



REGIONAL ANALYSIS OF DECENTRALIZATION
OF WATER AND SANITATION SERVICES
IN CENTRAL AMERICA
AND THE DOMINICAN REPUBLIC

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ACRONYMS

AARs	Asociaciones de Acueductos Rurales (ES)
ADIS	Asociación Dominicana de Ingeniería Sanitaria (DR)
AGUA	Acceso Gestión y Uso Adecuado (USAID funded project in ES)
AMHON	Asociación de Municipalidades de Honduras (HON)
AMSS	Area Metropolitana de San Salvador (ES)
AMUNIC	Asociación de Municipios de Nicaragua (NIC)
ANAM	Asociación Nacional de Municipalidades de Guatemala (GUA)
ANDA	Administración Nacional de Aguas (ES)
APS	Agua Potable y Saneamiento
ARENA	Alianza Republicana Nacionalista (ES)
ARESA	Agencia Reguladora de Agua y Saneamiento (ES)
BID	Banco Interamericano de Desarrollo
BOO	Build, Operate and Own
BOT	Build, Operate and Transfer
CA	Centro América
CAPRE	Comité Coordinador de Instituciones de Agua Potable y Saneamiento en Centro América, Panamá y la República Dominicana .
CARE	Cooperativa Americana para Remesas al Exterior
CASSD	Corporación del Acueducto y Alcantarillado de Santo Domingo (DR)
CEE	Comunidad Económica Europea
CNSSP	Comisión Nacional Supervisora de Servicios Públicos (HON)
COMURES	Corporación de Municipios de El Salvador (ES)
CONAMA	Comisión Nacional para el Medio Ambiente (GUA)
CONRA	Consejo del Recurso Agua (ES)
CORAAMOCA	Corporación del Acueducto y Alcantarillado de Moca (DR)
CORAASAN	Corporación del Acueducto y Alcantarillado de Santiago (DR)
CORSAS	Comisión de Regulación de Servicios de Agua y Saneamiento (DR)
COSERHI	Comisión Coordinadora para la Reforma Sectorial de los Recursos Hídricos (DR)
COSUDE	Cooperación Suiza para el Desarrollo
CPME	Comisión Presidencial de Modernización del Estado (HON)
CPMSP	Comisión Presidencial para la Modernización del Sector Público (ES)
CREA	Creative Research Associates Inc.
CTI	Comité Técnico Interinstitucional (DR)
DAR	Dirección de Acueductos Rurales (NIC)
DIGENOR	Dirección General de Normas (DR)
DIMA	División Municipal de Aguas (HON)
DIMOSEP	División Municipal de Obras y Servicios Públicos (HON)
ECOR	Empresa Comunitaria Rural (DR)
EIA	Evaluación de Impacto Ambiental
EMPAGUA	Empresa Municipal de Agua (Ciudad Guatemala, GUA)
ENACAL	Empresa Nicaragüense de Acueductos y Alcantarillados (NIC)
ESA	Economía Sociedad Ambiente Consultores (HON)
FIAS	Fondo de Inversiones en Agua y Saneamiento (DR)
FIS	Fondo de Inversión Social (GUA)
FISDL	Fondo de Inversión Social para el Desarrollo Local (ES)
FMLN	Frente Farabundo Martí para la Liberación Nacional (ES)
FUNDEMUN	Fundación para el Desarrollo Municipal (HON)
GSR	Gerencia de Sistemas Rurales (ES)
HDI	Human Development Index
IADB	Interamerican Development Bank
INA	Instituto Nacional Agrario (HON)
INAA	Instituto Nicaragüense de Acueductos y Alcantarillados (NIC)
INAPA	Instituto Nacional de Acueductos y Alcantarillados (DR)

INDRHI	Instituto de Dominicano de Recursos Hídricos (DR)
INETER	Instituto Nicaragüense de Estudios Territoriales (NIC)
INFOM	Instituto de Fomento Municipal (GUA)
INPRA	Instituto de Protección Ambiental (DR)
JICA	Japan International Cooperation Agency
KFW	Kredet fur Wiederaufbau (Construction Finance agency of the German government)
MAG	Ministerio de Agricultura (GUA)
MARENA	Ministerio de Recursos Naturales y Ambiente (NIC)
MARISCAL	Mariscal (private water service provider, Guatemala City, GUA)
MARN	Ministerio de Ambiente y Recursos Naturales (ES)
MSP	Ministerio de Salud Pública (HON)
NGO	Non-governmental Organization
ONAPPAS	Oficina Nacional de Planificación y Políticas de Agua y Saneamiento (DR)
ONG	Organización No Gubernamental
OPD	Organismo Privado de Desarrollo
PAHO	Panamerican Health Organization
PLANSABAR	Plan de Saneamiento Básico Rural (Ministerio de Salud y Bienestar Social, ES)
PVO's	Private Voluntary Organization
PRASSAR	Programa de Sector Salud/ Acueductos Rurales (HON)
PROCOMUNIDAD	Programa Comunidad (DR)
PWSS	Potable Water and Sanitation Sector
RRNN	Recursos Naturales
RRASCA	Red Regional de Agua y Saneamiento en Centro América
SANAA	Servicio Autónomo Nacional de Acueductos y Alcantarillados (HON)
SANAA-Metro	SANAAs operation in Tegucigalpa (HON)
SANAA-UNICEF	SANAA-UNICEF Marginal Barrio Program (HON)
SERNA	Secretaría de Recursos Naturales y Ambiente (HON)
SIF	Social Investment Fund
SINFASH	Sistema de Información en Agua y Saneamiento (HON)
SNV	Hollands International Cooperation Agency
SRH	Secretaría de Recursos Hidráulicos (GUA)
TAS	Técnicos en Agua y Saneamiento (HON)
TOM	Técnico en Operación y Mantenimiento (HON)
UCM	Unidad Coordinadora de Modernización (ES)
UNDP	United Nations Development Program
UNEPAR	Unidad Ejecutora del Programa de Acueductos Rurales (GUA)
UNICEF	United Nations Children Emergency Fund
URE	Unidad de Reestructuración Empresarial (ES)
USAID	US Agency for International Development
WAC	Water and Sanitation Committees (HON)

EXECUTIVE SUMMARY

1 Introduction

This study reviews the modernization and decentralization of water supply and sanitation (WS&S) services in Nicaragua, Honduras, El Salvador, Guatemala and the Dominican Republic. It aims to systematize information and to draw conclusions about which strategies are most successful and effective and to what extent decentralization needs to be complemented by the development of effective agencies for sector planning and finance and for economic and environmental regulation.

2 Modernization and decentralization: a review of the issues

2.1 The status quo

Little headway has been made in reform of WS&S, and the structure of the sector is still largely as it was in the 1960s. State corporations with a national mandate for urban provision dominate the formal urban WS&S. These are complemented in smaller cities by municipalities. Only in Guatemala do municipalities cover the whole urban sector. The commercial private sector does not play an important role within the formal sector anywhere. In the informal sector (rural and urban-marginal), small, non-profit private operators have evolved to fill the vacuum left by the state. There is a confusion of functions between service operation, sector planning and regulation.

2.1.1 Service provision

The balance between national state corporations and municipal providers varies considerably. In Guatemala, virtually all the urban systems are municipal. In Honduras, municipal providers account for 62% of urban water connections, including the second city, San Pedro Sula. In El Salvador, where the state company ANDA is relatively strong, municipalities provide only 20% of urban water connections. In Nicaragua, only 29 urban systems are municipally run, accounting for roughly 10% of all urban connections. In the DR there are no municipal operators.

2.1.2 The relationship between decentralization and resource mobilization

In the *formal sector*, the national state corporations have greater access to subsidy, compared with municipal systems. Normally, their capital resources and part of their revenue income are secured from the central government. But the municipal systems' more limited access to subsidies does not apparently lead to a greater effort to collect tariff revenues. They tend to be even more prey to under-charging than the national operators, perhaps because the water tariff is relatively important within the municipality and therefore attracts a lot of political pressure. The best performance on cost recovery is found in recently reformed systems, regardless of their level of decentralization. The act of reorganization seems to engender a phase of institutional virility. In the *informal (rural and urban-marginal) sector*, models for community organization and technical assistance have been developed. In some cases this has resulted in higher tariff payments than in municipal or national state corporations. These communities have higher willingness to pay, partly because the alternative cost of non-piped water is very high and secondly, because they know that they cannot get improved services without paying more. In contrast, formal sector users may hope to get improvements via rent seeking activities.

2.1.3 Sector planning and development

State water companies usually have responsibility for planning *urban water and sanitation*. As a result, a disproportionate share of public funds is channeled to the national corporations, especially to the capital city. Social Investment Funds (SIFs) work on system development in urban and rural areas. Often this is not well coordinated with the system's eventual owner. Where municipal provision exists, the *Consejo Municipal* decides on investment plans, tariffs and subsidies. Whatever the specific arrangements for sector planning, it is rarely the case that a

formal statement of sector goals and resource requirements is agreed or published, either at national or at local level. The planning and development of *rural water* is often separated from urban water, under the aegis of a division of the health ministry. For many years rural programs received a small share of the resource pie. More recently, governments have established special programs for rural water. In Honduras and Nicaragua, the state water companies have special divisions to give technical assistance for the design and construction of rural water systems.

2.1.4 Regulation

Economic regulation is a technical function needed to determine the minimum cost of reaching the desired service scope and quality. The regulator also supervises the service providers to make sure that they meet agreed goals for service scope and quality and calculates the tariff changes needed to offset inflation. In the pre-reform model, economic regulation was limited to tariff laws governing the national corporations. Tariffs were increased at intervals of several years, leading to erosion of real system income in inflationary periods. Municipal operators are self-regulated. Traditionally, it was assumed that state owned operators (either national or municipal) will be guided by the maximization of the social benefit and would somehow "know" what was an efficient level of costs. But in practice, they have been subject to "capture" by interest groups, and have had poor information about necessary costs. *Environmental regulation* includes the protection of raw water resources, regulation of their use, and regulation of the impact of sewerage discharges on receiving bodies. However, the recognition of environmental externalities and conflicts over alternative uses of water resources are contemporary themes, which are still reflected only partially in the legal framework for the operation of PW&S services.

2.2 The advance of reforms in Water Supply and Sanitation

2.2.1 An overview of the reform process

Although decentralization is a goal of the state modernization process in most countries, this has not necessarily resulted in proposals for the municipalization of WS&S. In Honduras and El Salvador this has led to conflicts between municipalities and the central government. Honduras, Nicaragua, El Salvador and the DR have proposed framework legislation for WS&S covering sector planning, regulation, and the reorganization of service provision. In Nicaragua, this has crystallized in laws to create new institutions, and a sweeping reorganization is underway. Most countries have also seen efforts at "*reform from below*", geared to resolving specific problems (such as marginal *barrio* provision or rural provision) in the context of existing sector legislation. Debates over the relative merits of decentralization have surfaced in relation to the reorganization of service delivery, the reorganization of sector government (including planning, and financing); and the strengthening of the economic and environmental regulation of the service providers.

2.2.2 Strategies for the re-organization of formal service provision

Devolution, in the sense of a transfer of responsibility between government levels, means in practice municipalization. To date, only in Honduras has municipalization been a central theme in the reform debate. However, in El Salvador, there is a growing debate over municipalization. The proposal for mandatory municipalization in Honduras failed and now permissive municipalization is mooted. *Deconcentration* of state corporations has been implemented in Honduras, Nicaragua and the DR, via regionalization strategies. *Corporatization* (where the operating company is turned into a commercial company, even though the state owns most or all of the shares) has been taken up in the DR, in Nicaragua and in the Honduran municipality of Puerto Cortés. Initiatives for *privatization* to date include failed proposals to let private management contracts for the metropolitan aqueducts of Tegucigalpa and Managua. The concession of San Salvador is being considered. The DR proposes to let a concession in tourist areas. San Pedro Sula proposes a concession to a mixed company with 49% private participation.

2.2.3 The impact of reform on the rural and urban-marginal sectors

In many cases, the most effective arrangements for the development of rural and urban-marginal systems are in the hands of the national state water corporations, which often are slated for abolition or major restructuring. Such programs might therefore be a casualty of reform. Similarly,

initiatives to improve marginal barrio coverage might be jeopardized by concessions of metropolitan systems to private operators. This could be avoided by provisions in concession contracts regarding the scope and quality of service coverage in marginal areas.

2.2.4 Sector planning and development

Many of the arrangements that have been proposed for strengthening sector government involve increased decentralization. The *creation of a national planning office for WS&S* has been proposed in Honduras, the DR, Nicaragua and El Salvador. The *creation of a municipal planning function* has been promoted in Honduras. All the countries have seen moves towards the *decentralization of public investment resources*, via SIFs and mandatory transfers from the state budget to the municipalities. Improvement in *the planning and development of rural water* has been achieved by establishing national coordinating agencies and standardizing methodologies.

2.2.5 Sector regulation

Nicaragua has advanced most on *economic regulation*. In other countries nothing has yet been defined. In the field of *Environmental regulation*, water rights laws remain badly outdated, except in the DR. Most countries have recently created or are on the point of creating General Environmental Laws. Regardless of the degree of decentralization of WS&S, local governments are given a growing role as environmental control is modernized. There has been a growing awareness that this effort needs to be coupled to education and promotion efforts. There is little evidence that the degree of centralization of WS&S service provision has much bearing on this.

2.3 Conclusions and recommendations

2.3.1 General principles for effective reform

Most of the reform initiatives to date have concentrated on the reorganization of service provision, especially that of the excessively centralized state water companies. This is understandable, given the failings of the existing providers. However, many of those failings are not intrinsic to the type of provider, but arise due to the absence of planning and regulatory functions. The study recommends the following principles. *Firstly*, whichever political level of the state is in charge of ensuring service provision, national or municipal, it needs to make a clear plan for scope and quality, which should be agreed politically with the community. That needs to include a commitment to assign the resources necessary to meet the goals. *Secondly*, national and municipal planners need the support of a technical office to supply information about necessary costs and help with the technical supervision of the service provider. *Thirdly*, in systems of any size or complexity, the use of indirect provision (through corporatization or private sector participation) improves the probability that the service providers will meet the planning goals.

2.3.2 The role of decentralization in reform

In this context, what can we say about the role of decentralization in the future of the sector? Although the evidence is still patchy, some conclusions are beginning to crystallize: (a) *Decentralization and the cost effectiveness of service provision*: A key factor limiting municipalization is the small scale of the cities. One way round this is the establishment of inter-municipal organizations. (b) *Decentralization, sector planning and governance*: There has been a growing awareness that the key function of government (either national or local) is strategic planning, not direct service provision. Municipal governments are realizing that taking over a public service does not necessarily mean operating it themselves. There has also been growing awareness of the importance of popular consultation and transparency. In systems which are already municipally owned and run, the challenge is to help the local government understand the distinction between the planning and operating functions, and where possible to pass system operation to a contractor. Systems still owned by the national government could proceed directly to a package of local government control and indirect service provision. (c) *Decentralization and cost recovery*: This study found no evidence that decentralization, as such, improves cost recovery. In the absence of appropriate separation of the service operation from political control, both nationally and municipally run systems are prey to under-charging. In contrast, where

services are independent of political control, users are more willing to pay, even in low-income communities. (d) *Decentralization and economic regulation*: With the move to decentralize the services, there has been reluctance at municipal level to accept the tutelage of a national regulatory office. However, a single – municipality regulatory office would be relatively expensive and relatively ineffectual. This might be overcome by establishing a national regulatory office controlled collectively by the municipalities. (e) *Decentralization and environmental regulation*: The modernization of WS&S should normally involve the separation of environmental regulation function from WS&S service provision. Environmental control is a spatial matter, which should therefore be largely delegated to local governments, regardless of the level of decentralization of WS&S.

