitation are strategic sectors. This is possible only in high income areas. The alternatives must be well discussed in order to decide which sectors (private and public) will be responsible for which tasks. At this moment, the government must participate, it is the moment for contracting out services. Privatisation involves the consciences of private companies

Nothing can be done without planning. There is a necessity to make a complete diagnosis of the sector in the state, to do strategic and tactical planning. One cannot think about sanitation without thinking of drainage, solid waste.

Name: Marcio Costa Lessa

Position: Member of board of Directors at Embasa

Duration of interview: 25 min.

About the Current Level of services

In Bahia, water service is good but sewerage practically does not exist in relation to the population.

About the current policy and current situation- Strong and weak points

There is no policy. There are resources but no planning. Because there is no planning at state level, the resources are not used in the best way. Interventions are made as a response to complaints from the population, and are localised.

A strong point in the service is the water supply in Salvador (the capital city), together with the amount of resources available. The weak points are the sewerage system in the state, together with lack of planning and the quantity of investment made in construction, not in the organisation of the company (Embasa).

The service could be less centralised, with action at regional level. There are administrative difficulties in having a stronger relationship between the company and municipalities.

The current customer service is poor. The communication between customers and the company is also poor. Customers need to know their rights and their duties.

About the need of setting up a new policy and what its main concerns or its characteristics should be

There is need for a study for the whole country. The current system, if well managed, is good and will work out. The company must have more autonomy. Targets should be set and the company should be accountable for the results.

It is necessary to have a better relationship between the company and municipalities and between the company and the communities involved.

About the possibility of more private sector involvement

There is nothing against private sector participation, but municipalities should have higher participation in the process. Responsibility for water and sanitation should remain on the hands of the public sector, either municipalities or the state. Some

systems are very peculiar, with a lack of water, or a source in different municipality, etc.

It is possible to contract out part of the tasks. But there is the problem of shortage of water. One only company managing the whole system facilitates the service.

We already have private sector participation. At Embasa, many services are privatised. The services should not remain only in public hands. A solution 'in between' would give a balance to the system. Even the system maintenance could be contracted out, but Embasa should not lose control of the system. The body that holds the concession should have control over it physically and financially.

About the role of the state in the event of more private sector involvement

The state defines the policy, co-ordinates, organises and helps implementation.

About the sectors that would be adversely and positively affected with private sector involvement and the key actors in setting a new policy

It is possible to claim higher efficiency for the customers from the private sector. On the other hand consumer's pockets would suffer more.

Municipalities and involved communities should participate in decisions. And community participation is different from the Mayor's participation. The communities are the ones able to define their necessities. Also the Health sector should be involved in decisions on investments.

Name: Luis Roberto Moraes

Position: Co-ordinator of the preparation of Municipal Policy for Sanitation

Duration of interview: 70 min

About the Current Level of services

Concerning water, the service is adequate, although with some problems concentrated in the outskirts of cities (poor areas). The middle and upper classes have a better service, according to research done by the Federal University. In poor areas, the provision of water supply is not reliable or regular, concerning quantity and quality of water delivered.

In some areas of town 50% of the water samples analysed were contaminated with coli faecal and, some communities are reported to have no supply for two months. In such a situation, any improvement in the service is celebrated.

In the inland cities (not the capital city), there are complaints from all the regions of the state. The poor population complains about the tariffs in relation to the quality of the

service provided. The community leaders are used to saying that they want water in the pipes, not pipes in the street. It does not help just to have a pipe without water.

About the current policy and current situation- Strong and weak points

There is no water and sanitation policy, although required by in the State Constitution. There is a programme for water and sanitation, and investments are made according to the willingness of the governor. The current government (1991-1994), has been spending a considerable part of the state budget on water and sanitation. An analysis of the investments related to the technological pattern, where it has been spent, either in water or sanitation, the concepts of the systems, etc., demonstrated that there are no social or technical criteria for establishing the facilities. The criterion is the personal will of the governor, sometimes prepared to rebuild systems, because there is no sanitation policy. There is a proposal for a policy, in the State legislature.

The former policy (Planasa), had a few strong points and a number of weak points. It was too centralised and the model created an organisational culture among those who work in the state owned companies. The power of decision was removed from the communities, from the population, and technocratic decisions were exacerbated. It is difficult to discuss different alternatives for managing the sector. Those who support local authority management do not discuss with those who support the management through the regional state owned companies and vice-versa. The employee's unions of the state owned companies think that if watsan services go back to local authorities, the involvement of the private sector will be facilitated, as the local authorities are more difficult to control. In this sense, the private companies stimulate the 'municipalização' i.e. the local authority power, and then take over the services. These sort of problems are a consequence of Planasa. But fortunately discussion has been started and society has been organising itself.

The coverage of water supply services in urban areas has increased, but this has also increased the gap between the urban and rural areas, as the policy was only for urban areas.

The service to customers is poor. This is a nonsense, at a time when the country has set up a customer law. A low income household with seven people at home in a poor neighbourhood had a metered water connection. The head of the household made a complaint to the water company, as his bills were showing a consumption of 92m³/m to 100m³/m. He complained for three months without any response. As the bills were not paid, the company disconnected the supply. Further, the customer gave up complaining to the company and made an illegal connection, obtaining his water at zero cost....

This sort of attitude from the public sector makes the population think that public services are always of a low level, making a private sector involvement necessary. There is an opportunity for the private sector to put itself forward as a qualitative alternative

for the public in providing the service with better quality at lower cost. The private sector with support from the media conveys this image.

The heavy structure of the public sector related to lower costs of the private sector also should also be revised. It seems that public service has low quality on purpose to make users disillusioned with the situation, questioning it.

About the need of setting up a new policy and what its main concerns or its characteristics should be

There is a need for a new policy. The university is trying to set up a policy for water, sanitation, urban drainage, solid waste and vector control. The Local Authority gave the concession to the state owned company, which has not been included in the elaboration of the new policy. It is necessary to discuss how planning is done, how operation works, which sort of priorities are taken into consideration, which ones are the criteria, how they interfere in the tariff structure, how the tariff is set, and to provide a transparent management. It is also necessary to revise the concession contract. The employees' union wants a revision of the concession contracts, the involvement of the local authorities and the social control that does not exist at present.

The principles of the service should be equity and integrity of the service. We cannot have such a difference in the town, when one consumes 350 lcd, supplied 24h a day, while the low income households have water three times a week, for three or four hours around dawn.

About the possibility of more private sector involvement

The Brazilian state is already privatised. Water and sanitation services are privatised in many ways. The water supply company uses a private company for designing, construction, for some administrative tasks, and now there is a trend towards the use of private sector for operation and maintenance. There is a need for a quick but deep discussion on the subject. Today there is no community involvement in public policies in Brazil. It is necessary to measure the benefits and disadvantages to society. The Brazilian political and social situation is different from other countries where privatisation or higher private involvement works well. It is difficult to measure the consequences to society. It is a black box. In Bahia, one can not say if the cost of Embasa, when contracting out services, is lower or higher than when tasks are carried out by its own staff.