1 Introduction

1.1 Overview

This study presents an overview of the decentralization process in water and sanitation services in Central America (Nicaragua, Honduras, El Salvador and Guatemala) and the Dominican Republic. The countries studied are among the poorest in the Americas, and have reported poor performance for the water and sanitation sector in terms of service coverage and quality, in spite of receiving considerable sums of public investment in recent decades. This, in turn, has hindered improvements in health and environmental quality. As a result, recent years have seen a variety of reform initiatives to improve sector performance. Many of these initiatives have promoted decentralization as a central tenet of reform.

The purpose of the present study is to systematize information about the decentralization processes and other reform initiatives in the countries in question and to evaluate the results to date from a development perspective. The study aims to draw conclusions about which strategies are most successful and effective - and therefore should be considered candidates for generalization - and what initiatives are not so promising, and why that should be so.

The paper also aims to draw general conclusions about the extent to which decentralization, as such, is a sufficient policy to deal with the sector's problems, and to what extent it needs to be complemented by other aspects of modernization. These might include the development of effective agencies for sector planning and finance and for economic and environmental regulation.

1.2 Socio-economic context

Table 1 presents general socioeconomic data on each country studied. The populations range from 4.1 million in Nicaragua to 10.6 million in Guatemala. In Nicaragua and the Dominican Republic, 62% of the population is urban; in the other three countries a majority of the population is rural (61% in Guatemala, 56% in Honduras and 55% in El Salvador).

The population growth rate is highest in Honduras (3.2%) and lowest in El Salvador (1.8%). Nicaragua is the poorest of the countries, measured either by the UNDP's Human Development

Table 1
Socioeconomic indicators for the countries studied

	Unit	El Salvador	Guatemala	Honduras	Nicaragua	Dom. Rep.	Source
Population 1998	Millions	5.7	10.6	5.7	4.1	7.8	1
<i>Urban</i>	%	51	39	44	54	62	1,4
<i>Rural</i>	%	49	61	56	46	38	1,4
Growth rate of population	%	1.8	2.9	3.2	2.8	2.3	1
Income per capita	US\$	1,610	1,340	600	380	1,460	2
Human Development Index		0.60	0.62	0.57	0.55	0.72	1
Gini coefficient		NA	59.6	52.7	50.3	50.5	2
Infant mortality (between birth and 1)	per '000 live births	34	43	29	44	45	1
Infant mortality (ages 1 to 4) due to intestinal infection or diarrhea	% of all deaths	28	24	21	31	16	3
Relative importance of diarrhea as cause of death among infants (1-4)	Ranking	1	2	2	NA	1	3

Fuentes: 1/ Human Development Report, UNDP, 1998. 2/ World Development Report, World Bank, 1998. 3/ PAHO, La Salud en las Américas, 1998.4/The distribution of urban/rural population was estimated, for ES by EHP consultancies in 1998, and for Nicaragua by ENACAL's Planning Dept.

Index (HDI), where it scores 0.55, or by per-capita income (\$380). The Dominican Republic is the highest placed on the HDI (0.72); but El Salvador has the highest per capita income (\$1,610). All the countries for which there are data available show relatively polarized income distribution patterns, with Gini coefficients above 50.

However, performance on health is not well correlated with the data for income or human development in general. It is particularly striking that Honduras, the second poorest country on either of these measures, has the lowest infant mortality. This suggests the hypothesis that

Table 2
Trends in water and sanitation coverage

	1985	1995	Change	Notes
Potable water				
	<i>% de pobl'n</i>			
El Salvador	n.d.	80	n.d.	
<i>Urban</i>	60	88	28	
<i>Rural</i>	n.d.	75	n.d.	
Guatemala	45	54	9	1
<i>Urban</i>	74	90	16	
<i>Rural</i>	26	32	6	
Honduras	62	77	15	
<i>Urban</i>	86	91	5	
<i>Rural</i>	45	66	21	
Nicaragua	46	55	9	2
<i>Urban</i>	74	81	7	
<i>Rural</i>	18	28	10	
Dom Rep	57	76	19	3
<i>Urban</i>	80	92	12	
<i>Rural</i>	33	58	25	
Sanitation coverage				
El Salvador	59	65	6	
<i>Urban</i>	36	42	6	
<i>Rural</i>	23	24	1	
Guatemala	33	49	16	1
<i>Urban</i>	42	70	28	
<i>Rural</i>	28	35	7	
Honduras	59	82	23	
<i>Urban</i>	88	95	7	
<i>Rural</i>	38	71	33	
Nicaragua	16	18	2	4
<i>Urban</i>	31	34	3	2
<i>Rural</i>	n.d.	n.d.	n.d.	
Dom Rep	n.d.	n.d.	n.d.	
<i>Urban</i>	n.d.	n.d.	n.d.	
<i>Rural</i>	n.d.	n.d.	n.d.	

Notes:

1. Data for 1984 and 1994. 2. Data for 1990 and 1995. According to the Investment Priorities Study of 1996, if sewerage, pit latrines and septic tanks were added up, urban coverage would reach 93% 3. Data for 1981 and 1993. 4. Sanitation data for Nicaragua include only sewerage. not letrines.

Source: BID/PAHO 1996, except for rural cover in El Salvador, which is our estimate.

national efforts in primary health - including the provision of safe water and sanitation - might be making a big difference to health conditions, in spite of the persistence of relative poverty in other respects.

1.3 Recent trends in water and sanitation coverage

Data on the coverage of water and sanitation services in the countries studied are not very reliable, and their comparative study is made doubly difficult by the use of different definitions of "coverage" in the various national statistical sources. The best available data, with which one can appreciate improvements in coverage, is the compilation of country reports presented by sector leaders, asked to report on data from 1985 and 1995 (PAHO et al, 1996). The findings are summarized in Table 2.¹

According to these data, potable water coverage varies considerably from country to country. In Guatemala and Nicaragua coverage is around 55% of the total population; while in El Salvador, Honduras and the Dominican Republic, it is above 75%.

This difference is mainly due to differences in rural coverage, which is reported as just 28% in Nicaragua and 32% in Guatemala, compared with 75% in El Salvador, 66% in Honduras and 58% in the Dominican Republic. However, an important part of these differences may arise from the definitions used to define coverage. Urban coverage shows much less variance, lying in the range 80% to 92% in all the countries studied.

The improvement in coverage registered over last decade has also varied considerably from country to country. While total coverage rose by 19% in the Dominican Republic and by 15% in Honduras,

¹ For El Salvador, EHP- commissioned studies in 1998 cite the following figures for service coverage: for potable water, the national figure is 55%, with 86% in urban areas and 16% in rural areas. For sanitation, the national figure is 69%, with 84% in urban areas and 52% rural areas.

the increase in Guatemala and in Nicaragua was only 9%.²

Sanitation coverage (including latrines) also shows important divergence within the region, ranging from a low of 49% in Guatemala to a high of 82% in Honduras.

These differences arise in both urban and rural areas and have widened over the last decade, when there was a greater effort to increase coverage in Honduras than in Guatemala, especially in rural areas.³

These data are consistent with the hypothesis that improved water and sanitation coverage might explain part of the relatively good performance on infant mortality in Honduras, which was commented on in the previous section.

1.4 Outline of the paper

Section II is divided into two parts. The first of these develops an analytical framework for the discussion of the issues in sector modernization in the region. It describes the existing arrangements for the *organization of service delivery* and the results obtained in terms of the performance of the system operators in terms of the sustainability of their services. It then looks in turn at the existing arrangements for *sector government*, and *regulation* (both economic and environmental, in each case).

The second part of Section II discusses the recent initiatives for sector reform, highlighting the theme of decentralization. It comments on the options which have been proposed and implemented in the different countries covered by the study and draws general conclusions as to the achievements to date of the decentralization and modernization processes and the elements of consensus and divergence regarding the future shape of the sector.

Section III presents detailed case studies of each of the countries, showing how each experience fits into the analytical framework developed in section II. The major issues and actors in each country are highlighted and each study concludes by summarizing which points relevant to the reform process are already resolved and what remains to be decided and done.

² No data are available for El Salvador in 1985, so it is not possible to calculate the change there.

³ The data in table 2 for sanitation coverage include sewerage connections, septic tanks and pit latrines. However for Nicaragua the data reported are for sewerage connections only, and are therefore not comparable with the other countries. No sanitation coverage data are available for the Dominican Republic.

2 Sector modernization and decentralization: a review of the issues

This section develops an analytical framework for the study of the reform process in the sector. It is divided into two parts. The first describes the existing arrangements for service provision, for sector governance and for regulation (both economic and environmental). The second part goes on to outline recent reform proposals and initiatives in each of these areas, highlighting the initiatives for decentralization. This framework is then used to analyze each country's experience in the detailed case studies presented in Section III.

2.1 The status quo

Although reform of the Water Supply and Sanitation Sector (WS&S) has been on the agenda for some time in most countries in the region, little headway has been made thus far, and the structure of the sector is still largely as it was established in the 1960s. State corporations with a national mandate for urban provision dominate the formal urban WS&S. These are complemented in smaller cities by municipalities and in rural and urban marginal areas by private development organizations (PDOs) or private voluntary organizations (PVOs). Only in Guatemala do municipalities cover the whole urban sector. The commercial private sector does not play an important within the formal sector anywhere. In the informal sector, private operators have evolved to fill the vacuum left by the state, but these are in almost all cases small, non-profit bodies⁴.

The old regime was (and in most countries still is) characterized by a confusion of functions between the operation of services, sector planning and regulation. Usually, the same public corporation has effective responsibility for operating WS&S services directly and for sector planning. This has enabled it to hog central government resources to fund its own investments, leading to inequity in resource allocation. Meanwhile, there has normally been no effective provision for regulation (either economic or environmental).

2.1.1 Service provision

Types of provider

In all but one of the countries studied, there is one or more state corporation with a formal responsibility for provision of water and sanitation services in urban areas. These were established in the early 1960s. Nevertheless, municipal⁵ entities are to some degree involved in providing urban services in all the countries studied, except the Dominican Republic. In Guatemala, virtually all urban provision is municipal. Everywhere, the rural sector is attended by a diversity of private initiatives, which are normally community based and not-for-profit. The available data on the relative importance of each type of provider are summarized in Table 3.

⁴ Guatemala City is to some extent an exception here. The private company Mariscal has 10,500 connections in the metropolitan area (accounting for 7.5% of all domestic connections in the city) and in many parts of the city, housing developers have constructed systems as part of the development, and continue to operate these systems. Urban cooperatives are also important providers in marginal areas of Guatemala City. These are often formally non-profit, but functionally mercantile. The relative importance of private provision in Guatemala is partly a function of the city's dependence on subterranean sources, exploited through wells. This makes small-scale aqueducts economically feasible. It is much more difficult to make small systems which use surface water economically feasible, due to the scale economics of dams. The only other city in the region which depends largely on underground water is Managua. But in this case, the public supply is relatively good, so there is no space for private providers to occupy.

⁵ In Central America, municipalities are administrative counties with precise geographical borders and a capital city or town (called the "*cabecera municipal*"). In the DR a municipality is simply a population center designated by the National Congress as having municipal status.

Historically, the national corporations have tended to operate the more important urban systems. In general, municipal provision has arisen when the central state corporation has failed to intervene or has failed to provide acceptable services. In some cases, the transfer of systems to the national state corporation was a requirement imposed by funding agencies who were financing capital investments in secondary cities.⁶

Box 1

A typology of water and sanitation operators in Central America and the Dominican Republic

National public corporations

These are decentralized autonomous state corporations, which have a remit to cover all urban populations. They include SANAA in Honduras, ENACAL in Nicaragua, INAPA in the Dominican Republic and ANDA in El Salvador. In Guatemala there is no such corporation. The state corporations are normally constituted under public law (*empresas públicas descentralizadas*), but in the Dominican Republic an effort is underway to reconstitute them as *Sociedades Anónomas* (S.A.), which would operate under private law, but still be owned by the government. Similarly, in Nicaragua, the regions of ENACAL are being transformed into state owned S.A.s.

State corporations with a limited geographic scope

These are similar to the national companies, except that their geographical scope is limited by their constitution to a given zone. Examples in the region include the *Corporación de Agua y Saneamiento de Santo Domingo* (CASSD) and the *Corporación de Agua de Santiago* (CORASAN), both in the Dominican Republic.

Municipal operators

These might be public corporations, such as EMPAGUA in Guatemala City and in San Julian in El Salvador. In some cases various municipalities have joined together to form a shared public company to run their water services (such as the proposed "Tetralogía" project of 6 municipalities in Usulután, El Salvador).

More usually, municipal operators are divisions of the municipal administration, such as DIMA in San Pedro Sula, Honduras. They might also be companies constituted under private law (S.A.s) in which a municipality holds all or part of the stock (mixed capital companies), such as is currently being developed in Puerto Cortés and San Pedro Sula in Honduras.

Private voluntary systems

Examples are *Juntas de Agua*, Cooperatives, ONGs, PVOs or OPDs. They are normally to be found in the rural areas and in urban marginal areas where the public corporations and municipal providers have not established a service. Often they receive technical assistance from the national or municipal corporation and in urban marginal areas they often purchase their water in bulk from the formal sector provider.

Private for profit systems

The only important example of a private commercial provider in the region is MARISCAL in Guatemala City. However, efforts are being made to establish a concession with a private operator to run water systems in tourist zones in the Dominican Republic.

However, the balance between national state corporations and municipal providers varies considerably from country to country. In Guatemala, where there is no national state company, all urban systems are municipal, with the exception of one private operator covering part of Guatemala City.

In Honduras, where the state corporation, SANAA has not expanded aggressively outside the capital city of Tegucigalpa, municipal providers account for 62% of urban water connections, including the second city, San Pedro Sula. There is conflicting primary legislation on what public agency is responsible for water and sanitation. The *Ley de Municipalidades* assigns responsibility for provision of urban PWASS to the municipalities, while SANAA simultaneously has the same mandate. This has led to conflicts, as municipalities have sought to wrest control of services from SANAA, following the breakdown of effective provision by the latter. This has led to the municipalization of services in San Lorenzo and Puerto Cortés.

In El Salvador, where the state company ANDA is relatively strong, municipalities provide only an estimated 20% of urban water connections. Here, there are a variety of models for decentralized provision. In some cases, there are municipal departments to handle the engineering, while the municipal treasury handles billing and

⁶ This was the case, for example, in Honduras in the early 1990s, under the IADB's Four Cities project (covering Tela, Juticalpa, La Paz and Siguatepeque).

collection. In others, there are inter-municipal associations (the case of the proposed Tetralogia project – see box 1); and in one case, a local NGO operates the system (Lolotique).

In Nicaragua, only 29 urban systems are municipally run, accounting for roughly 10% of all urban connections.

The DR experimented with municipalization in 1955, but poor results led to the re-centralization of the services, with the formation of the *Instituto Nacional de Agua Potable y Alcantarillado* (INAPA) in 1962 and today there are no municipal operators.

Table 3
Types of water service operator and their relative importance

	El Sal- vador	Guate- mala	Hon- duras	Nicara- gua	Dom. Republic
	% of total connections provided by each type of				
Urban					
State companies with national scope	80	0	23	90 1/	60
State companies with local scope	0	0	0	0	40
Municipal systems	20	92	62	10	0
Private voluntary systems (juntas, coops etc) ⁷	0	6	15	0	0
Private for profit systems ⁸	0	2	0	0	0
Rural					
State companies with national scope	13				90
Private voluntary systems (juntas, coops etc) ⁹	87	100	100	100	10

Source: Our estimates, based on diverse sources. See footnotes for details. 1/ Does not consider the recent organization of public companies responsible for Managua and Occidente, that would reduce ENACAL's (state company with national scope) proportion to 29% and state companies with local scope to 61%

The relationship between service organization and the mobilization of resources via tariff and subsidy

It is now widely recognized that a central failure of the old arrangements for the provision of WS&S is the prevalence of “low level equilibria”, which are related to a failure to mobilize

⁷ In Nicaragua, El Salvador and the DR the number of urban households served by private voluntary systems is very small. Almost all urban households receive water from one or another of the state or municipal companies. For Guatemala, 1997 survey data show that 42% of household connections in asentamientos in the greater Guatemala City area are provided by PVOs (ESA Consultores. Social Evaluation of the World Bank's barrio upgrading project for Guatemala City, 1998). We estimate that the % covered by PVOs outside the capital city area is lower, at 20%. It is estimated that 25% of all households in Guatemala City are in asentamientos, and that 15% of households in other urban centers are in asentamientos. The metropolitan area is 30% of all urban populations. Therefore, the estimated % of total urban connections provided by PVOs is 6%. In Honduras, 25% of urban connections in Tegucigalpa and an estimated 10% in other urban centers are provided by PVOs. Tegucigalpa has 30% of all urban connections. The total share of PVOs is therefore 15%.

⁸ The connections supplied by private for profit organizations in Guatemala are those of the private company Mariscal, which has an estimated 10,000 customers, and those who receive services from systems operated by urban developers which have never been adopted by the municipal company EMPAGUA. The latter are estimated in 2,500 connections citywide.

⁹ In Honduras, the DR, El Salvador and Nicaragua the national state companies build rural systems and transfer their administration to juntas de agua but often retain ownership of the works. Such systems are here classified as private voluntary systems, In the D.R. the state company INAPA is in the process of transferring formal ownership of 22 such systems in Hato Mayor to community control. In El Salvador the rural water program PLANSABAR, previously run by the Health Ministry, was recently transferred to ANDA control. However these systems are still administered by local committees.

sufficient resources to pay for the level of service people would like to have.¹⁰ The present section reviews the available evidence on the resource mobilization performance of different types of service provider.

The resource mobilization performance of national and municipal operators in the formal sector

In general, the most subsidized systems are those run by national the state corporations. These have preferential access to capital resources from central government, normally have the better qualified personnel, and generally offer better services (in terms of network scope and the frequency of service) than the other providers. This is not because they are more efficient or effective, but because their greater command over subsidy resources outweighs their relative inefficiency. Normally, the tariff effort of such systems is limited to covering operational expenses, with no provision for capital costs, since capital resources are secured by transfers from the central government budget. Often, tariff income does not even cover operating expenditures, leading to the need for revenue transfers from central government.

Municipal systems normally have more limited access to public capital resources than the national corporations. It might be expected that this would lead them to make a greater effort to collect tariff revenues from the users. However, there is little evidence that this is the case. On the contrary, they tend to be even more prey to under-charging than the national operators, perhaps because the water tariff is a relatively important component of the *Plan de Arbitrios* of the municipality and is therefore attracts a lot of political pressure.

As a result, total resource availability per connection (the sum of subsidy and tariff income) is generally lower in the municipal systems than in the national state run systems. In the absence of mechanisms to secure greater efficiency in the use of resources, the outcome is often an inferior service.

Table 4 shows the results of a recent study of physical and financial performance indicators in a sample of non-metropolitan systems run by municipalities and by SANAA in Honduras, which illustrates this point. In the municipal systems, tariff income is significantly lower than in the SANAA systems¹¹. Due to the shortage of resources, staffing levels are much lower, leading in many cases to inefficient operation. The higher production of water per person in municipal systems is associated with higher physical losses, and not with a better service. This is due partly to the lack of qualified staff. SANAA has a higher proportion of engineers within the total, as reflected in its higher average salary. Although detailed data of the sort presented in table 4 are not available for other countries in the study area, it is likely that the pattern revealed in Honduras has general validity.

Table 4. Performance indicators for non metropolitan water systems in Honduras, 1997

	Municipal systems	SANAA systems
Coverage of urban population	88%	72%
Production in liters/person/day	545	467
Staff per '000 connections	4	7
Average annual salary	L.22,450	L.26,217
Monthly tariff income per connection	L.11.6	L.23.7

Note: Exchange rate L.13 = US\$1. **Source:** Study of 6 SANAA and 7 municipal systems undertaken by ESA Consultores and FRISA Engineering for the IADB in 1998.

¹⁰ A recent discussion of this theme can be found in Savedoff and Spiller (1999), which includes a case study of Honduras written by the authors of the present paper.

¹¹ The regionalization of SANAA in 1996 led to a marked improvement in tariff performance, due to the regions being allowed to keep their tariff income. Two years earlier, a similar study revealed very similar tariff efforts by the non-metropolitan SANAA systems and municipally administered systems. See Walker et al, 1996.

Table 5 presents comparative performance indicators for urban formal sector provision in the region as a whole. Both gross production and income vary widely from place to place, but loss levels are similar (at close to 50%) for all the systems where data are available. The variation of production levels has to do in part with the physical conditions existing in different cities; it is lowest in San Salvador and Tegucigalpa, two cities with severely stressed sources; and highest in the DR.

Table 5: Performance indicators for different types of operator of urban potable water services

	Gross production per capita (lppd)	Annual income per connection (US\$)	Unaccounted for Water (%)	Date and source
<i>Metropolitan</i>				
CASSD	677	64	58	1997IADB Proj.Report
ANDA-AMSS	251	194	n.d.	1995; C.7.50 = \$1. Anuario Est. ANDA
EMPAGUA	355	n.d.	60	1998. Gen. Des Eaux.
SANAA-Metro	230	35	45	ESA 1998 & FUMANITAS 1996.
ENACAL-Reg III	305	108	55	1998. ENACAL
<i>Non Metropolitan</i>				
CORAASAN	659	82	54	1997. IADB Proj.Report
CORAAMOCA	709	26	60	1997. IADB Proj.Report
INAPA-San Juan de la Maguana	306	11	55	1997. IADB Proj.Report
SANAA Systems	467	22	n.d	1997. FRISA /ESA
Honduras-Municipal Systems	545	11	n.d	1997. FRISA /ESA

The best income performance is registered by ANDA (El Salvador), ENACAL (Nicaragua) and CORASSAN (DR), while the weakest performers are the Honduran municipal systems and the INAPA system of San Juan de la Manguana in the DR. It is striking that the best performance is found in recently reformed systems, regardless of their level of decentralization. The act of reorganization seems to engender a phase of institutional virility, even when the new arrangements have apparent weaknesses. The only case where there is a good tariff effort and where there has been no recent reorganization, is ANDA in El Salvador.

For example, in Honduras, the 1996 municipalization of the Puerto Cortés System and the regionalization of the non-metropolitan part of the SANAA system each led to a marked improvement in the tariff effort, although neither of these changes immediately improved the planning or regulatory framework in which the systems operated. The same is true in the case of CORASSAN in the Dominican Republic, which was recently transferred from INAPA's control and shows a better resource mobilization effort than the other state systems in that country, although it is constitutionally similar to CASSD.

In Nicaragua, the recent reform of the sector is also associated with a sharp improvement in tariffs. But in this case there is an adequate institutional framework, which makes it likely that this will be sustained in the long term. In the other cases, failing the implementation of reforms to improve planning and regulation, it is likely that the tariff effort will flag once the initial impetus of reorganization begins to fade.

Resource mobilization in the informal sector

Where not even the local state has organized water provision, the private and voluntary sector have stepped into the vacuum. Most rural systems in the region and many urban marginal systems are privately administered, usually on a voluntary basis. The construction of such

systems is normally funded by on a grant basis. They often receive support (including financing, design and construction of capital works) from development agencies, from the national or municipal corporation or from social investment funds.¹²

These systems show diverse results on resource mobilization. In Honduras, El Salvador and the DR there has been a considerable effort during several years to channel public capital resources to finance the expansion of rural water supply; while in the other two countries rural coverage remains very low, as reported in Table 3. However, recently in Nicaragua there has been an increased effort to improve rural coverage, first by INAA and then by the successor organization, ENACAL, which draws on social investment fund (SIF) resources and provides both technical and institutional support to the community based operators. Guatemala has also made a greatly increased effort to improve the coverage and sustainability of rural water following the peace agreements.

With respect to revenue costs, historically, many rural and urban-marginal systems were not technically or financially sustainable. When problems arose, they fell into decay and sometimes were simply abandoned. However, in recent years the agencies concerned with developing such systems have promoted models for community organization, which generate improved technical and financial capacity for the operation and maintenance of the system. In some cases (for example, in the Marginal Barrios Project in Tegucigalpa) this has resulted in higher tariff payments than those normally made by clients of municipal or national state corporations.

These communities have higher willingness to pay, for two reasons. Firstly, the alternative cost of non-piped water is very high. Secondly, the operator (normally a *Junta de Agua* or *Patronato*) has greater credibility, in the double sense that the users believe the payments they make will be translated into improved services, and that there is little possibility of getting improved services without paying more. In contrast, formal sector users of state run systems may hope to get improvements via rent seeking activities (such as political lobbying) which result in increased capital or revenue subsidies for their systems.¹³

2.1.2 Sector planning and development

The principle of the planning function

Competitive markets are characterized by the presence of many producers, the products are uniform and there are a large number of consumers. In such markets, the interaction of the private decisions of suppliers and consumers results in an equilibrium level of production and consumption, at the point where marginal social benefit and marginal social cost are equated, without the need for political, planning or regulatory interventions.

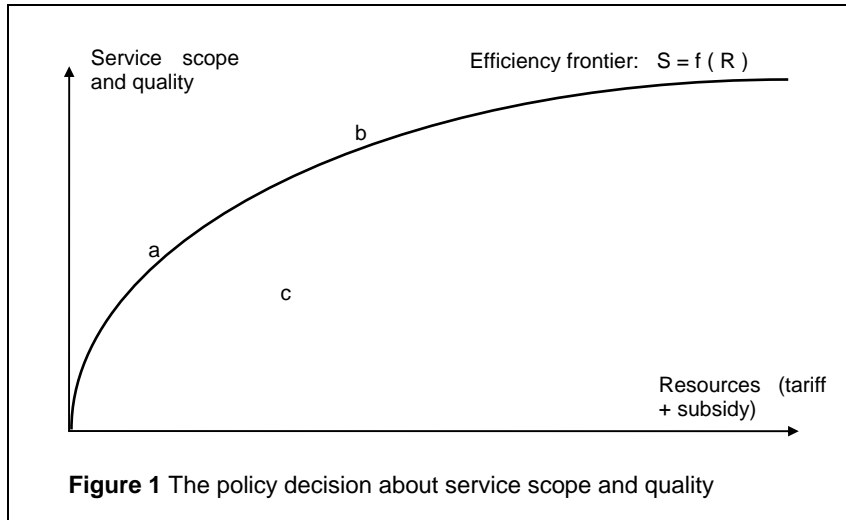
However, when an industry is a natural monopoly, it is not feasible for each individual to make independent choices about the level and quality of service they wish to purchase. This is the case with piped water, due to its dependence on a network for service distribution and the relatively high costs of moving raw water between river basins.

The network's rationality requires that it cover everyone in the area where it is constructed, and anyone outside that area has no opportunity to buy the service. Likewise, the quality of service available has to be the same in any given sector of the network. The individual consumer is left only with the relatively constrained choice of how much water they will consume subject to a)

¹² Apart from SIF – funded projects in Honduras and El Salvador, municipalities in the region have done little to develop rural aqueducts.

¹³ This point is developed more fully in Walker et al (1997), where econometric analysis shows that the users of urban marginal systems have higher willingness to pay for service improvements than is expressed by the clients or municipal or national state run systems.

whether they are covered by the network and b) the frequency of service and quality of water supplied in the network.¹⁴



For this reason it is necessary to take political decisions about the scope of the network and the quality of the service to be offered. The community must reach a collective agreement about the type of service which should be available in each sector of the city, and how the sunk costs of this provision should be financed with private resources (via tariffs) and public

resources (via subsidy). This is the function of sector planning or government. It includes both the setting of targets for service quality and coverage and the planning of the public and private resource assignments necessary to realize these goals.

Figure 1 illustrates the trade off which the community must face in making this decision, showing how improved service scope and quality implies a progressive increase in total resources applied to the sector. As drawn, the figure also makes the assumption that beyond some point, there will be diminishing marginal returns to additional resources applied to the sector. Two possible choices of position on the efficiency curve are illustrated: point a, with a lower resource assignment and inferior service scope and quality; and point b, with more resources assigned and a superior scope/quality result.

Arrangements for sector planning and development in the region

Urban water

A variety of arrangements exist for sector planning in the countries studied. Where state water companies exist (i.e. in all the countries studied except Guatemala), they usually have effective global responsibility for planning. In several cases they are formally subordinate to a government ministry, which presides in their *Junta Directiva*, and their capital expenditure is part of that Ministry's budget, where it is normally treated as a transfer.

In Honduras, the Public Health Ministry is formally responsible for the sector, presiding on the board of the state water corporation, SANAA. In El Salvador, the Public Works Ministry is in charge of the sector, presiding on the board of the state water company. In Nicaragua the Director of the state water company, INAA has ministerial rank and sits in the cabinet. However there is an active social cabinet including the health minister, which has oversight of the water and sanitation sector. In the Dominican Republic, no ministry has sector oversight; only the Central Bank is represented on the boards of the state water companies. Similarly, in Guatemala no ministry has explicit oversight of the sector. However, usually, ministerial leadership in the sector is limited to rural water programs and the state company is the effective planning agency for urban water and sanitation.