It is necessary to see Brazilian entrepreneurs putting their money at risk. Generally they just want easy and quick profits. I do not know any case in Brazil where the private sector said it would invest its own money. The private sector has been saying that they can build and operate, but the government must invest. It is said that the private sector

would invest, but in practice, the government is taking expensive loans from the World Bank and Inter-American Bank.

The private company could help to formulate the policy. The private sector can help a lot, but it is necessary for them to avoid easy profits, in practice, taking over public resources in a more ethical way. The Brazilian private sector and Brazilian society are different from the British, French and even Argentinean ones.

About the role of the state in the event of more private sector involvement

In case of privatisation the state should have the role of regulator. It is different when the majority of the population already have the services, but in Brazil the majority of the population do not have the service. There is the possibility after privatisation for the poor to be even more discriminated against the provision of the services.

About the sectors that would be adversely and positively affected with private sector involvement and the key actors in setting a new policy

The whole of society should contribute: Embasa, the academy (University), civil organisations, local authorities, professional associations, industrial associations, etc. Although more complex and difficult to discuss, the process is richer.

Name: Luis Pereira Vianna

Position: Former Embasa's Director

Duration of interview: 55 min

About the Current Level of services

The provision of water supply service is fair, but in sewerage, the provision is very poor. The quality of the service is not good. In the 25 years since Embasa was created, the service has remained deficient, both in supply of product and service to the customer. The company and its staff failed to recognise service to the customer as its main purpose. The company works with the negative mentality of a public service. Therefore, the company has a negative public image, with many complaints in the media, questioning whether the current form of management is the appropriate.

About the current policy and current situation- Strong and weak points

There is no policy and a lack of management bodies. This has been discussed by the legislature. A higher private sector participation and a higher local authority participation are need. The local authorities must have a permanent involvement as

they are the ones who know the day to day problems in a community. It would be useful to have different tariffs in different places due to the varying difficulties of getting water and also different salaries of Embasa's personnel. In some cities, Embasa's staff have higher salaries than the Mayor. A strong point of the system is the good operational level achieved by the water and sanitation state-owned companies all over the country. On the other hand, political interference cause the companies to oscillate in their performance. The state owned companies have no autonomy, although nowadays they can define the tariff , but investments are not financed through tariff alone. Another problem is the size of the company. Political interference makes the company highly vulnerable. There is no specific legislation for protecting the executive companies. It is difficult to charge for the services. The company has too many employees in activities not related to the main tasks, and high salaries, (higher than the market) in administrative tasks. The purpose of the organisation is to provide the services at fair prices to whole of the population. This is not achieved. It takes 3 or 4 months to respond to a request for water connection!

About the need of setting up a new policy and what its main concerns or its characteristics should be

A national policy should be flexible enough to accommodate the different situations in the country. In a big country such as Brazil, we have very different situations... It is not possible to use the same management model in São Paulo and in the Amazon...Even within the state, there are different conditions. In some places, municipalities could take over the services. The concession contracts (between the state owned company and a municipality) that no longer satisfy municipalities, could be terminated. Nowadays there are one sided contracts where only the interests of the state owned company are taking into consideration.

The main concern of a public utility must be to provide a good service to the population . If the majority of the water and sanitation state owned companies in the country are not providing a good service and the private sector is interested and is able to do so, then it should happen. But regulation must be very efficient. The private sector should not restrict itself to running the service only in the most profitable cities.

About the possibility of more private sector involvement

Contracting out of services is happening in areas demanding high productivity such as metering reading, leakage repair, billing, etc. The first reason for this is the restrictions on hiring people. There is a need for a civil service exam, which would not be well received by society, which regards the company as over staffed. Besides, there are many salary distortions in the company: an office boy in the company receives the equivalent

to US\$400/month, while in a private company, his salary would be between US\$70/month to US\$100/month (May, 1994); a meter reader receives US\$500/month at Embasa, and the private sector pays about US\$140/month for the same service. This means that it is better for Embasa to contract out such services rather than hiring personnel. Contracting out has shown positive results.

A wider involvement of the private sector would improve the level of services. Embasa's staff productivity has been falling. The newest Embasa employee has been in the company for 8 years. Therefore, staff are older... an employee contracted 10 or 15 years ago as a meter reader or as a field worker, can not do it any more, as they are very tiring jobs...

So far, the private sector has been interested only in the new part of the system, and they always want the bulky part of the system, (catchment and treatment plant), not the network which is more problematic.

About the role of the state in the event of more private sector involvement

With privatisation of the system, the State should act as a regulatory body, supervising the system in order to guarantee a good level of service for the population. The private companies must provide the same level of service to everyone.

About the sectors that would be adversely and positively affected with private sector involvement and the key actors in setting a new policy

Under the private sector, there would be an improvement in the level of service provided and, maybe, a lowering in tariffs, due to the greater efficiency. Tariffs should be controlled by the state in order to avoid unacceptable levels of profitability for the private companies. Besides, the companies could not direct services to solvable areas. There must be participation of the state government, municipalities, professional associations, private sector (contractors, consultants, equipment manufactures), Environmental bodies, the National Secretary for Sanitation.....

Name: Paulo Jackson Villas Boas

Position: Member of the State Legislature in Bahia, Brazil

Duration of interview: 35 min

About the Current Level of services

Bahia state has very poor levels of water and sewerage services. It is said that the current operation and maintenance services have been degraded. There is a lack of

equipment. Water borne diseases such as cholera have been returning. In a survey made by the local authority in Salvador, when preparing the annual budget, sanitation was chosen as the first priority for 60% of the population.

About the current policy and current situation- Strong and weak points

There is no policy. Because of the lack of governmental interest, the proposals made by the legislature do not come to fruition.

There is a need to set a national policy. The employees (the union), are struggling for the setting up of a national institutional policy for the sector. There is no planning, or definition of priorities for interventions. Since 1990, (and until May 1994) Embasa was unable to achieve the necessary level of indexes in order to get a loan from the World Bank. The company can not achieve the lowest level of efficiency and productivity. It is impossible to follow the actions of the executive politically.

About the need of setting up a new policy and what its main concerns or its characteristics should be

The relationship between Embasa and the customer is inappropriate. The centralised and authoritative culture remains from the Planasa period. There is no educational campaign. Increases in tariff are not explained. Also, the direct response to complaints is not adequate. Recently, the company sent a letter to the majority of the customers in Salvador, asking them to show their receipts for the last two years, otherwise, they would be disconnected. This was done due to a mistake made in Embasa's system.

The relationship between Embasa and the municipality should be strengthened and the concession contract should be revised. Also, there is a need to democratise the service, and the relationship between the provider (Embasa), municipalities and users.