¹⁴ The short run marginal cost of additional units of consumption is relatively low, and as a result, the supply and hygienic disposal of piped water is close to being a *public good*.

Where only one state company exists (as is the case in Honduras and El Salvador and until recently in Nicaragua), it usually has a major say in the distribution of state subsidies for capital works. If the company is centralized, this also leads normally to a centralizing distortion in resource allocation. A disproportionate share of publicly controlled funds is channeled towards the operations of the national corporation itself, especially to the capital city, at the expense of other operators and their users (such as municipal operators).

Where there exists a national social investment fund (SIF), this will often work on the development and upgrading of systems and sub-systems in both the urban and rural areas, which are transferred to the relevant operator when they are completed. In Guatemala, the SIF has been a major driving force behind improved coverage in recent years. In Honduras, in contrast, the SIF has contributed relatively little to increased coverage of water services, tending rather to concentrate on improving existing networks in urban areas (ESA Consultores, 1999).

Where municipal provision exists, the Consejo Municipal has global planning responsibilities for its municipality and takes decisions about investment plans, tariffs and subsidies. Often it will seek resources from national government or from development agencies in order to complement locally available public and private resources.

Whatever the specific arrangements for sector planning, it is rarely the case that a formal statement of sector goals and resource requirements is agreed or published, either at national or at local level. Planning remains an ad-hoc process, normally remitted to the system operators themselves at national and municipal level. As a result the operators are not required to commit themselves to goals for service coverage or quality, nor is their access to resources (via tariff or subsidy) calculated to permit significant changes in these results.

*Rural water*¹⁵

The planning and development of rural water is often separated from urban water, under the aegis of a division of the health ministry. This is the case in Honduras. Similarly, in Guatemala the Ministry of Health developed a special unit for rural water called the *Unidad Ejecutora de Proyectos de Agua Rurales* (UNEPAR), which was recently absorbed by the Institute for Municipal Development (Spanish acronym: INFOM). In El Salvador, in 1982 the Ministry of Health initiated the PLAN SABAR for developing rural water systems, while in the DR, INAPA is charged with rural water.

In Honduras and Nicaragua, the national state water companies have established special divisions, which give technical assistance for the design and construction of rural water systems. Once built, these are administered by local community based organizations. In the DR, INAPA has built many rural aqueducts and in recent years has developed a program for decentralizing them to local community control. This program has not yet been implemented.

For many years rural programs received a particularly small share of the resource pie controlled by national governments. More recently, in some countries, as commented in the previous section, donors have responded to this situation by establishing special programs for rural water.

2.1.3 Regulation

Economic regulation

Economic regulation is a technical complement to the planning function. In the absence of competitive markets, it is necessary to have a technical office to establish what are the minimum costs necessary to reach any set of desired outcomes, in terms of service scope and quality. This office undertakes studies of available technologies and of physical constraints in each locality, in order to define for each system the exact shape of the "water and sanitation production function" which is drawn schematically in figure 1. This information allows the planners – and the

¹⁵ We deal here – and generally in this paper – only with rural water and not with rural sanitation, because in rural areas sanitation means latrines, which are not network services, and which are normally developed by separate agencies and / or in separate programs from water supplies, raising completely different issues.

community as a whole - to know what resource costs are necessary in order to reach a given outcome. Without this information, it is difficult to avoid either inefficiency or overpayment to factor inputs, because there is no market price to consult.

The information supplied by the regulator allows the planners to ensure that the system operates at an efficient point (such as a or b in figure 1), and not at an inefficient point (such as c in figure 1), where a better outcome could be secured without assigning additional resources.

As well as advising the planners about the possibilities, the regulator also supervises the service providers to make sure that they meet the goals for service scope and quality, which are agreed to in the planning process. S/he also calculates what changes are necessary in nominal tariffs and subsidies in order to offset any cost and price changes in inflationary circumstances, thus guaranteeing that the operators receive the real resource assignment necessary to meet the agreed planning goals.

In the pre-reform model, which prevailed until recently in the region, economic regulation has normally been either non-existent or very weak. There was little or no effective regulation to protect the consumers of the sector's services against overcharging or inferior services. Where it existed at all, the economic regulation of the sector was limited to tariff laws governing the national corporations. These were politically negotiated, usually without taking account of capital costs. As a result, the operators had no economic interest in expanding their services. Due to the difficulty of legislating, tariff reforms normally took place at intervals of several years, leading to severe erosion of real system incomes in inflationary periods.

Regulation of national state companies

In El Salvador and the DR there has been no economic regulation of the national operators. In El Salvador, the state water company, ANDA, sets its own tariff autonomously. In the Dominican Republic the public companies also formally have the power to set their own tariffs, although in practice they require explicit presidential clearance for any change.

In Honduras tariff regulation for SANAA was transferred in 1990 from the national congress to a commission controlled by the Executive (the *Comisión Nacional Supervisora de Servicios Públicos, CNSSP*). The intention of this reform was to de-politicize the tariff setting process. However, this did not happen. No planning framework was established, and tariff setting continued to be regarded as a taxation decision, not based on an adequate analysis of the company's real resource needs. In spite of persistently high inflation, adjustments took place at long intervals, leading to severe erosion of SANAA's income in real terms¹⁶.

Only in Nicaragua has there been any coherent reform of the planning and regulatory framework. This came with legislation passed in the first half of 1998, which assigned the sector planning function to the Ministry of Construction and Transport, and transferred system operation to ENACAL, leaving INAA to function as a specialized regulatory body. This is discussed in more detail in Section III.

Regulation of municipal operators

Everywhere, municipal operators are self-regulated. In other words, they are not effectively subjected either to formal planning goals imposed from outside or to a regulator who checks for compliance with them. Where municipalities supply water services as direct administrative acts (and not through public corporations) the tariff is normally set by municipal resolution as part of the budget process (*plan de arbitrios*). In Guatemala City, the tariff of EMPAGUA is set by municipal legislation.

However, just as with the national operators, the municipal bodies have not normally developed planning goals or undertaken analysis of the resource requirements needed to meet them. In this sense, self regulation has boiled down to no regulation at all.

¹⁶ See Walker et al, 1997 for more detail.

Public ownership as an alternative to regulation

Traditionally, the absence of regulation has been justified by fact that almost all operators of urban services were public bodies. This was considered to be an alternative to the need for regulation. It was believed that a public agency would naturally act in the common good and not exploit its monopoly position to favor private or minority interests. The implicit assumption has been that state owned operators (either national or municipal) will always be guided by the maximization of the social benefit and would somehow “know” what was an efficient level of costs.

But in practice, such entities have often been subject to “capture” by specific interest groups, which by no means represent the public interest in general, and have had poor information about the necessary level of costs associated with different service outcomes. As a result, both national and municipal operators have often been allowed to run with inefficient levels of staffing and costs, due to their “capture” by politicians (who want to give “jobs to the boys”) and unions (who want the boys to keep the jobs, once they have got them).

Meanwhile, the political control of tariffs has led to low revenues, financial deficits and dependence on subsidies for both capital budgets and, often, for day-to-day operation. These subsidies, in turn, have to be negotiated with (national or local) politicians, who bring their private agenda into play once more.

This cocktail of operational inefficiency and low revenues has led to a vicious circle of low service quality (in terms both of network coverage and of service quality within the established networks) and low willingness to pay for the existing services. In this context, actual and potential consumers have rarely been given effective rights to protest about the treatment received from such providers.

Environmental regulation

A second important regulatory issue is that of the impact of the WS&S on natural resources. This includes the protection of raw water resources, regulation of their use, and regulation of the impact of sewerage discharges on receiving bodies. Both these processes might give rise to social opportunity costs, which are not reflected in the financial cost function of the water providers (these are called *externalities*), leading to socially sub-optimal results in resource allocation.

For instance, raw water might have alternative uses for irrigation or hydroelectric generation, whose value to society might be greater than the marginal benefit from more drinking water supply. Similarly, the contamination of receiving bodies upstream might degrade water resources making them unsuitable for irrigation of human consumption downstream, and the cost of this impact might be greater than the value of the sanitation services which cause the problem.

However, the recognition of environmental externalities and conflicts over alternative uses of water resources are contemporary themes, which are still reflected only partially in the legal framework for the operation of potable water and sewerage services. In most countries, the law governing the use of water as a natural resource is outdated and inadequate, and watershed management is optional. Some headway has been made on norms governing the discharge of contaminated water into receiving bodies, but much remains to be done to convert these norms into standard practice.

Water rights

There is a water resource law in most of the countries in the region. However, these laws are antiquated. Although the governments of Honduras, El Salvador, and Guatemala have expressed a desire to modernize this legislation, these efforts have not yet been successful. In the case of the DR, a new law was passed in 1998. This is discussed in more detail in Section II B.

The old laws are limited to defining riparian rights and *servidumbres* (rights of access, or easements). Usually, no ownership rights are defined for underground water. This leads to

conflicts between private well owners and the water companies in zones where the primary drinking water supply is subterranean, such as San Pedro Sula and Managua.

River water is normally defined as state property and the landowners adjacent to the river are allowed to use the water but not to interfere with downstream rights. However, this is a somewhat contradictory principle, and in some places, there are inter-municipal conflicts over water sources, when one city's system draws its raw water from rivers that flow within another municipality. One example of this is the case of Puerto Cortés in Honduras, which draws its raw water from the Río Tulian in the neighboring municipality of Omoa. The arrangement is covered by an agreement (*convenio*) between the two local governments.

Existing legislation does not adequately treat the potential conflicts between alternative uses of water (human consumption, irrigation, hydroelectricity, etc.). While the state or municipal water companies are responsible for developing drinking water schemes, the ministry in charge of agriculture normally is responsible for developing irrigation schemes,¹⁷ and the state power company is normally responsible for hydropower schemes. Although in various places there are engineering schemes which supply drinking water, irrigation water and hydropower, there is normally no clear legislative framework to define the relationship between them. Normally, whoever developed the project effectively owns the water.

In any case, potable water companies usually acquire their prime resource (raw water at the intake to their dams and well systems) at zero cost. In the DR, the *Instituto Dominicano de Recursos Hídricos* (INDRHI) charges for water taken for irrigation purposes from the hydroelectric dam of the electricity company, CDE. However, even here, no charge is made for raw water supplied for the purpose of human consumption.

Awareness of importance of these issues related to water rights varies from place to place. In tiny El Salvador, whose water resources are extremely limited relative to the size of the population, this has become a central issue. The DR has also given increasing attention to the theme. In Honduras, Nicaragua and Guatemala, where larger territories and / or higher rainfall leads to less water shortage, there are fewer conflicts and the issue has remained on the back-burner .

River basin management and water source protection

In Honduras, Nicaragua and El Salvador, a Ministry of Natural Resources (MARN) has overall responsibility for hydrological and river basin management. In some countries this ministry also issues norms governing discharges into receiving bodies. In Guatemala and the DR, there is still no modern MARN. In the former, environmental regulation is still in the hands of a presidential commission (*Comisión Presidencial para el Medio Ambiente*, CONAMA). In the DR, environmental regulation is simply ad-hoc.

Operational responsibility for river basin management is undertaken voluntarily by the interested parties, or (more usually) undertaken by no-one. Electricity companies and water companies sometimes take on watershed management in the catchment areas of their existing and planned reservoirs. Municipalities sometimes do likewise with regard to their own water sources.

Drinking water quality

Health ministries normally set norms for drinking water quality and are responsible for oversight of compliance with these norms. The larger public water corporations have laboratories and carry out periodic testing. However, compliance with the norms is in effect voluntary, since neither are reports requested, nor are sanctions applied.

¹⁷ In some countries agriculture is dealt with by the Natural Resources ministry; in others there is a separate ministry for agriculture and ranching .

2.2 The advance of reforms in the Water Supply and Sanitation sector

2.2.1 An overview of the reform process

The patent inefficiencies of the water and sanitation sector - in terms of coverage, service quality, value for money and equity - have led over the last decade to a series of initiatives for reform. However, the diagnosis of the problem and prescription of the appropriate solution have varied between countries, and often there have been conflicting reform agendas within a single country.

Sector reform and state modernization

Some WS&S reform initiatives have arisen in the context of state modernization programs adopted across the region from 1990 onwards. These are led by *Comisiones Presidenciales de Modernización del Estado* (CPMEs). Often, it is an explicit goal of the global state modernization program to decentralize public functions, locating them at the lowest possible level of the state hierarchy (compatible with their good execution), and wherever possible passing functions from the state to private agencies.

This is the case in Honduras, where municipalization and privatization have been the twin themes of reform in many sectors. Here, the first WS&S reform initiative arose in the CPME, and the municipalization of service provision was the key proposal. The IADB and World Bank offered a sector adjustment loan in return for the reform package. This initiative stalled due to conflicts between the CPME and the main state water company, SANAA, which opposed the municipalization of its services.

In other countries, the CPME or its equivalent has been more successful in working with the existing sector organizations, sometimes delegating the whole reform effort to them, and the avoidance of intra-governmental conflicts has allowed more advances to be achieved.

However, although decentralization is a stated goal of the overall state modernization process in most countries in the region, this has not necessarily crystallized in proposals for the municipalization of WS&S provision. This is the case, for example, in the DR, where the proposal for modernization in WS&S centers on corporatization and privatization, and where municipalization has not been considered as an option. Similarly, in Nicaragua the state modernization program (called the *Programa de Reforma de Empresas Públicas*) has overseen modernization of WS&S and phones, but regionalization, rather than municipalization is the central strategy for the decentralization of service provision.

In some cases this has led to direct conflicts between municipalities and the central government over the ownership of the WS&S systems. El Salvador, where the modernization process has focussed on the promotion of indirect providers (specifically, in this case, privatization), to be regulated by national bodies, is a case in point. There has been a growing municipal lobby to take over their water systems, but the central government has resisted. In Honduras in early 1999, a new effort was underway to reach consensus on reform, whereby the municipalities would become owners of their systems but would in many cases hire the services of SANAA (or its successor body) to operate them.

Global reform initiatives

Some WS&S reform initiatives have been global in scope, covering both framework legislation for the sector (sector planning and regulation), and the reorganization of service provision. Over the last five years, Honduras, Nicaragua, El Salvador and the DR have seen attempts to engineer a wide-reaching sector reform based on framework legislation, which deals with all these issues.

In Nicaragua, this has crystallized in laws to create new institutions, and a sweeping reorganization of the sector is underway. In El Salvador, there has been considerable advance on the modernization of the natural resource management aspects of the sector, but the reform of WS&S has proceeded more slowly. In Honduras the global reform effort stalled in 1996 following conflicts between SANAA, the municipalities and the CPME about the proposals for service provision and regulation. In the DR, at the time of writing (February 1999), sector reform is still at a relatively early stage of political negotiation. In Guatemala, there has been no coherent

effort to organize a wide-reaching reform. However, a presidential decree passed in 1998 established that the Institute for Municipal Development (*Instituto de Fomento Municipal*, INFOM), should become the sector planning and development agency.