It should remain a state owned company. In Bahia state, the majority of municipalities do not have conditions to run the service, as 90% of the systems are lacking. The dictatorial aspects of the system should be removed, but the knowledge gathered by the company can not be forgotten. A participative management is envisaged.

About the possibility of more private sector involvement

Contracting out is illegal. Embasa could not contract out services such as leakage repairs, meter reading, etc.. The involvement of the private sector conflicts with public health activity in which water and sanitation services are included. Private companies go only to profitable places. A wider involvement of the private sector would be damaging to the industry. Historically, they have performed poorly. Either acting in a

oligopolistic manner sharing financial resources, promoting directed tendering, overbidding services.

About the role of the state in the event of more private sector involvement

The state should monitor the operation of the policy, having the society supervising (inspecting). There are instances that involvement of the private sector led to worsening of services and an increase in costs.

About the sectors that would be adversely and positively affected with private sector involvement and the key actors in setting a new policy

The society will share only the losses. There is a conflict between water and sanitation services and the private sector. The state will remain investing in non solvent areas and the costs will increase. Studies on privatisation always mention the need to increase the tariffs. And the level of the service will not be upgraded, especially in the outskirts of town, shanty houses and 'favelas'.

Name: Hugh Tebutt

Position: Director of Biwater

Duration of interview: 35 min

About the level of services before and after privatisation

Privatisation came at the same time as the EC Directives which are highly detailed and yet to be achieved. The trend in the British legal system tends to give general statements. As a preparation for privatisation, the Government decides to separate the water and sewerage bill, which was not done before in this country- people that to start paying for water. In order to comply with the EC directives the tariff has been increasing to bring the quality of water to the same standards.. It encourages people to think that privatisation can not be a good thing as there was an increase in charges. Severn Trent' charges are growing up at about three times the rate of inflation. Also the salaries of executives of the private companies increased from £30,000- £40,000 to £200,000. These people were paid as the local authorities...It should be much more difficult to invest in order to comply with the EC Directives without privatisation. The Government did not realise what they were getting themselves in to ... The purpose of privatisation was to remove expenditure from the public sector.

About tariffs before and after privatisation

The tariff is adequate. The private company has limited freedom. OFWAT has to protect consumers, but also to ensure the shareholders a fair return for their investments. OFWAT argues that rate of return expected from the privatised water industry would be less than something which is more risky. Water is a pretty low risk business as everybody wants it and it is not easy to get competition in the business. Profit that you get in a safe industry like water should not be as high as in other, more risky industries. Water companies do not like it as a concept...

About management style before and after privatisation

That was one of the biggest changes after privatisation. Historically, water and sanitation were run in a local authority style and the managers in the water industry were chemists and engineers. It has change completely. The chief executives now are not technical people, but financial people. The industry switched from the technological driven style to a financial driven style.

About customer services

The customer service changed because of OFWAT. It became more customer friendly and responded quickly to people, giving information and dealing with complaints. Customer's relations managers are quite important people in the organisation. The local authority organisations did not think of customers to the same extent that private companies do nowadays. They were not concerned about the public image... They used to do what a local authority had to... Customer's relation mangers are quite important people in the private companies as they are seen as the interface between the customer and the organisations. This is considered as a good point of privatisation.

Strong and weak points of privatisation

After privatisation the companies got more freedom which is a good point. Freedom in terms of capital expenditure and how to run their own affairs in order to get happier customers and make more money. In the old days, the local authority could make the plans, but everything depended on the treasury, and then the investment profile was based on the treasury, not on technical aspects. After privatisation, as part of the regulations, companies have to put forward a ten year asset management plan, and they are able to prepare their investment profile. It is more cost effective and questions the

way things are done. Why build something to last 100 years, when probably in 30 years something else will be needed?...

The weak point in the system is the public perception of privatisation. The population thinks that people do everything for profit. They are suspicious now of the water industry. If an environmental group says that the water quality is terrible, the public will believe it. Even if the evidence says the quality is very good. The public prefer to believe people outside the industry.

Constraints in privatisation process

The main constraint is money. The difficulty is in deciding what people really want. Now, there is a gap between customer's appreciation of the cost of things and what is technically possible. NRA are looking at reasonable use of water.

It should be interesting to have a regulator to control the whole water cycle. It is important to have no gaps in which people could exploit or Government could lose control.

Ways for private companies to expand its business in the sector

Companies are investing in out of core business- building, construction, solid waste, laboratory services, hotels and operation and maintenance overseas.... The main attraction for doing that is that OFWAT only controls the core business, although, politically they try to control more. OFWAT wants to be sure that companies are not putting resources that should be in to the core business in the non core business.

Key issues for regulators

The NRA first had to gain credibility to show that it was an independent body, as a lot of its personnel previously worked with people in the water industry. It needed to show that it was able to prosecute those who polluted, etc.

Name: Henri Coing

Position: Docteur d'Etat ès lettres et sciences humaines, est responsable du département aménagement de l'Ecole Nationale des Ponts et Chaussées, France

Duration of interview: 30 min

About the main advantages and disadvantages of the French model for managing watsan services

The services in France are a consequence of a specific moment in time. It is not an abstract and ideal model. It is the result of a process that reflects forces, relationships and commitment between parts. It is necessary remember the context within which the system developed. In France, it is impossible to forget the importance of local communities.

Strong and weak points in the French system

A strong point in the system is the relationship between the operator and local authorities. It is very pragmatic and based on the solution of problems. On the other hand, the weakness of the system is its lack of transparency. Nobody verifies the system completely. Regulation is political and works. The private operators are almost invisible...They are 'hidden' behind the local authorities... Another strong point of the system is the stability of the model.

Investment is decided upon and made by the community. Public accountability does not require a return on investment. The logic of investment is different from in England, where the logic is based on the rate of return of investments. Lately in France a mixture of 'affermage' and concession contracts have been growing where the private companies have to invest in the system. In France there is no big conflict about the price of the water... Water price is not a sensitive variable. The price is accepted by society.

About the different sorts of management in France

The situations in French cities vary. Each sort of management (régie, affermage, concession ...) is suitable for a specific situation. French historical conditions permit that variety. Everything depends on the structure. In France regulation is not sectorial. The two partners (private company and local authority) define the rules together that should work for the whole of urban services (water supply, sanitation, solid waste, public transport, etc.). This intersectorial character is completely different from the one in use in England.

The main regulator in France is the municipality. This means that the regulation is placed within the system, different from England. In France one does not think about the possibility of an independent regulator. There is a different logic.

Name: Dominique Lorrain

Position: Researcher at the CNRS (CEMS, Paris)

Duration of interview: 40 min

Strong and weak points in the French system

Strong points in the system are the quality of the water, the engineering and the efficient solutions. The low price is increasing now because of the EC Directives. The regulation is smart, flexible and simple, different from the British one. The base is the contract between the private company and the Mayors. In this sense, regulation is done between the users, the Mayor and the private companies. In England and the USA there is a fourth actor, as they assume that these people are not able to regulate the system.

Regulators as an independent body are formed by academic people who are not working with their own money and do not respond to people. They are not elected and it is a technocratic system. But are they efficient concerning industrial policies, strategies and costs?

About the role of regulators

The role of regulators should be the minimal. Strong regulatory bodies are made under the assumption that oligopolies and monopolies will abuse their position. It is not very clear. The car industry is an international oligopoly. Nevertheless, in the last 20 years the industry has made many innovations. Regulators should have a minimum role, only providing information, comparing prices. The users are the voters and self-regulation through politics can be highly efficient. Besides, the cost of regulation can be a disadvantage. There should be comparisons with the cost of regulation in France, in England and Argentina. There is also a risk of loss of independence of the regulators in the long term. Another risk is that they are moving in a field that is not their business, such as providing information for industrial strategies. They have no capacity, no knowledge to do this. They are playing a game that they are not prepared for. During the 80's in France the trend was to give more freedom to the private companies saying that they would be judged by the market. The argument then was that the bureaucracy was not competent to judge the companies.

Constraints in the system came from the market. The politicians need smooth and discreet service. And the private companies need to make money providing a good service. The dynamics of the market is increasing pressure on the French private companies. The market is international and if a company does a bad job in its own country its credibility is reduced.

About the different sort of management in France

The type of contract does not make a difference regarding the quality of the service. What really counts is who you are working with. In the French system now, which is highly organised, there are only three big operators. On the other hand, 80% of the population is serviced by the private sector. There are a few good 'régies' surrounded by big private companies.

The contract is the technical tool defining how to provide the arrangement to find the institutional financial and political equilibrium between the provider and the municipality.

The other point is to ask what would happen without a regulatory body. The point is that it does not mean that the company would charge high prices, as they must protect their reputation.

The difference in management between private and public systems

The private sector knows that they can lose their contract and therefore they are less bureaucratic. Another difference is that the public sector has no growth strategy, like the private sector.

The tariffs in the public sector are always cheaper. But they are not measuring the same thing. The public sector just calculates operating costs, not research costs or investment costs. That is why, in many cases, the transfers from public to private service occur when there is a need for upgrading the system. As the Mayor does not have funds because he did not charge enough, then they need to increase taxes or take a loan, and some prefer to transfer to a private company.

The big issues in the system

One is the renewal of the systems in order to have more clean and environmentally friendly services. But it is a general issue. The other one is more specific to France: it is that the companies must expand. Now we are close to the limits as the private companies are already in every sector. In the end, because they are too big, people can ask who has the power, the Mayor or the private companies. It is a serious issue for the future strategy of the private companies.

Appendix I-2

ACTIVITY AND RESPONSIBILITY MATRIX

ACTIVITIES	Environmental Regulation	Water Quality Regulation	Financial Regulation	Set of Tariff Preparation	Tariff Approval	Operation Investment	Capital Investment	Operation and Maintenance
AGENCIES								
Central Government								
Regional (State) Government								
Local Authority or Syndicate of Communes								
State Owned Company								
Private Company								
Financial Basin Agency								
Régie (Municipal Company)								
Regulators								

R = Responsibility

IV = Involvement

IT = Interest

Appendix I-3

Qualitative Analysis of Water and Sanitation Sector

INTRODUCTION

An analytical framework was developed to make possible a systematic analysis of the urban watsan sector of the three studied models. It was based on the WASH Technical Report 37 (Guidelines for Institutional Assessment Water and Waste Water Institutions). This approach was adapted to include some key indicators such as National Policy Environment, legislation, etc., found to be important through the literature review and through experience.

The strengths and weaknesses of each model were identified in this analysis. This relates to the key issues that must be addressed in developing a new water and sanitation policy for Bahia.

Where possible quantitative data was used to support the analysis and conclusions.

However, the lack of sufficient primary quantitative information, such as financial data, mainly for the European countries, only made a qualitative assessment possible. Nevertheless, quantitative data was used to support the analysis and conclusions where possible.

An institutional assessment was also made of the state owned company for Bahia. This company is currently responsible for the provision of water supply and sanitation services in urban areas of the state.

METHODOLOGY OF ANALYSIS

The major Performance Categories used for assessing the sector were the following:

- National Policy Environment (Political, Economical, Social and Technological Environment- PEST);
- Legislation and Organisational Autonomy;
- Long Range Demand and Technological Requirements;

- Organisational Culture;
 - Commercial orientation; and
 - Consumer orientation.
- **National Policy Environment (Political, Economical, Social and Technological Environment- PEST)**

This is included to give the broader environment within which the watsan sector is established. It is assessed through some economic and social indicators which point out the level of stability of PEST in the country.

- **Legislation and Organisational Autonomy**

This is seen as a broader category. It comprises indicators such as flexibility of choice of management; existence of competition within the sector; centralisation and decentralisation in management; regulation and legislation.

Legislation can be a constraint in developing the sector. Le Moigne (1991) and Burchi (1991) pointed out the importance of adequate legislation and regulation to provide a suitable environment for institutional development. Legislation on the use of water sources must be flexible enough to allow different arrangements suitable for different situations, yet firm enough to discourage misuse of the resources available.

Besides, the institutional framework of the sector, including the level of autonomy of organisations within the sector, is defined by the legislation.

It indicates the autonomy of the provider organisations within the sector, which shows, to some extent, the flexibility of the system. Autonomy is assessed through an organisation's freedom to set tariffs, to make its own decisions in matters such as budget, revenues, hiring employees, salary policy, ownership of assets, decisions on investment.

- **Long Range Demand and Technological Requirements**

This indicator represents the type and level of technology required by the sector, in order to fulfil the long range demand of the country.

As reported by Le Moigne (1991), water and sanitation programmes take a long time to design, finance and construct and have long term consequences. A new policy should address both short and long term perspectives.

- **Organisational Culture**

This is seen as the set of values that can be noticed throughout the system. Generally it is formed not by written rules, but shared beliefs and assumptions followed by those who deal with the service. In both positive and negative ways, it is a powerful means for supporting the system or for changing it.

Although difficult to measure within a whole sector, it becomes apparent when a particular issue appears.

- **Commercial orientation**

This index points to the principle on which the sector is based, regarding cost effectiveness, sustainability, financial equilibrium. Attention is given to the prevalence of cross subsidies, as a tool to assess the level of self sustainability.

- **Consumer orientation**

This index shows the sector relationship to the customer, encouraging or discouraging provider organisations from taking into account customers demands and community involvement. In assessing this index, attention was given to the existence of a special policy for low income households, both through tariff structure and facilities for payment.