Reform from below: piecemeal advances

But at the same time, in most countries, there have been efforts at “*reform from below*”, geared to developing a methodology to resolve specific problems (such as marginal *barrio* provision or rural provision) in the context of existing sector legislation.

In Honduras, there has been a plethora of such initiatives. These include the municipalization (supported by USAID, the World Bank and the IADB) and – as an alternative, promoted by SANAA – the regionalization of service delivery. They also include the development of the marginal *barrio* program SANAA-UNICEF in Tegucigalpa; and the development of a working model for rural water provision under the USAID project PRASSAR. In the municipal sector, already responsible for some 62% of urban water supply, the IADB has been working to strengthen effectiveness through the proper definition of planning, regulatory and service operation functions, promoting indirect provision (through leasing contracts) as a key strategy to this end.

The DR, where national - level reform has also advanced slowly, has also seen the creation of regional state owned corporations in Santiago and Moca and the promotion of a decentralized model for rural water, with a pilot program in El Hato Mayor, supported by USAID¹⁸. All these changes have involved the transfer of systems from the old state institute, INAPA. In Guatemala, the various agencies involved in rural water provision have agreed a standard model for developing systems (*Modelo básico de intervención*).

Reform and decentralization

Each of the reform initiatives taken to date – whether as part of a global scheme, or in a piecemeal fashion – falls into one or more of the thematic areas identified in Section A:

- the reorganization of service delivery, with a tendency to promote decentralization and / or privatization;
- the strengthening and reorganization of sector government (including planning, and financing); and
- the establishment or strengthening of the economic and environmental regulation of the service providers.

Debates over the relative merits of centralization and decentralization have surfaced in relation to each of these functions. For example: should service provision be undertaken through national companies, regional companies, municipal companies or sub-municipal organizations such as *juntas de agua*? And to what extent should private companies be involved in operating the systems and in supplying capital? Should sector planning and financing be a matter for national government alone or should local government be involved, and if so, how? And who should regulate the service providers: national government, regional or local government agencies? Indeed, is there any need for regulation when service provision is decentralized, or will the local political process constitute a sufficient mechanism to ensure efficiency?

In the present section, we provide an overview of the debate on each of these themes, highlighting the issue of decentralization. A central theme of this section is that neither centralization nor decentralization, in itself, constitutes a sufficient policy to resolve all the problems faced by the sector. However, in many cases, decentralization of some or all of the key functions is highly appropriate and should therefore be an important aspect of the future anatomy of the sector.

¹⁸ This program was held up in late 1998 following Hurricane George and a change in the directorship of INAPA.

2.2.2 Strategies for the re-organization of service provision

Diverse proposals for the reorganization of service provision have taken the limelight in the debates over reform of WS&S in most countries. These initiatives can be divided into four basic types:

- *Devolution*: Initiatives which change the level of government with responsibility for seeing that WS&S are provided.
- *Deconcentration*: Initiatives which reorganize service provision without any formal transfer of responsibility between government levels, e.g. through the regionalization of national corporations.
- *Corporatization*: The establishment of publicly owned companies governed by private law (*Sociedades Anónimas*) to operate water and sanitation services. These might later be privatized, wholly or partially.
- *Privatization*: this covers the contracting of private agencies to operate systems which are owned by the public sector, via management or leasing contracts or concessions; and also covers the passing of the ownership of systems to private agents.

These distinct types of reorganization are not mutually exclusive. Privatization and corporatization are options open to both centralized and decentralized state agencies which seek to achieve a clearer separation between the planning and regulatory functions, on the one hand, and service provision, on the other. Figure 2 illustrates the matrix of possible combinations for the reorganization of service provision, and the following paragraphs discuss a variety of recent reform initiatives in the region which fall into the different cells of this matrix.

Figure 2: Permutations for the assignment of state responsibility and the relationship with the service provider

<i>Relationship with the service provider:</i>	<i>Level of state responsibility for service provision</i>		
	Centralized	Deconcentrated	Devolved
Direct provision	•	•	•
Corporatized	•	•	•
Privatized	•	•	•

Devolution

Devolution can be understood broadly as any effort to locate the political responsibility for the provision of services at a lower level in the state hierarchy. In Central America, where regional government is weak or non-existent, devolution normally means the transfer of responsibility from a national government agency to municipalities.

Although municipal development has been a central theme of the general state modernization process in most countries in the region, only in Honduras has municipalization been a central theme in the debate over reform of WS&S. In Guatemala, where these services are already municipally controlled, attention

Municipalization in El Salvador

El Salvador has traditionally had a highly centralized government, but following the peace accords the municipalities have begun to flex their muscles. There have been growing tensions between municipalities controlled by the opposition FMLN and the ARENA-controlled central government.

There is no Municipal Code or other primary legislation to define fully the role of local government, but a law is currently being prepared. In early 1998 it was agreed that 6% of the national budget should be transferred for municipal capital investment.

However, in the WS&S, the central government agency ANDA is reluctant to transfer its systems to municipal control. Recently, the municipality of Ataco forcibly took over its water system, and ANDA is suing the mayor for illegal seizure of public property (*usurpación de bienes públicos*).

Meanwhile, ANDA has resisted signing the agreement to create the Tetralogía project in Usulután until the Ataco matter is resolved. The project involves the creation of a mixed capital company with private and public investment to supply water to six municipalities. It can only go ahead when ANDA, which owns the infrastructure, agrees to cede administration of the system to the new organization.

has concentrated on ways to improve the performance of existing municipal suppliers. In El Salvador, the municipal movement is gaining force and it is foreseeable that there will be a growing debate over the transfer of water systems from ANDA to the municipalities in coming years (see box). In the DR, the discussion has focussed on the regionalization of state corporations and the involvement of private providers, and municipalization is not on the agenda.

The proposal for sector reform in Honduras, promoted by the *Comisión Presidencial de Modernización del Estado* (CPME) with the support of the IADB and World Bank in 1995-96, involved the transfer all urban water services to municipal control. The state corporation, SANAA, was to be left with a role in technical assistance to rural suppliers and in global sector planning. However, the proposed legislation did not prosper, partly because of effective lobbying by SANAA and its unions; partly because the mayor of Tegucigalpa did not wish to take over the service; and partly because of skepticism about the capacity of other municipalities to do a better job than SANAA. At the same time, the municipalities themselves were chary of the regulatory arrangements in the reform proposal, which they felt would undermine municipal autonomy through the imposition of tariffs by central government. This is also an issue in Guatemala and is likely to become an issue in El Salvador.

Nevertheless, local campaigns following system breakdowns have led recently to the transfer of some secondary city water systems to municipal control, via an administrative delegation by SANAA. This happened in San Lorenzo and Puerto Cortés in 1994 and 1995. In Puerto Cortés the success of the municipal administration led to the transfer of full ownership of the system to the municipality in 1997.

In the case of Tela, the dynamics were different. Here, SANAA took the initiative to transfer the system to municipal administration in 1997, in an apparent attempt to discredit municipalization. There was little local demand for municipalization and the technical difficulties involved in operating the aqueduct led quickly to conflicts.

These experiences have led to a change in emphasis in the global reform proposal, which was re-submitted to the Honduran Congress in early 1999. Municipalization is now promoted on a permissive rather than a mandatory basis. In this context, increased attention is being given to ways to improve the performance of existing municipal providers, through improved arrangements for local level sector planning and regulation and through increased use of indirect provision (via corporatized publicly owned operators or private companies).

Deconcentration

Various state corporations have responded to criticism of their excessive centralization by implementing regionalization strategies, which aim to locate operational decisions and the control of resources closer to the communities that they serve.

- In *Honduras*, SANAA responded to the proposal for municipalization by establishing six regions, which were allowed to retain their tariff income and given substantial control over day to day operations. The result was a marked improvement in revenue generation, which on average doubled over a two year period (FRISA Engineering and ESA Consultores, 1998).
- In *Nicaragua*, the 1998 passed a law to create ENACAL, which was mandated to take over the operation of INAA's systems, which were previously operated on a centralized basis. ENACAL is a holding company whose eight regions are constituted as separate *Sociedades Anónimas*. This model is similar to that adopted in Venezuela, and it is expected that the regional operations will in the future gradually be privatized.
- In the *DR*, INAPA has been progressively broken down into regional state corporations, including CORAASAN (Santiago) and CORAMOCA (Moca), which have local government representatives on their boards but nevertheless remain the property of central government. INAPA itself has been divided into eight regions for some years; however, the level of local autonomy is low.

Corporatization of public sector providers

The aim of such arrangements is to establish an arm's length relation between the state agency responsible for ensuring provision and the service provider, without necessarily privatizing either the system assets or the ownership of the operating company. This should make it easier to separate functions and responsibilities and therefore should improve accountability and effectiveness.

The relation between the parties is governed by a contract, which might be a contract-plan, a leasing contract or a concession contract, depending on which actor is the legal owner of the infrastructure and what balance of risks and responsibilities is agreed between the government agency and the operating company. A regulator may supervise compliance with the contract.

The operating company is a commercial company (*Sociedad Anónima*, or S.A) which is legally governed by private commercial law (*Código de Comercio*, *Código de Trabajo* etc.), rather than by public law. From here, it is a relatively simple step to proceed to the involvement of private capital via the sale of shares in the S.A. The model comes from Chile. The IADB has promoted this strategy in the region.

- In the *DR* under global sector reform project which is in an advanced stage of planning in early 1999, it is proposed to corporatize the state water operators CASSD (Santo Domingo), CORAASAN (Santiago) and CORAMOCA (Moca). The program is supported by the IADB and will attract \$50 million in investment funds to strengthen the corporatized systems.
- In *Honduras*, the Municipality of Puerto Cortés is establishing a commercial company (S.A.) to operate its water and sanitation system on a leasing contract, and a similar arrangement is planned in San Pedro Sula. Initially, in each case, the municipality will wholly own the operator, but it is expected that in future, private investors will become involved. Once again, these initiatives are linked to IADB investments.
- In *Nicaragua* the regionalized components of the state water operator, ENACAL, are to be turned into S.A.s. In this case, the initiative is "home grown", and not linked to any investment or reform program promoted by an external agency.

Privatization

The privatization of service provision comes in a variety of forms: management contracts, leasing arrangements, concessions and the sale or transfer of assets. Each of these reflects a progressive increase in the responsibility of the private firm. Under a *management contract*, the firm does not accept much risk: they are paid a fee for operating the system and the owner of the system (government or municipality) accepts the operational and commercial risk (linked to the production of water and billing and collection) and supplies the capital. Under a *leasing contract* the private company accepts the operational and commercial risk but the public owner still supplies the capital. Under a *concession contract* the private firm supplies the capital needed for expansion during a long time horizon (normally 40 years or more) but does not formally become owner of the network. Under the *sale or transfer of assets* a private owner takes over the infrastructure but is subjected to regulatory control on the requirements for service scope and quality (and therefore, implicitly, investment requirements) and tariff limits.

The different levels of private responsibility associated with these diverse options allow for the design of strategies gradually to increase the level of private sector participation (PSP) in the sector. For example, a management contract may be let as a first step, with the intention of proceeding to let a fully-fledged concession after a few years, when the system operation has improved sufficiently to make it an attractive proposition for a private investor.

There are two separate reasons for privatizing services:

- to establish a clear separation between the function of service provision and that of planning and regulation. When a private contractor is operating a system, s/he can be held contractually responsible for meeting the agreed planning goals. This always applies under

any form of privatization, although the scope of responsibility of the contractor will vary according to the type of contract.

- to mobilize private capital for investment in the system. This only arises under relatively advanced forms of privatization, such as full concessions and the sale of assets.

To date the initiatives for privatization of WS&S in the region have not advanced very far. There have been proposals supported by the World Bank to let private management contracts for the metropolitan aqueducts of Tegucigalpa and Managua, with a view to eventually letting a full concession. However, neither of these proposals has prospered.

In El Salvador, it is proposed to form an *Unidad de Reforma Empresarial* within ANDA, which will be charged with the evaluation of different options for reorganization. One possibility is the concession of San Salvador. This is supported by technical assistance funds under an IADB loan.

In the DR there is a proposal to let a private concession to operate some 10 water systems in the main tourist areas, including of the Puerto Plata, Cabarete, Boca Chica, Juan Dolio, Samaná, Sosua and Barahona. This proposal, which is linked to a \$120 million World Bank investment, is likely to be approved in 1999.

Reform of arrangements for rural and urban-marginal service provision

The lack of sustainability in rural water systems has led to a variety of initiatives in recent years to try to improve performance through improved administration and in some cases, through the transfer of system ownership to community control.

In most places rural systems continue to be administrated through community based bodies such as *juntas de agua*, *patronatos* or NGOs. However, efforts have been made to improve their capacity through adequate training and the provision of technical assistance. Often, this TA is given during the phase of system development, when the *junta* is organized and trained.

For example, in Honduras, USAID's *Programa de Agua y Saneamiento de Areas Rurales*, PRASSAR (part of the Health Sector II project) financed *Técnicos en Agua y Sanemiento* (TAS) to promote system development and *Técnicos en Operación y Mantenimiento* (TOMs) to support the *juntas de agua* in system operation. These technicians are hired and trained by SANAA. However, at present SANAA only has 40 TOMs, which is only half the number that would be needed to give adequate support to the country's 4,000 rural aqueducts.¹⁹

Many rural water development programs leave formal ownership of the infrastructure in the hands of whichever agency develops the system; only the administration is assigned to the community body. However, in the DR, there is a pilot program underway in El Hato Mayor, supported by USAID, to transfer the formal ownership of small scale rural systems from INAPA to private community based organizations; this is a form of privatization.

In Honduras, there has been a successful effort to increase water coverage in urban-marginal sectors of Tegucigalpa using similar methodologies to those developed for the rural areas. In a program financed by UNICEF and implemented by SANAA, barrio water committees have been established to operate local networks and have taken responsibility for collecting user tariffs. They purchase water on the block tariff from SANAA and repay the loan for construction of the network into a revolving fund, which then supports further developments elsewhere. This program has established some 30,000 new connections over a five-year period – amounting to 15% of the city's total. The users pay more than SANAA's formal sector clients – often for a markedly inferior service.

It is striking that in many of the countries of the region, the most effective arrangements for the development of rural and urban-marginal systems are in the hands of the national state water

¹⁹ The project aims to have a TOM spend three working days per year in each system, divided into two six-monthly visits.

corporations. This raises an important issue in the context of sector reform, since often these corporations are slated for abolition or major restructuring, creating a risk that the best programs aimed at the poorest communities might be a casualty of the reform process. In Honduras, the 1995-96 reform effort concentrated on the urban-formal sector and rural water only cropped up as an afterthought in the design of the reform.

Similarly, the future of initiatives to improve marginal barrio coverage might be placed in jeopardy through the schemes to let concessions for the metropolitan systems to private operators. If these regard the business of selling water in the marginal barrios as low profit or high risk, they will be tempted to sideline plans to increase coverage or improve service quality in these areas.