Appendix IV-I

Water Supply - Service Evolution - Salvador
(1970 / 1990)

Year	Population Served (%)	Network Extension (Km)	Water Connections	Metering Rate (%)
1970	n.a	1,050	74,022	48
1971	n.a	n.a	n.a	n.a
1972	n.a.	1,060	91,570	46
1973	63.3	n.a	97,460	45.35
1974	n.a	1,223	101,710	45
1975	66.6	1,278	110,210	50
1976	57	1,419	128,953	47
1977	n.a	1,450	122,565	46
1978	76	1,600	122,222	50
1979	91.5	1,871	126,227	59.1
1980	86.1	1,916	133,600	55.4
1981	84.6	2,009	183,361	50
1982	86	2,397	195,794	54
1983	87	2,557	286,000	55.2
1984	88	2,664	235,045	58
1985	86.4	2,734	254,335	58.9
1986	100	2,840	273,362	76.2
1987	90	2,849	255,000	74.5
1988	83.96	2,908	284,958	67
1989	88	2,932	344,804	83
1990	93	3,607	n.a	n.a

Note: n.a. Data not available

Source: Carteado, 1993

APPENDIX IV-2

STRATEGIC INDICATORS - DEFINITIONS

Indice	Definition
Service Coverage (%)	$\frac{\text{population served}}{\text{urban population}}$
Percentage of metering	$\frac{\text{metered connections}}{\text{total connections}}$
Unaccounted for water (%)	$\frac{\text{total water produced} - \text{total water billed}}{\text{total produced}}$
Average tariff (water) (US\$/m ³)	$\frac{\text{water billed}}{\text{total volume billed}}$
Average tariff (water + sewerage) (US\$/m ³)	$\frac{\text{average billed (water + sewerage)}}{\text{total volume billed}}$
Bill collection efficiency	$\frac{\text{total revenue}}{\text{total billed}}$
Salary costs (%)	$\frac{\text{personnel costs}}{\text{exploration costs}}$
Days receivable ratio (days)	$\frac{\text{bills to collect (US\$)} * 360}{\text{total revenue(US\$)}}$
Rate of return on assets	$\frac{\text{net income before interest}}{\text{average total costs}}$
Short term liquidity (current ratio)	$\frac{\text{total current assets (US\$)}}{\text{total current liabilities (US\$)}}$
Debt service ratio	$\frac{\text{net income (US\$)}}{\text{total debt service (US\$)}}$
Long term debt ratio	$\frac{\text{total non current liabilities (US\$)}}{\text{non current liabilities and equity (US\$)}}$

REFERENCES

- Achtienribbe, G. et al., (1992), International Comparison of Drinking water prices, *Aqua*, v.41, n.6, p.360-363, quoted in Müller & Scheele (1993)
- Asian Bank of Development, (1994), *Water Utilities Data Book for the Asian and Pacific Region*. October
- Bahia, (1993), *Bahia, Land of Opportunity*, Secretaria de Indústria, Comércio e Turismo, (Department of Industry, Commerce and Tourism), July, Salvador, Brazil, 95p.
- Bahia, (1994), *Governo do Estado da Bahia, Seretaria de Recursos Hídricos Saneamento e Habitação* (Secretary of State for Water Resources Sanitation and Housing), Report period 1991-1994, Salvador, Brazil, 103p.
- Barthélémy, J. R. (1992). *Méthode de Financement et techniques comptables publiques et privés dans l'exploitation de dix grands réseaux d'eau urbains*, Research Report, Fondation des Villes, Société Nouvelle, Paris, France, 88p.
- Bastos, José Hamilton da Silva, (1994), (Municipal Secretary for Infrastructure, Salvador, Brazil), Personal Communication.
- BNH (1978a), *Banco Nacional de Habitação, Manual de Aspectos Básicos de Tarifa de Água e Esgotos*, Rio de Janeiro, Brazil, VI-6p
- BNH (1978b), *Banco Nacional de Habitação, Legislação sobre Tarifas dos Serviços Públicos de Saneamento Básico*, Rio de Janeiro, Brazil, 31p.
- Borges, Cesar Augusto Rabello (1994), (Secretary of State for Water Resources Sanitation and Housing, Bahia, Brazil)), Personal Communication.
- Bowman, John C. (1992), *Improving the quality of our water: the role of regulation by the National Rivers Authority*, *Public Administration*, vol.70, winter, London, UK, p.565-575.
- Brown, John C., (1989), *Public Reform for private gain? The case of investment in sanitary infrastructure: Germany, 1880-1887*, *Urban Studies*, n.26, p.2-12.
- Burchi, S., (1991), *The Need for Effective Legal and Regulatory Frameworks, A Strategy for Water Sector Capacity Building*, IHE Report Series n. 24 G.J. Alaerts, T.L. Blair, F.J.A. Hartvelt (Eds.), *Proceedings of the UNDP Symposium, Delft*, p.95-98.
- Byatt, Ian C. R., (1991), (Director General of OFWAT), *Privatisation - A UK system of regulation*, *Water Environment & Technology*, vol 3, part 10, October, London, UK, p.94-96.
- Byatt, Ian, (1993), (Director General of OFWAT), *Economic Regulation - the way ahead*, *Financial Times Conferences, The European Water Industry*, 15-16 March, London, UK, p. 4.1-4.6.

- Cabes XVI, (1991), Catálogo Brasileiro de Engenharia Sanitária e Ambiental. (Annual publication of statistical data on Environment and Sanitation in Brazil, Abes, Rio de Janeiro, Brazil.
- Cabes XVII, (1994), Catálogo Brasileiro de Engenharia Sanitária e Ambiental. (Annual publication of statistical data on Environment and Sanitation in Brazil, 1992/1993), Abes, Rio de Janeiro, Brazil. 551p.
- Cardoso, Fernando Henrique, (1982), Las Políticas sociales en la década de 80: Nuevas Opciones?, Simposio Internacional sobre las Políticas de Desarrollo en América Latina y el Caribe durante la Decada de los Ochenta, Santiago del Chile, Cepal-Ilpes/ Unicef, Santiago, Chile.
- Carney, M., (1991), The Management of water supply- Public or Private?, Water Supply The Review Journal of the International Water Supply Association, F. Fiessinger and J. Dirickx, (Eds.), 18th International Water Supply Congress and Exhibition, vol.9, number 3-4, Blackwell Scientific Publications, p. ss2.1-ss2.12.
- Carteado, Maria de Fátima Dimas and Franceys, Richard (1994), Institutional Development, Brazil, Affordable Water Supply and Sanitation, 20th. WEDC Conference, Colombo, Sri Lanka, p.44-47.
- Carteado, Maria de Fátima Dimas, (1993), Serviços de Água e Esgoto em Salvador: Trajetória Institucional (Water and Sanitation Services in Salvador: Institutional Trajectory). Unpublished MA. Dissertation. Universidade Federal da Bahia (Federal University of Bahia), Salvador, Brazil, 214p.
- Cheret, Ivan, (1985), Private sector role in provision of water supply and sanitation: alternative approaches, (Seminar given at The World Bank), January, Washington DC, USA
- Clarkson, James; et.al., (1991), Report of the workshop on Private Participation in Urban Water Supply, Bali, Indonesia, WASH, Field Report n.346, Washington DC, USA.
- Clutterback, David et al., (1991), Going Private: Privatisation around the World, Mercury Books, London, UK.
- Coing, Henri & Montaña Iraida, (1986), La Gestion de l'eau potable dans le tiers monde, Les Annales de la recherche urbaine, n.30, Paris, France, p.34-41.
- Coing, Henri, (1991), Privatisation des services urbains: Transition ou nouveau modèle?(Communication à la réunion du "Groupe Latinoaméricain de recherche urbaine), Mexico City, 4-5-6 October, 15p.
- Coing, Henri, (1993), Consideraciones sobre la regulación del Servicio de Agua, (Comentarios hechos durante el Seminario del Rio Group Administration Training Programme, en relación al trabajo de consultoría sobre la regulación del agua y del saneamiento, y sobre el Ente Regulador del servicio de agua ETOSS), November, Buenos Aires, Argentina, 9p.

- Coing, Henri, (1994a), Transnationalisation des services urbains en Amérique Latine, (Unpublished paper), Paris, France, 26p.
- Coing, Henri, (1994b), (Docteur d'Etat ès lettres et sciences humaines, est responsable du département aménagement de l'Ecole Nationale des Ponts et Chaussées, France), Personal Communication.
- Cordier, Michel, (1994), (Deputy Director of Legal Affairs, Compagnie Générale des Eaux), Private Financing of Public Infrastructure- The French Experience, DAEI, Paris, France, 220p.
- Cowan, L.Gray (1990), Privatization in the Developing World, Greenwood Press, London
- Coyaud, Daniel P.,(1988), Private and Public Alternatives for Providing Water Supply and Sewerage Services, The World Bank Policy Planning and Research Staff, Report n.31, (Discussion Note), October, Washington, DC, USA, 10p.
- Crickhowell, P. C., (1993), (Chairman of the NRA), Regulation: water pollution - UK water objectives, Financial Times Conferences - The European Water Industry, 15th-16th March, London, UK, p.2.1-2.5 .
- Cullivan D. et al., (1986), Guidelines for Institutional Assessment, Technical Report n. 37, WASH, USAID, Washington DC., USA.
- Dain, Sulamin and Lima Verde, Maria Cristina Teixeira, (1993), O financiamento das Políticas de saneamento no Brasil. Questões para o Futuro, Os Desafios do Saneamento Ambiental, 25th-26th November, São Paulo, Brazil,26p.
- Embasa (1994a) Strategic Indicators, Department of Business, Planning Report, June, Salvador, Brazil.
- Embasa, (1992), Financial Statements 1991, Salvador, Brazil
- Embasa, (1994b), Mid term Report for The World Bank, November, Salvador, Brazil, 74p.
- Embasa, (1994c), Financial Statements 1992 and 1993, Salvador, Brazil.
- Embasa, (1995), Department of Sewerage, Salvador, Brazil.
- Espinheira, Maria de Fátima Torreão, (1991), O Complexo Hidrelétrico de Pedra do Cavalo. Contribuições à Análise do Processo Decisório, Unpublished MA Dissertation. Universidade Federal da Bahia (Federal University of Bahia), Salvador, Brazil.
- Faudry, D., Ortiz, A., and Fandino, L., (1991), Los Servicios de l'Agua potable y de Saneamiento Hidrico en las Ciudades Latinoamericanas, Federacion Mundial de Ciudades Unidas (ed.), Empresas Prestarias de Servicios de Agua y Alcantarillado y Usuarios: ¿Pueden Tener y Desarrollar Proyectos Comunes? ¿Cuales? ¿Como?, Ciudadagua Andina, Actas de Coloquio, Quito, Equator, p.78-80.
- Financial Statistics, (1994), (D.Heron, Ed.), n.389, September, London, UK.

- Financial Times Newsletter, (1994a), Water Briefing, Water firms fall in FT "top 500" European Ratings, issue 6, 9th February, London, UK, p.2-3.
- Financial Times Newsletter, (1994b), Water Briefing, High Costs and reduced revenues set UK supplier against metering, issue 12, 4th May, London, UK, p.8.
- Financial Times Newsletter, (1994c) Water Briefing, French Court stops water prices increases, issue 13, 18th. May, London, UK, p.1
- First, Asher Kiperstok, (1991), O custo per capita das obras de Abastecimento de Água na Bahia, Secretaria de Desenvolvimento Urbano (Secretary of State for Urban Development), quoted by Carteado (1993), Salvador, Brazil.
- Fleming, George., (1993), Prospects for privatisation of the Scottish water Industry, Financial Times Conferences - The European Water Industry, 15th-16th March, London, UK, p.2.1-2.5.
- Franceys, Richard (1993b), Institutional Development, unpublished lecture notes WEDC, Loughborough University of Technology, UK
- Franceys, Richard and Barker, Peter, (1992), Urban management case study: Nagpur, India, Institutional Development Series n.4, Richard Franceys (Ed.), WEDC, Loughborough University of Technology, UK, 66p.
- Franceys, Richard, (1993a), Morales-Reyes, Javier I. (1993), Privatization of water supply, Institutional Development Series, n.2, Richard Franceys, WEDC, Loughborough University of Technology, UK, (Preface)
- Glynn, D. R.; Baker, W. R.; Jones, C. A.; and Liesner, J. L., (1992), Economic Issues in water privatisation and Regulation, Water, Science and Technology, vol.26, n.7-8, UK, p.1921-1928.
- Haarmeyer, David, (1994), Privatizing Infrastructure. Options for Municipal systems, Journal AWWA, March, USA, p.43-55.
- Heleno, Carlos Alberto de Carvalho, (1994), (Former Embasa's Director), Personal Communication.
- IBGE, (1990), Instituto Brasileiro de Geografia e Estatística, (Brazilian Institute of Geography and Statistics) Pesquisa Nacional por Amostragem de Domicílios - PNAD 1990, tabulações especiais, IBGE, Rio de Janeiro, Brazil.
- Ingram, Gregory and Kessides, Christine, (1994), Infrastructure for Development, Finance and Development, issue September, p.18-21
- Jacobi, Pedro, (1989), Movimentos Sociais e Políticas Públicas, Ed. Cortes, São Paulo, Brazil, 166p.
- Jacobson, Charles, (1989), Same Game, Different Players: Problems in Urban Public Utility Regulation, 1850-1987, Urban Studies, n.26, p.13-31.
- Jamati, Claude, (1994), Private sector involvement in water and management-(General Manager of Lyonnaise des Eaux Services Associés), (presentation at 20th WEDC conference), Colombo, Sri Lanka.