This could only be avoided by clear provisions in the concession contracts regarding the scope and quality of service coverage in marginal areas. In many cities, where the local communities have constructed rudimentary networks, major investments will be needed to improve them and make their operation economically attractive. These should be fully costed in the concession contract. Once this has been done, it will be possible to individualize the service, and bill for metered consumption. It is the absence of such investment – and not the absence of willingness or capacity to pay – which is the main obstacle to improving services in these sectors.

2.2.3 Sector planning and development

Sector planning includes goal setting and finance. Such decisions should ideally be remitted to a planning office nominated by the level of government to which it the responsibility for service provision corresponds (national or local) and this body should have a clear mandate for public consultation on the choices to be made. Sector planning, as discussed in this paper, should not be construed as promoting supply-driven approaches. Demand-based approaches are not at all incompatible with sector planning, which focuses on macro issues such as goal setting and finance.

The key problem, which has existed in the past, is that the function of planning and goal setting for urban water and sanitation has normally been remitted to the main state owned operating companies. This has been the case in Honduras, Nicaragua, El Salvador and the DR. As argued above, this duality of functions (planning/financing and service provision) leads to a lack of pressure to correct the existing, unsatisfactory levels of coverage and quality, because the companies are reluctant to criticize themselves and prefer to rationalize their failures.

There has been widespread discussion of this issue in the technical bodies related to the WS&S in the region, promoted by the World Bank, the IADB, PAHO, CAPRE and AID. It is now generally accepted that there is a need for a sector planning body at a national level, which does not have any direct responsibility for service operation. However, there is less clarity about the need for separation between the planning and operating functions at municipal level when services are decentralized.

In the debates and actions on sector reform in the region, a variety of arrangements have been proposed for strengthening sector government, many of which involve increased decentralization. The following paragraphs summarize the main initiatives.

The creation of a national planning office for WS&S

This has been proposed in Honduras, the DR, Nicaragua and El Salvador.

- In *Honduras*, the first version of the reform legislation, presented to the Congress in 1995, proposed the creation of a new Vice Ministry within the Health Ministry to take over sector planning. However, in a later version it was proposed that the state water company, SANAA, specialize in the planning function and surrender the operation of systems.
- In the *DR*, it is proposed to create the *Oficina Nacional de Planificación del Sector Agua Potable y Saneamiento* (ONAPASS), which will report to the presidency of the republic. This change will complement the corporatization and privatization of the main system operators, detailed in section 1. Each operator will be subjected to a contractual mandate to meet agreed goals, though contract plans or concession contracts, as appropriate.

- In *Nicaragua* the reforms passed in early 1998 remitted the planning function to the Ministry of Construction and Transport. Prior to the reforms, INAA produced a sector development plan for 1998-2002 and a management plan for ENACAL. This was complemented by an engineering and socio-economic study of the country to prioritize investments, and which served as a background document for the sector development plan.
- In *El Salvador*, it is proposed that Ministry of Economy should take over responsibility for sector planning. This is part of a package of reforms promoted by an IADB project, called the Reform Program for the Water Sector and the Potable Water and Sanitation Sub-sector, initiated in 1998, which is complemented by investment funds of \$60 million.
- In *Guatemala*, the *Comité Permanente de Coordinación de Agua y Saneamiento*, COPECAS, established by the Presidency of the Republic in 1994, made a timid effort to coordinate the sector. However, it made little headway and in 1998 a presidential decree determined that the *Instituto de Fomento Municipal*, INFOM, a public sector body, should take over sector planning. In the past, INFOM acted as a source of technical assistance and financial support for urban systems. The new decree gave INFOM an explicit global planning role, including both urban and rural water.

The creation of a municipal planning function

All the municipally operated systems in the region have weak planning systems, not separated from their service provision functions. Only in Honduras, where municipal provision dominates the urban WS&S, have moves begun to correct this weakness. Under a TA program supported by the IADB, linked to a proposed \$55 million investment program for secondary cities, municipalities are creating Water and Sanitation Committees (WAC). Their brief is to make an overall plan for the development of the sector, identifying resources and quantifying the tariff consequences of different options.

For larger Honduran municipalities, such as Puerto Cortés and San Pedro Sula, the IADB has proposed leasing and concession arrangements between corporatized (but publicly owned) operators and the municipal government, as detailed in section 1 c). In this case the municipal government retains the planning function and the operator is subjected to a leasing contract, which mandates him to meet the agreed goals.

Decentralization of public investment resources

All the countries in the region have seen moves in this direction. In the first place, Social Investment Funds (SIFs) have been created. These funds channel capital resources directly into works at a local level in Honduras, Nicaragua, Guatemala, the DR and El Salvador, and part of their resources finance works in WS&S. The SIF procedures for allocating resources and for the selection and execution of projects vary from country to country. In Honduras, the municipalities have an important role in the SIF decision process; this is not so in Nicaragua, El Salvador and Guatemala.

Mandatory transfers of a proportion of the state budget to the municipal sector for investment finance are another important mechanism for resource decentralization. In Honduras, the law mandates that 5% be transferred in this way. Municipalities with port facilities receive a greater impulse in the form of 4% of the revenues of the *Empresa Nacional Portuaria* (ENP) which are received in their borders. In Guatemala the law mandates that 8% of the state budget be transferred to municipalities; in El Salvador the figure is 6%²⁰; and in Nicaragua it is xxx. However, in all cases, it is not unusual for the total transferred in practice to fall well short of the legal mandate.

Improving the planning and development of rural water systems

²⁰ . In El Salvador, the value of works undertaken by the SIF is deducted from the capital transfer allowance for each municipality.

In Guatemala, in the context of the peace accords, new emphasis has been given to rural water programs. With the designation of INFOM as sector planning agency in 1998, this organization assumed responsibility for rural water. INFOM has recently absorbed the main public agencies involved in rural water, including the *Agua Fuente de Paz* program of the Presidency of the Republic, and the Ministry of Health's rural water program, UNEPAR (*Unidad Ejecutora de Proyectos de Agua Rurales*). The latter is funded by the IADB, KFW and by AID's PAYSAs project. In 1997, the various actors involved in rural water in Guatemala – including also NGOs such as UNICEF, CARE and *Agua para el Pueblo* – agreed a Basic Intervention Model (*Modelo Básico de Intervención*) to standardize their methodologies.

In El Salvador, in 1982 the Ministry of Health initiated the *Plan de Saneamiento Básico Rural* (Plan SABAR) for developing rural water systems. However little progress was made and in 1996 this was transferred to ANDA's control. The IADB is now giving technical assistance to develop a proposal to finance more rural aqueducts through the *Gerencia de Servicios Rurales* within ANDA.

2.2.4 Sector regulation

As with the case of reform of arrangements for sector planning, the advances on regulation have been limited.

Economic regulation: tariffs and service quality

The country which has advanced most on regulation is *Nicaragua*, where the 1998 legislation transferred service operation from INAA to ENACAL, assigned sector planning to the Ministry of Construction and Transport and left INAA as regulator. INAA had commissioned a national tariff study in 1994, which provided the basis for new tariff legislation, which was passed by the Congress in 1998 before INAA assumed its new role as sector regulator. This tariff is oriented towards the recovery of full costs, including capital costs, though it stops short of the full long run marginal cost.

In *Honduras*, the reform proposal floated in 1995/96 proposed the creation of a national regulator's office. This was a point of contention with the municipalities, which were to take over system operation under the same law. They argued that the imposition of a national regulator was inconsistent with municipal autonomy, and that they should be regulate themselves. The issue was confused because the municipalities appeared to believe that the regulator would impose tariffs rather than set maximum limits. Early drafts of the law were not clear on this point.

In the *DR*, the reform proposal (which was still being negotiated between the Government and the IADB in early 1999) provides for the creation of a regulator to be called the *Comisión Nacional de Regulación de Servicios de Agua y Saneamiento*, CORSAS. CORSAS would determine maximum allowable tariffs in each system and protect consumer rights, and supervise the compliance of service operators with planning goals set by the sector planner, ONAPAS, which would be included in contract plans and concession contracts. Strangely, CORSAS is also given a key role in public consultation, which arguably should be part of the planning function.

El Salvador (with support from an IADB loan) has developed a proposal to establish the *Agencia Reguladora de Servicios de Agua* (ARESA), which was to be put in place following the March, 1999 elections. This agency would be charged with establishing norms and controls for the delivery of services, will arbitrate conflicts and will set tariff ceilings for all public and private suppliers of urban services. However, it is now unclear whether the new Government will support the creation of ARESA.

In Guatemala, nothing has been done to date to establish an independent regulatory function.

Environmental regulation: water rights, watershed management and water quality norms

El Salvador has shown growing concern about the environmental regulation of water. This reflects the growing awareness within this small country of the severity of the water resource constraint. In 1997 the *Ministerio de Ambiente y Recursos Naturales* (MARN) was created and in 1998 a *Ley de Ambiente* was passed in El Salvador. However, there are still conflicts over the

purposes of the new law and the Executive has dragged its feet on the drafting of the implementing regulations, pending resolution of these disputes. One outstanding issue is a dispute over competencies between MARN and ANDA. ANDA has disputed MARN's ownership of a new USAID water project, *Acceso Gestión y Uso Adecuado* (AGUA), arguing that it should run any project which touches on water services.

Nor has El Salvador yet managed to pass a modern water resource law. However, the government proposes to create a *Comisión Nacional del Recurso Agua*, CONRA, which will have executive powers to allocate water rights between alternative uses. This is supported by the IADB project is under discussion by the soon to be installed new government..

In the DR a new water resource law, was about to be passed in early 1998, but it did not get enough political support to be sanctioned and was repealed by the Congress' upper house. In *Nicaragua* and in *Guatemala*, little advance has been made on water resource rights. Although in each country a draft reform proposal has been submitted to Congress, they have not advanced in the legislative process. Similarly, in Honduras a new water resource law has been stalled in the Congress for several years. However, a revised project was submitted to the Congress in November 1998 and is presently (March 1999) awaiting a committee report prior to proceeding to the second debate.

The reorganization of the Natural Resources ministry in Honduras has also led to improvements in the administration of the sector. Under a state modernization law passed in 1997, natural resources were separated from agriculture and ranching, and fused with the old *Secretaria del Ambiente*, to form the *Secretaria de Recursos Naturales y Ambiente*, SERNA. SERNA has general functions of environmental supervision and has absorbed the *Dirección de Recursos Hídricos* from the old ministry of RR.NN. Coupled with the *Ley de Ambiente* (1991) and *Ley de Municipalidades* (1990/91), which establish a framework for the management of watersheds and for controlling discharges, these changes add up to a significant advance.

Decentralization and environmental management

Across the region growing attention is being paid to the environmental management aspects of WS&S. However, this is not closely related to the level of decentralization of the service provision as such.

In Nicaragua, the ENACAL's regional offices all have environmental units. In Honduras, the state run SANAA has assumed growing responsibility for management of the conflict-ridden watershed of the Río Guacerique, which is Tegucigalpa's main water source. Likewise, municipally operated DIMA in San Pedro Sula is heavily involved in the management of the Merendón forest, which is the source of a large proportion of the city's water and pollution control to safeguard subterranean sources. In El Salvador, ANDA has responded to presidential instructions and become increasingly involved in watershed management issues related to San Salvador's looming water shortage problem.

However, the direct involvement of the WS&S operators in environmental management is usually a response to a vacuum in the overall framework for environmental regulation. As environmental laws and regulatory institutions are strengthened, there is a tendency for regulatory functions to be taken away from the operator and transferred to an independent body.

In some cases, the modernization of environmental regulation in itself involves decentralization. For example, in Honduras the municipalities have been given an important role in the new system of environmental control. They are establishing *Unidades Ambientales* and have formal responsibility for protecting watersheds used for drinking water sources within their territories, regardless of whether the system is operated by the municipality or SANAA. This general strengthening of municipal competencies should strengthen the management of the environmental aspects of WS&S.

Decentralization and health promotion

The drive to improve rural and peri-urban WS&S has been driven in most countries by health concerns, and has usually been led by health ministries. Increasing access to safe water and

sanitation facilities has been a key part of national strategies to reduce infant mortality and improve the health status of the poor.

During the last decade, there has been a growing awareness that this effort needs to be coupled to education and promotion efforts. This is necessary to ensure that users get the maximum possible gain from the improved facilities. For example, they need to be shown how to use and maintain latrines properly, how and when to wash their hands, how to avoid the contamination of their water stores and how to chlorinate drinking water. The importance of this educational complement was underlined in the cholera epidemic in 1992, when promotion of improved hygiene led to a rapid reduction in diarrhea incidence in various countries, without any change in the underlying service provision.

Once again, there is little evidence that the degree of centralization of service provision, as such, has much bearing on this issue. The advances made in recent years in all countries have resulted from the crystallization of a model for developing new systems in rural and peri-urban sectors, in which national organizations provide financial resources and engineering and institutional support to build sustainable systems. *Juntas de Agua* then operate these systems and also assume responsibility for promoting appropriate patterns of use.

It is very striking that where water and sanitation systems are built without this sort of “software package” to assure sustainability both in operation and in use patterns, the results are almost always disappointing. For example, in Guatemala the old UNEPAR rural water program of the Health Ministry simply supplied pipeworks, with poor results in terms of health impacts. But now a fully-fledged water and health program has been developed, called the *Modelo Básico*, which includes strong components for community participation, health promotion and environmental education, as well as the construction component. All the major agencies involved in rural water have subscribed to this model.

Similarly, in Honduras and Nicaragua, early 1990s SIF investments in rural and peri-urban areas, which were requested by municipalities without being tied into an adequate sustainability model, often resulted in very poor results. As a result, efforts are now being made to plug SIF resources into a more adequate institutional framework, often involving a national-level technical assistance agency.

2.3 Conclusions and recommendations

2.3.1 General principles for effective reform

To date, the reform of WS&S in the countries covered by this study has been a complex and rather messy process. Most of the reform initiatives to date have concentrated on the reorganization of service provision, especially that of the excessively centralized state water companies. However, the concrete proposals for change differ greatly from country to country. In Honduras, it was proposed to municipalize the provision of services, but SANAA countered with a regionalization proposal. In Nicaragua reform of service provision has centered on a package of regionalization and corporatization which will open the way for future private sector participation. In the DR corporatization and privatization are under consideration for different parts of the system. In Guatemala there is no proposal to change from the existing scheme of municipal provision. In El Salvador the proposals for service reorganization are not yet determined but a struggle is emerging between some municipalities and ANDA.

The emphasis on service reorganization is understandable, given the failings of the existing providers. However, it is unfortunate, because many of those failings are not intrinsic to the type of provider, but arise due to the absence of planning and regulatory functions separate from the provider themselves. In these situations, the way forward is not necessarily to transfer service provision to another entity, but to get planning and regulation right in the existing systems (whether they are municipally or nationally controlled). Sometimes it is necessary or advisable to transfer service provision to a new entity in order to do this, but sometimes it is not.