- Johnson, Sally, (1990), Guidelines for conducting a Financial Management Assessment of Water Authorities, WASH Technical Report n.53, October, Washington DC, USA
- Kalimwenjuma, D. (1992), (Director of The Songwe River Water Users Association, Mbeya, Tanzania), quoted by Morales Reyes, J. (op.cit)
- Kikery, S.(1990), Bank lending for Divestiture: A review of Experiences, World Bank, Working Paper n.338, Washington DC, USA
- Kinnersley, D., (1992), Private Capital Participation: choices and constraints, Water Science and Technology, n.7-8, London, UK, p.1915-1920.
- Kirwan, R. M., (1989), Finance for Urban Infrastructure, Urban Studies, n.26, p.285-300.
- Langdon, Janet, (1993), (Director of Water Services Association), The cost of drinking water and the customer, Financial Times Conferences - The European Water Industry, 15th-16th March, London, UK, p.5.1-5.6.
- Le Moigne, G., (1991), Institutional Analysis and Capacity Building for Integrated Water Resources Planning and Mangement, A Strategy for Water Sector Capacity Building, IHE Report Series n.24, G.J. Alaerts, T.L. Blair, F.J.A. Hartvelt (Eds.), Proceedings of the UNDP Symposium, Delft, Netherlands, p.91-94.
- Lessa, Marcio Costa, (1994), (Member of board of directors at Embasa), Personal Communication.
- Lobo, Tereza and Santos, Marcio Miller, (1993), Modelos de Organização, Gestão e Regulação do Sistema de Saneamento, Os Desafios do Saneamento Ambiental, 25th- 26th November, São Paulo, Brazil. 32p.
- Loosdregt, Henry B., (1990), (Secrétaire de la chambre syndicale du syndicat professionnel des distributeurs d'eau), L'Actualité Juridique - Droit Administratif, issue 20th. November, Paris, France, p.768-778.
- Loosdregt, Henry-B., (1994), (Secrétaire de la chambre syndicale du syndicat professionnel des distributeurs d'eau), La Delegation de Service Public Local- Le cas de l'eau et de l'assainissement, (unpublished paper), September, Paris, France.
- Lorrain, Dominique, (1991), Public Goods and Private Operators in France, Local Government in Europe - Trends and developments, Richard Batley and Gerry Stoker (Eds), MacMillann, London, UK, p.89-109.
- Lorrain, Dominique, (1992), The French Model of Urban Services, West European Politics, vol. 15, n.2, Frank Cass (Publisher), London, UK, p.77-92.
- Lorrain, Dominique, (1993a), Les Services Urbaines en France, 1982-1992. Privatisation silencieuse et gestion municipale flexible, Seminaire sur la privatisation des services urbains en Europe, June, Poitiers, France.
- Lorrain, Dominique, (1993b), Les Services Urbains, Le Marche et Le Politique, Paris, Economica-DAEI (coll. 40 years), April, Paris, France.

- Lorrain, Dominique, (1994a), Personal Communication.
- Lorrain, Dominique, (1994b), L'Oligopole Compétitif. (La régulation des réseaux techniques urbains), Annales des Mines, October/Novembre, (n. spécial sur les réseaux), Paris.
- Lyonnaise des Eaux-Dumez, (1994), Annual Report 1993.
- Mellor, Chris, (1993), (Group finance director- Anglian Water, plc), The case of water metering, Financial Times Conferences-The European Water Industry, (Keynote Address), 15th-16th March, London, UK, p.9.1-9.4
- Moraes, Luis Roberto, (1994), (Co-ordinator of the preparation of Municipal Policy of Sanitation), Personal Communication.
- Morales-Reyes, Javier I., (1993), Privatisation of water supply, Institutional Development Series n.2, Richard Franceys (Ed.), WEDC, Loughborough University of Technology, UK
- Moraru-de-Loë, Liana and Mitchell, Bruce, (1993), Public-Private Partnerships: Water and Waste Water Services in France, Water International, vol.18, n.3, USA, p.137-146.
- Müller, Jürgen & Scheele, Ulrich, (1993), Pricing Water-Comparison of costs in European Water Services, Financial Times Conferences-The European Water Industry, 15th-16th March, London, UK, p.10.1-10.10.
- NRA, (1993), National Rivers Authority - Information Severn Trent Region.
- OFWAT, (1991), Comparative Efficiency Studies, UK
- OFWAT, (1993a), Paying for Quality - The Political Perspective, UK, 23p.
- OFWAT, (1993b), Annual Report 1992, UK.
- Pina, Antonio Frade, (1991), The Management of Water Supply Public or Private?, Fressinger F. And Diricky J. (Eds.), The Review Journal of the International Water Supply Association, IWSA Blackwell, v.9, n.3;4, p.1-12, London.
- Ramanadham, V.V., (Ed.), (1989), Privatisation in Developing Countries, Routledge, London.
- Reeve, D. A., (1987), The Recent Development of Water Services - A personal view, Water Pollution Control, (Second Stanbridge Lecture), UK, p.201-205.
- Richardson, Jeremy; J. Maloney; William A.; and Rudig, Wolfgang, (1992), The dynamics of policy change: lobbying and water privatisation, Public Administration, summer, vol.70, London, UK, p.157-175.
- Rondinelli, Dennis A. and Kasarda, John D., (1991), Privatizing Public Services in Developing Countries: What Do We Know?, Business in the Contemporary World, Winter, USA, p.102-113.
- Roth, Gabriel, (1987), The Private Provision of Public Services in Developing Countries, EDI Series in Economic Development, Oxford University Press, New York, USA, 278p.

- Saneamento: Saúde e Cidadania, (1993), Caderno de Saneamento, n.2, December, (III Encontro Nacional de Trabalhadores em Saneamento e Meio Ambiente), Carpina, Pernambuco, Brazil, 26p.
- Saunders, P., (1984), Rethinking Local Politics, Boddy, M. and Fridge, C. (Ed.), Local Socialism? McMillan, London, UK.
- Saunier, B.M., (1991), (SAFEGE), The Private Sector and Capacity Building in The Management of Water Supply Enterprises, A Strategy for Water Sector Capacity Building, IHE Report Series, n. 24, UNDP, G. J. Alaerts; T.L.Blair; F.J.A. Hartvelt (Eds), Proceedings of the UNDP Symposium, Delft, Netherlands, p.129-138.
- Stocker, Gerry, (1993), The privatisation of urban services in Britain, (Conference paper), 3rd-5th June, Poitiers, France, 33p.
- Tebutt, Hugh, (1994), Director of Biwater International, (personal communication).
- The Sunday Times, (1994), (Business Focus), Pulling the plug, issue 15th May, London, UK, 3.3.
- The World Bank, (1994), Social Indicator of Development, A World Bank Book, John Hopkins University Press, Baltimore, USA.
- Tillekeratne, R.D.A., (1993), Management and information systems for the water industry in Sri Lanka, Institutional Development Series n.3. Richard Franceys (Ed.), WEDC, Loughborough University of Technology, UK, 153p.
- Triche, Thelma, (1992), Seminar on Privatization of water supply in the UK and the Role of the Private Sector in France, September 1991, (Summary of the two approaches and Discussion of issues), 11p.
- Vianna, Luis Pereira, (1994), (Former Embasa's Director), Personal Communication.
- Villas Boas, Paulo Jackson, (1994), (Member of the State Legislature in Bahia, Brazil), Personal Communication.
- Walker, Jane, (1993), Preparing for Private sector Participation in the provision of water supply and sanitation services, WASH Technical Report n.84, August, Wahington DC, USA, 40p.
- Water Act 1989, (1991), Chapter 15, 3rd. Impression, reprinted 1991, London, UK, 419p.
- Water and Environment Management, (1994), ' No' votes reinforce Scottish objections to sell off, issue April, London, UK.
- Water News, (1993), Paying for Quality: Too high a political price?, n.42, London, UK, p.1-3.
- Water Services, (1993a), Water Customers: still fourth in line to throne in Water Services. (Interview with Andrew Johns, Director of National Utilities Services), November, London, UK, p.12-14.
- Water Services, (1993b), November, (notes), London, UK, p.2-4.