Nevertheless, some simple principles are beginning to emerge from the confusion, which might help to improve matters in coming years:

- Firstly, whichever political level of the state is in charge of ensuring service provision, national or municipal, it needs to make a clear plan for scope and quality, which should be agreed politically with the community. That agreement needs to include a commitment to assign the resources necessary to meet the goals, preferably through tariff income, but otherwise through transparent subsidies.
- Secondly, the national and municipal planners need the support of a technical office, which can supply information about necessary costs and help with the technical supervision of the service provider. This regulatory function is absolutely necessary. It should probably be located at national level, in order to avoid duplicating costs and to promote effective comparison of system efficiency, but might be collectively controlled by the municipalities.
- Thirdly, in systems of any size or complexity, the use of indirect provision (through corporatization or private sector participation) improves the probability that the service providers will meet the planning goals. This is the case because it places the political authorities in the position of defining and then supervising the contract (with the help of the regulator), rather than running the service.

To date, only Nicaragua has carried out a wide-reaching reform, which can claim to respond to modern criteria on the need for separate functions in planning, regulating and directly providing services. In Honduras, efforts to do the same ran foul of the lack of a national consensus on the organization of service provision and disputes about the appropriate scope of national regulation. In the DR a global sector reform is at a relatively early stage of planning and the Executive's lack of political support in the Congress makes it likely that legislation will be delayed. In El Salvador a coherent overall reform strategy was agreed between the government and the IADB in 1998 and is being discussed. However, there are tensions between ANDA and the municipalities on their respective roles in service provision and between ANDA and MARN about water resource management. In Guatemala, change has been piecemeal and has concentrated mainly on rural water. There is no reform strategy and the issue of regulation has not been broached.

2.3.2 The role of decentralization in reform

In this context, what can we say about the role of decentralization in the future of the sector, in relation to key themes related to effective performance identified in the present study? Although the evidence is still patchy, some conclusions are beginning to crystallize. These are summarized in the following paragraphs.

Decentralization and the cost effectiveness of service provision

A key factor limiting the decentralization of service provision to municipal level in most countries in the region is the small scale of the cities. Although not all would agree, it is often reckoned that a minimum viable population size for a commercial water and sewerage operation is 25,000 (implying some 5,000 connections). Below this size the scale economies of system administration are more difficult to achieve. Unit costs start to rise and service quality deteriorates due to the difficulty of contracting an engineer to run the operation. Also, capital costs are more burdensome to a small municipality.

In Honduras, for example, only twelve cities (out of 292 municipal capitals) have populations above 25,000. This constitutes an obstacle to making the existing municipal systems more effective, and is a valid argument against breaking up the seven regional operations of SANAA (which all have 5,000 or more potential connections). Similarly, in El Salvador, 65% of the municipal capitals have a population under 3,000, and 51% have less than 2,000.

One way round this is the establishment of inter-municipal organizations. This was broached in Honduras during 1995-96 and the Colombian example of Aqua Valle was touted as a model. However, inter-municipal jealousy might make it difficult to achieve this. The best option might be to convert the existing SANAA regions into contractors to the municipalities they cover, in order to

establish examples that might convince other municipalities of the advantages of banding together. SANAA broached this idea in 1998.

Decentralization, sector planning and governance

There has been a growing awareness in the region that the key function of government (either national or local) in relation to public services is strategic planning, including assuring that the service is provided on reasonable terms to the users. Government need not necessarily be a direct service provider, and there has been growing interest in the advantages of contracting private operators for all sorts of services.

In Guatemala, where the central government never grew very large, this is a relatively long-standing tradition. In other countries, the rolling back of the state as direct provider is proving a tortuous matter, but is making headway. Crucially, municipal governments are learning the same lessons, and realizing that taking over a public service does not necessarily mean operating it themselves.

At the same time, there has also been growing awareness of the importance of popular consultation and transparency in order to increase the legitimacy of the decisions taken by government. The Honduran municipalization movement has been at the forefront in this regard, with the development of *cabildos abiertos*, where the public is invited to participate in the debates of municipal governments. The Honduran SIF has also adopted this type of consultation.

The development of decentralization in the WS&S sector reflects these considerations. Historically, both national corporations and municipalities which operate their own water systems have been in charge of planning, but have exercised this function weakly, concentrating rather on system operation. There has been little or no popular consultation and little has been done to trace through the resource requirements implicit in different service development decisions. Planning has rarely amounted to more than the costing of the next capital project and the negotiation of funding from the government or a development agency.

In systems which are already municipally owned and run, the challenge is to help the local government understand the distinction between the planning and operating functions, and wherever possible to pass system operation to a contractor.

In the case of systems at present owned by a national government agency, and slated for transfer to municipal ownership under decentralizing reforms, an opportunity exists to proceed directly to a package of local government control and indirect service provision.

For example, in the scenario for municipalization of the SANAA systems in Honduras, outlined at the end of the previous section, the municipalities would become owners of their systems. They would be in charge of the strategic planning decisions that determine the targets for scope and quality and set the corresponding tariff and subsidy allowances. This would involve ample public consultation, and thereby strengthen governance. But the operator would be a regional company, whose performance is governed by a contract, which also protects him from political interference in the system's operation, and whose scale is sufficient to provide good value for money.

Decentralization and cost recovery

There is no good evidence that decentralization, as such, improves cost recovery in WS&S in the region under study. In the absence of appropriate separation of the service operation from political control, both nationally and municipally run systems are prey to under-charging.

Users tend to regard the tariff as a tax, which, technically, it usually is, as there is little metering. The users' optimal strategy is to attempt to minimize the tax, because this will not directly affect the service they receive. In the face of the gathering clouds of low level equilibria, which inevitably result from the lack of system income and the limits to the availability of resources for

subsidy, users eventually resort to rent seeking strategies to improve service scope and quality for themselves, via political lobbying.

If anything, this problem is worse in municipal than in nationally controlled systems, because the tariff-tax is a relatively important proportion of total municipal taxes and the resources available for subsidy are more limited than in the case of national governments.

In contrast, the evidence suggests that where services are independent of political control, users are willing and able to pay for WS&S services, even in relatively low-income communities. In this situation, the users believe that the only way of getting or improving services is to pay for them, because the operator has no potential access to subsidy resources and has high credibility in turning tariff revenues into delivered services.

Decentralization and economic regulation

Regulation in the past has been limited to tariff laws covering national water companies; and in some countries not even this has existed. With the move to decentralize control of the services, there has been reluctance at municipal level to accept the tutelage of a national regulatory office.

However, the regulatory function is vital to the effective operation of WS&S services, for the reasons explained in section II.A.3 of this paper. Without the presence of a regulator, the public has no way of knowing if it is paying a fair price for the service. While this might be overcome in very small community based systems by information sharing in group sessions, in systems of any size it is impossible for ordinary users to have confidence in information supplied by the operators themselves about their necessary costs.

While in principle there is no reason why each municipality should not organize its own regulatory office, the costs of doing this in small cities would be prohibitive. Also, one of the most effective regulatory mechanisms, widely used in both Europe and Latin America, is the comparison of the performance of different systems. But this presumes that each regulatory office should have access to detailed cost data from various systems, in order to establish reasonable "benchmarks". In this sense, a single – municipality regulatory office would be likely to be not only relatively expensive, but also relatively ineffectual.

However, this problem might be overcome by establishing a national regulatory office controlled collectively by the municipalities. It need not in principle be part of the central executive apparatus.

Decentralization, environmental regulation and health promotion

The modernization of WS&S should normally involve the separation of the environmental regulation function from that of service provision. In the past, the major WS&S providers have normally assumed the function of environmental control because the national and local environmental authorities have been weak or non-existent. However, with the strengthening of environmental management, the WS&S operators should now tend to surrender this function, regardless of whether they are centralized or decentralized.

In itself, environmental control is a spatial matter which should therefore be largely delegated to local governments by the national authorities, regardless of the level of decentralization of WS&S. This is starting to happen in Honduras, where municipalities are setting up *Unidades Ambientales* which form part of the national system of Environmental control, coordinated by the Ministry for Environment and Natural Resources.

Finally, great advances have been made across the region to develop sustainable packages for rural and urban-marginal water supply, including components for education and training in hygiene and the safe use and disposal of water. Here, integrated packages – supported by the health authorities but also including the water supply agency (normally a community based body) - have been key to delivering the desired health results (reduced intestinal infections). In general, health promotion is best carried out at a local level in a decentralized system, whether by local offices of the Ministry of Health, the municipality, NGOs, or the water and sanitation operator.

3 Case studies

3.1 The Dominican Republic

3.1.1 Overview of the reform process

The Dominican Republic has only recently initiated systematic efforts to modernize its WS&S sector. The debate over reform started at the mid-1996 meeting of the ADIS (*Asociación Dominicana de Ingeniería Sanitaria*), the professional body of Dominican sanitary engineers. Earlier in the same year, President Leonel Fernández Reyna took office and introduced reform initiatives geared to improve the country's public administration and to strengthen the economy.

In the ADIS meeting, there was a consensus among the public institutions responsible for WS&S provision, to the effect that the sector should become more efficient and progressively modernize service delivery, with increasing private sector participation.

Since then, the government has adopted various measures to initiate the reform process. Important landmarks were the organization of an Inter-Institutional Technical Committee to oversee sector reform and the drafting of a Sector Diagnosis (completed in April 1998) which serves as a starting point for developing concrete reform initiatives.

Policy dialogue with multilateral agencies (including the IADB, the World Bank and USAID) has opened the way for future financing of capital works and technical assistance to the sector's institutions. The IADB has led the way on TA related to the reform process as such, assisting the government in the formulation of a new organizational model and a program for the institutional strengthening of the present service providers. Early in 1999 the IADB will provide TA for the start-up of a regulatory body for WS&S.

As a result of these initiatives, although the debate on sector reform started quite recently, the process is advancing rapidly. The rest of this section details the main proposals for reform, explains what has been achieved to date and identifies the issues which remain to be resolved.

3.1.2 Strategies for the reorganization of service provision

Centralization versus municipalization

Between 1955 and 1962 the DR experimented with the devolution of WS&S to the *Ayuntamientos* (municipalities). This phase of sector development is generally regarded as having been a failure, and ended up with the re-centralization of the services under INAPA in the early 1960s. Following this, CASSD was established for Santo Domingo. More recently, the INAPA systems for Santiago and Moca have been transferred to new state corporations, CORAASAN and CORAAMOCA.

Although the State Modernization and Reform Program seeks to strengthen provincial and local governments' capacity to address local needs, at present opinion among WS&S sector leaders does not favor a future role for the *Ayuntamientos* in service provision. The political tensions between the executive and municipal governments were exacerbated by the 1998 elections, when the opposition parties took power in many town halls, further undermining the likelihood of devolution of power to local governments.

In this context, alternative strategies have been developed for the reorganization of service provision, based on corporatization of the main urban systems; concessions for potentially profitable systems in tourist areas; and the devolution of small scale urban and rural systems to community control.

Urban systems

An outstanding fact about the Dominican case is that large investments that have been made in the sector over the last two decades, but system operation remains deficient, with very high levels of unaccounted for water. Apart from CORASSAN, the operating companies have not

implemented sound cost recovery practices: they depend heavily on a central government transfer to finance all new investment and a good part of their operating costs.

The principal proposed strategy for the transformation of the service providers is *corporatization*, along the lines of the Chilean model. The main urban providers, CASSD, CORASAN and CORAMOCA are to be transformed into *Sociedades Anónimas*, which will operate under private law, applying commercial principles, which are consistent with an efficient set of incentives. These companies will have Contract Programs, to be agreed with the sector authorities and supervised by the regulator. Contract-Programs are formal agreements between two parties, the state and the operators, whereby the state agrees to finance capital works and not to interfere with the management of the operators. For their part, the operators agree to meet pre established efficiency goals. The Programs are an external manifestation of key points in the companies' business plans. They seek to improve technical efficiency and service quality; rationalize investments; reduce unaccounted for water through sectoralization and micro metering programs; establish tariffs that will allow for full cost recovery and strengthen the commercial function to generate corporate incomes which permit financial sustainability.

In the tourist zones of the country, where the potential profitability of the systems is high and there are large capital needs to improve and extend service coverage it is proposed to organize a concession to a private operator. This is to be supported by a World Bank loan to the tune of \$100 million.

Rural systems

In smaller towns and rural areas, INAPA remains the responsible agency. INAPA is formally responsible for 252 rural aqueducts, but most of these systems are not properly managed and receive sporadic technical support through INAPA's regional offices. The result of this lack of institutional support for rural systems is *de-facto* self-administration: the communities take over the operation of the services to ensure their delivery. In smaller and more remote areas, many communities develop, build and operate their systems.

The Sector Diagnosis identified the need to support INAPA's regional operations, which are divided into 8 different zones, as a preparatory step in a transition towards the creation of regional public enterprises. Once these business units are formed, it would be easier for the government to decide on continuing to work at a regional level or whether it should promote the creation of local operations, managed by either municipal or a private operator.

Prior to the present discussions about sector reform, the 1995-99 period saw a variety of initiatives "from below" which were geared to improve INAPA's performance with rural aqueducts, and are likely to be influential in shaping the eventual reorganization of the sector.

The construction of systems is now coupled to *programs to promote community participation and components for health and environmental education*. Previously, INAPA centered almost exclusively on the physical development of systems with no measures to ensure their sustainability. External agencies such as JICA and the EC have supported such programs both in rural and in urban marginal areas.

A *Rural Aqueducts Decentralization Program* was organized within INAPA, which had a mandate to draft a national strategy for the decentralization of rural WS&S services. USAID has assisted in setting up a program executing office. INAPA would "contract" with NGOs in each of its operating regions to work directly with communities and INAPA's role would be that of a regulator. The office started a pilot project in the province of Hato Mayor in 1997, under which 31 systems are to be devolved to local communities. The methodology involves citizen participation at all levels. A Rural Community Enterprise (*Empresa Comunitaria Rural*, ECOR) runs WS&S in each locality. A common legal basis, and standard training and operating routines have been developed for these associations. Unfortunately, the Rural Aqueducts Decentralization Program ground to a halt in mid 1998, due to Hurricane Georges and other internal changes in INAPA. Nevertheless, this strategy is likely to define the reorganization of WS&S services in rural areas and small cities in the future.

3.1.3 Sector Planning and financing

The Sector Diagnosis concluded that the planning function (including policy making, setting targets for coverage and service quality, coordination between institutions, and the mobilization of financial resources) was dispersed among various government entities, including the service providers. The study argued that planning is a key activity in sector development and criticized the high degree of politicization (and hence arbitrariness) in decision making related to sector financing and tariff setting. Another outstanding problem is the absence of transparency in contracting procedures. The awarding of contracts at present is too often abused to 'repay' personal and political favors. This form of political capture of the operators is a direct product of the absence of properly defined planning and regulation functions, separate from service operation.

As a response to the absence of the sector planning function, the government organized a Oficina Rectora de la Reforma y Modernización del Sector Agua Potable y Saneamiento (August 1998) to oversee the sector's transformation. This organization gives continuity to the activities initiated by the Inter Institutional Technical Committee mentioned above.