- WDR, (1992), World Development Report 1992, The World Bank, Washington DC, USA.
- WDR, (1994a), World Development Report 1994, The World Bank, Washington DC, USA.
- WHO, (1990), Water Supply and Sanitation Handbook of Financial Principles and Methods, , World Health Organisation, Geneva, Switzerland, 100p.
- Yepes, Guillermo, (1990), Management and Operational Practices of Municipal and Regional Water and Sewerage Companies in Latin America and the Caribbean, The World Bank, report INU61 (discussion paper), January, Washington DC, USA, 26p.

BIBLIOGRAPHY

- Alaerts, G.J., Blair, T.L., Hartvelt, F.J.A. (Eds.), (1991), A Strategy for Water Sector Capacity Building, Report Series n.24, IHE and UNDP, Delft, Netherlands.
- Booker, Alan, (1994), British Privatization: Balancing Needs, Journal AWWA, March, p.56-63.
- Caderno de Saneamento (1992), Segundo Encontro Nacional de Trabalhadores em Saneamento e Meio Ambiente, September.
- Cook, Paul and Kilkpatrick, Colin, (Eds.), (1988), Privatization in Less Developed Countries, Wheatsheaf Ltd, Sussex, UK.
- Distribution Publique D'Eau Potable, (1985), Cahier des charges type pour l'exploitation par affermage (Décret et circulaire du 17 mars 1980).
- Edgcomb, Elaine and Cawley, James (Eds.), (1993), An Institutional Guide for Enterprise Development Organizations, (The SEEP Network), PACT Publications, New York, USA.
- Garvey, Tom, (1993), Regulation: water and pollution - water policy in the European Community, Financial Times Conferences - The European Water Industry, 15th-16th March, London, UK, p. 1.1- 1.6
- Hughes, D. (1990), The Development of Water Industry Managers, Water Supply Review, v.8, n.1/2, Blackwell Scientific Publications, UK.
- Jackson, Helen, (1994), (Member of Parliament), UK water must revert to public control, Financial Times Newsletter, Water Briefing, issue 16-29 June, London, UK, p.1.
- Jeffrey, David, (1992), Floating in sea of troubles, Management Today, March, London, UK, p.5.
- Katko, Tapio S. (1992), paying for Water in Developing Countries, Tampere University of Technology, Publication n.74, Tampere, Finland.
- Lorrain, Dominique, (1986), L'Industrie de Reseaux Urbains en France, Revue D'Economie Regionale et Urbaine, vol.1, Paris, France, p.95-110.
- Maclean, David, (1993), (Minister of State for the Environment and Countryside), Financial Times Conferences-The European Water Industry, (Keynote Address), 15th-16th March, London, UK, p.8.1-8.4.
- Martinand, Claude (Ed), (1994), Private Financing of Public Infrastructure- The French Experience, METT, DAEI, Paris, France.
- Miles, Derek, (1994), Developing Private Sector Capacity, Affordable Water Supply and Sanitation, 20th WEDC Conference, Colombo, Sri Lanka, p.166-169.

- Millward, R., (1988), Measured Sources of Inefficiency in the Performance of Private and Public Enterprises in Less Developed Countries, Cook P. and Kierpatrick (Eds.), Privatisation in Less Developed Countries, Wheatsheaf Ltd., Sussex, UK.
- Moss, J. M. and Terne, J. P., Lyonnaise des Eaux, (1994), Private Sector Involvement in Water Services, Affordable Water Supply and Sanitation, 20th WEDC Conference, Colombo, Sri Lanka, p.170-171.
- Nascimento, José Eduardo, (1993), Novas Formas de Gestão do Setor Saneamento Básico, Participação Ampliada das Empresas Privadas, Os Desafios do Saneamento Ambiental, 25th-26th November, São Paulo, Brazil. 23p.
- NRA, (1993), National Rivers Authority - Information Severn Trent Region.
- Oakland, John S. (1993), Total Quality Management: the route to improving performance, Oxford, Butterworth-Heinemann, UK
- O'Rourke E. (1992), The International Drinking Water supply and Sanitation Decade: Dogmatic Means to a Debatable End, Water Science and Technology, v.26, n.7-8, p.1929-1939.
- Pillay, M. S. (1994), (Ministry of Health, Malaysia), Privatisation of Sewerage Services in Malaysia, Affordable Water Supply and Sanitation, 20th WEDC Conference, Colombo, Sri Lanka, p.217-218.
- Rees, David, (1992), Strategic Alliances with the Private sector, Biwater Operations Ltd., UK.
- Service D'Assainissement, (1985) Cahier des charges type pour l'exploitation par affermage.
- Tanaka, Josue, (1993), Financing Water Industry Investment, Financial Times Conferences-The European Water Industry, 15th-16th March, London, UK, p. 12.1-12.3
- Thackray, J. E., (1992), Paying for water. Policy options and their practical implications, Institution of Water and Environmental Management, vol.6, London, UK, p.505-513.
- The Economist, (1993), "Onwards and Downwards in Brazil" 13th November, 19-21.
- The Economist, (1994), "Regulating Utilities- It ain't broke", 10th September, p.27-29.
- Water News, (1992), Too Big, too quick and too complex, but a notable achievement: The National Audit Office assesses the privatisation process, Local Water, Water News, n.25, March, London, UK, p.7-9.
- WHO, (1990), Water Supply and Sanitation- Hand Book of Financial Principles and Methods, Geneva, Switzerland, 100p.
- Wright, Mike and Buck, Trevor, (1992), Privatisation under Mrs. Thatcher: An extension to the debate, Public Administration, summer, vol.70, London, UK, p. 287-291.