During the transition, the Oficina Rectora de la Reforma will perform regulatory functions, supervising the Contract-Programs (performance contracts) that the government will sign with the service providers. Performance contracts are selected as the means to improve overall efficiency through a regulatory mechanism, ensuring better accountability from the operators.

The Oficina Rectora de la Reforma will eventually be converted into the new sector planning office, to be called the *Oficina Nacional de Políticas y Planificación Sectorial* (ONAPPAS). This office will determine sector policies and decide on the allocation of public resources to support sector development, including investments and technical assistance. It will also draw up and sign contracts with the service providers on behalf of the government.²¹ The top officials of ONAPPAS will be appointed by the executive.

A Water and Sanitation Investment Fund (FIAS in the Spanish acronym) is being developed as a key agency for sector finance. The fund – to be capitalized initially with an IADB loan, which is tied to sector reform - will channel the financial resources the central government allocates to the sector and resources from loans and grants obtained from external sources. It will link access to funding to the requirement of sound tariff setting practices and the overall efficiency of the service providers.

Another source of finance for small-scale systems is the Dominican Republic's social investment fund, PROCOMUNIDAD, which was established in 1995. This program is financed by a number of multilateral and bilateral agencies and countries. It builds and rehabilitates local infrastructure while generating employment. It is regarded as an agile instrument for local level interventions, and though it does not have a strong WS&S component, it may in the future act as an important means to improve coverage in poor urban and rural communities. INAPA's *de-facto* abandonment of small rural communities makes PROCOMUNIDAD a likely candidate to undertake future investments for the construction of new systems.

3.1.4 Sector regulation

Economic regulation

The sector reform proposal was developed with TA funds from the IADB and is at present (March 1999) under discussion between the government and the IADB. It proposes to assign the regulatory function to the National Commission for the Regulation of Water and Sanitation Services (Spanish acronym: CORSAS). The specific duties of CORSAS would include: 1) Determine maximum permissible tariffs of the operators according to efficiency criteria; 2) Protect the consumer in relation to his service rights; 3) Supervise the compliance of Contract-Programs to be agreed between the service operators and ONAPPAS.

²¹IADB Project Report (draft), November 1998.

CORSAS is conceived as a technical office. To avoid political interference it is proposed that the appointment of its principal officials should be for administrative periods that do not coincide with the presidential cycle.

Two consultation bodies are to be attached to CORSAS: one composed of service users' representatives, and the other of private development and voluntary organizations, which are active in the sector. This seems to be a confusion of functions, since public consultation is normally regarded as a planning function rather than a regulatory function. There may be a danger of "user capture" of the regulatory body as a result of this arrangement, leading to pressure to under-charge.

Environmental regulation

The Dominican Republic still has inadequate legislation, administrative dispositions and institutions to deal with environmental regulation. In March 1998 a Water Code (Código de Aguas), sponsored by the Dominican Institute for Water Resources (INDRHI, *Instituto Dominicana de Recursos Hídricos*) got approval by the Congress' lower house but was later repealed by its upper house. This code regulates the use, administration and conservation of water, watercourses and engineering works related to water, and it makes the INDRHI the organization responsible for the application of the Code. However, the draft law for Environmental Protection (*Anteproyecto de Ley de Protección Ambiental*) which was remitted to Congress in 1996 has not advanced and it seems unlikely that it will ever be passed.

In the meantime, the Presidency of the Republic has created an ad-hoc committee for Natural Resources and the Environment. This committee has a mandate to draft a new General Law for the Environment, including the organization of a Ministry of the environment and to develop a National Plan for the Awareness and Environmental Education. However, the executive has not withdrawn the previous draft law from the Congress.

To complicate matters further, an Environmental Protection Institute (INPRA, *Instituto de Protección Ambiental*) was created in 1998. INPRA's functions would conflict with those of the ad-hoc committee, but during 1998 it was still not functioning because it was not budgeted for in that fiscal year.

The existing norms for water and wastewater quality are NORDOM 1 (1979) and 436 (1991) respectively. The organization in charge of overseeing the application of the norms is the National Directorate for Norms (DIGENOR, *Dirección General de Normas*), which is part of the Ministry of Industry and Commerce.

In the case of water quality, the main problem is that there is no simplified and effective mechanism to monitor, supervise and control, and enforce water quality parameters that have been established. In the case of wastewater, the two outstanding problems are the lack of a national policy for the protection and recovery of rivers and creeks; and the absence of a simplified and effective mechanism to monitor the quality of effluents discharged into receiving bodies and enforce the corresponding norms.

3.2 El Salvador

3.2.1 Overview of the reform process

The reform process in El Salvador was initiated in the present administration (Calderón Sol, 1993-1999). It is marked by an effort to modernize the National Water Administration (*Administración Nacional de Aguas*, ANDA), together with a mandate from the Presidency to tackle the country's water resources problems, including the pollution of water sources and receiving bodies. At the same time, the country is undergoing profound changes in public services and infrastructure, including energy generation and distribution, telecommunications, ports and the financial sector. One can conclude that there is favorable climate for reform.

The reform programs are sponsored by the Presidential Commission for the Modernization of the Public Sector (Spanish acronym: CPMSP). In February 1995 a Coordinating Commission for the

Reform of the Water Resource Sector (Spanish acronym: COSERHI) was formed, with representation from the CPSMP, the President of ANDA and the Ministry of Agriculture. It, in turn, has a Modernization Coordination Unit, which acts as a technical support body.

The country's severe water resource problems have led to a proposal to create of a National Council on Water Resources (CONRA, *Consejo Nacional del Recurso Agua*), which would act as the policy making body and national authority on all matters concerning water resources. The link with the national government would be established directly with the Presidency of the Republic. If CONRA is established, it will be the sole agency with the right to assign concession rights to water uses. It also has the remit to prepare a Clean Water Law, along with the Ministry of the Environment and Natural Resources. The governing body of CONRA will be made up of a President and three councilors, all appointed by the President of the Republic following a merit-based public contest. CONRA will have the power to nominate Watershed Management Boards.

The proposal for the reorganization of the water supply and sanitation (WS&S) sector has been negotiated between ANDA, acting as leader within the sector, and the IADB; all under the context of a loan operation worth approximately US\$60 million. The rhythm of reform slowed, pending the national elections of March 1999. The new government has made decentralization one of its primary objectives and is currently developing its policy.

3.2.2 *Strategies for the reorganization of service provision*

Urban systems

There are two competing modernization models in play for WS&S in El Salvador:

- A model geared toward Private Sector Participation (PSP) as a first principle, sponsored by the IADB.
- The municipalization model, based on the devolution of water systems to local governments as a first principle, promoted by USAID.

ANDA is well aware that alternative visions are being promoted by different agencies, but to date has been unwilling to commit itself to one model or the other, preferring to study the concrete options for each particular system. Nevertheless, the magnitude of resources that the IADB is offering (in comparison to other programs) makes their model the more likely to succeed. The municipalization model relies on support from local development associations, the municipalities themselves and external cooperation agencies that regard municipalization both as a valid model for the provision of services and a good means for strengthening democratic structures and furthering governance.

However, the IADB – sponsored modernization project does not define the future institutional arrangements for service provision in the main systems. Rather, this issue is to be remitted to the Unit for Entrepreneurial Restructuring (Spanish acronym: URE), which is charged with proposing the most appropriate model for each case, according to financial, technical and political criteria. Within this scheme, the devolution of systems to the municipalities is one of the options on the menu.

Nevertheless, it is anticipated that the larger cities will proceed to Government concessions with private operators, without necessarily involving the municipality in the letting or regulation of the contract. For San Salvador, a concession with an international operator is foreseen, following a preparatory phase when a management contract will be awarded. San Salvador is ANDA's most attractive operation, with a population of around two million, accounting for 56% of all ANDA's connections and 70% of its revenues. Similar schemes are foreseen for Santa Ana and San Miguel (each of which has a population approaching 200,000).

The political defeat of ARENA, the ruling party, in the 1997 municipal elections has adversely affected the prospects for the devolution of systems to local governments, since the national authorities are not enthusiastic about handing increased power to municipalities controlled by the opposition. An illustration of this point is the ongoing legal wrangle between ANDA and the opposition-controlled Municipalities of Tacuba and Ataco. The President of ANDA has sued them,

following their takeover of the physical installations and administration of the water systems. The formal charge is the "usurpation" of state goods. ANDA has utilized the resulting legal impasse as a pretext to halt other initiatives involving the devolution of water systems to municipalities, including those that form the Tetralogía Project.

The municipal movement in El Salvador is relatively young, but is growing in strength. It can draw on support from various agencies, including the Salvadoran Institute for Municipal Development (Spanish acronym: ISDM), a central government institution; the Corporation of Salvadoran Municipalities (COMURES), which is an association of local governments; and the FISDL, the social investment fund.

However, there is still a limited tradition of local provision of services. The Municipal Code (Código Municipal, Decreto Legislativo #274 of January 31, 1986) contains no special provisions for locally administered water and sanitation services. There are articles that address public services in general and allow for various forms of direct and indirect administration, mainly through the formation of mixed companies with private agents. At present, of the 252 municipalities, only 78 manage their own water systems (31% of the total). Most of these are really concentrated rural settlements and none has a population over 20,000. The larger towns and cities are covered by ANDA.²²

Rural systems

In recent years the management of rural water has become more centralized. In 1996, 308 systems that were constructed and managed through the PLANSABAR project, an effort coordinated by the Ministry of Health and financed by diverse external agencies, including USAID, were transferred to ANDA. ANDA now directly manages close to 700 rural systems. Around 400 systems were built by the SIF. The management of the systems is done locally through Rural Aqueduct Associations (Spanish acronym: AARs). There are also a number of systems that have been built with the assistance of USAID, CARE El Salvador, Creative Associates International Inc., and international NGOs. There is a consensus that the ownership, control and administration of rural systems should be passed to the communities, but making adequate provisions for technical and administrative support.

3.2.3 Sector planning and financing

According to the IADB proposal for sector re organization, the planning function is to become the responsibility of the Ministry of the Economy. It is charged with approving the policies, plans and strategies for the delivery and expansion of water and sewerage services in accordance with national policies on public health, environmental protection, water resource conservation, urban development, public finances and community development.

As in other countries in the area, there is a transfer of 6% of the national budget revenues to municipalities for capital works finance. This mechanism, approved in January 1998, is proving an important factor in the development of local infrastructure. The funds are obtained through COMURES and channeled through the SIF, which was recently renamed the Social Investment Fund for Local Development (Spanish acronym: FISDL).

As mentioned above, there is a growing consensus that the ownership, control and administration of rural systems should be passed on to the communities. The IADB will support this process through the loan operation mentioned above. However, this leaves open the issue of who will take the lead on the planning, financing and construction of new rural systems. A recent consultant report (Martinez, 1998) identified the following issues to be decided:

- 1) Who will oversee the development of the rural aqueduct program. Will it be the municipalities or private contractors, acting under authority delegated by the sectoral regulator? Or will it be

²² In El Salvador, 65% of the municipal capitals have a population under 3000, and 51% have less than 2000.

a centralized state run unit such as the existing Gerencia de Sistemas Rurales (GSR) within ANDA, acting through its regional offices?

- 2) Who will supply the Technical Assistance needed for major maintenance of equipment / engineering²³, and basic administration of the rural systems?

3.2.4 Sector regulation

The regulation of WS&S provision

According to the draft proposal, the Regulatory Authority for Water Services (Spanish acronym: ARESA) is to be created as an independent body, linked to the Government through the Ministry of Economy. Its functions include the following:

- Dictate regulatory norms;
- Control the provision of water services
- Sanction contract breaches
- Arbitrate in conflicts
- Apply incentives and stimulate efficiency

The direction of ARESA will be made up of three members nominated by the President of the Republic, following a public contest to select candidates according to merit. A fee paid by water users as a component of the tariff, which should reflect only the cost of an efficient regulation, will finance ARESA.

According to the draft, all public, private or mixed service providers are to be subject to regulation. ARESA will draw up contracts under which the government awards the right to provide services to the operators. The draft law defines the criteria to be used to define quality in service provision and establishes the following principles govern tariff setting: economic efficiency, financial sufficiency, equality, transparency, simplicity, equilibrium between supply and demand of the services.

As elsewhere in the region, the regulation of public services is a relatively new idea in El Salvador. It will be necessary to educate public officials at a national and local level, as well as the general public, as to its importance to the improvement of water and sanitation services. At a municipal level, there is a general lack of knowledge as to what regulation is, and little is known about the initiative to create ARESA. As a result, once ARESA is in operation, one can anticipate a conflict between central government regulation and municipal autonomy, similar to that recently experienced in Honduras (see case study, below). This could be avoided by a concerted effort to provide information and reach an agreement on the respective roles of the different levels of government in both service provision and its regulation.

Environmental regulation

The grave water resource problems facing El Salvador have made environmental regulation and management a central axis of sector reform, to a greater degree than in any other country in the region. Median annual precipitation stands at 2,000 mm, concentrated in a six-month rainy season. Furthermore, 85% of forest coverage has been eliminated, making El Salvador the second most deforested country in the continent.

Given the lack of abundance of water sources, the serious pollution problems in water sources and the contamination of receiving bodies are truly alarming, particularly in fast growing urban – industrial centers such as Greater San Salvador and in rural areas where agro-industrial activity such as coffee processing is centered. It has been estimated that close to 90% of superficial water sources are contaminated. In spite of the gravity of the problem, there is little precise

²³ Some rural systems are quite complex, providing water to a number of localities, or are multi purpose, all in accordance to local conditions of scarcity and pollution of existing sources.

technical information available about sources and uses of water: the last national water balance was estimated in 1979.

Not surprisingly, in this context, the issue of water rights is highly controversial. It is for this reason that the Government chose to tackle the issue via the creation of CONRA as the sole water authority, with discretion to assign water rights, rather than legislating to allocate water rights in a permanent fashion to different users. The law that creates CONRA stipulates that human consumption has priority over all other water uses. The draft legislation calls for the organization of a users' registry, and to the drawing up of a technical inventory of water resources.

The norms for drinking water quality and control of domestic and industrial wastewater are the CAPRE (*Comité Coordinador de Instituciones de Agua Potable y Saneamiento en CA, Panamá y la República Dominicana*) norms, adopted in 1995. Formally, the responsibility for vigilance on compliance with water quality norms rests with the Ministry of Health and Social Assistance. For quality of effluents, it lies with the new Ministry of the Environment and Natural Resources (Spanish acronym: MARN) which started functioning in May 1997. The Ministry enjoys a relatively high profile within the national public administration. The Law of the Environment was passed in 1998, but still lacks instrumentation and is now undergoing a phase of dissemination.

3.3 Guatemala

3.3.1 Overview of the reform process

The case of Guatemala is unusual in the Central American context, in the sense that no single national office is responsible for the oversight of sector development and service delivery is already fully decentralized. The municipality is already the central actor, effectively responsible for service provision and for what there is by way of the planning and regulation of urban services.

The lack of sector leadership is an obstacle to the transformations needed to confront the serious problems of low coverage and low-quality urban services, particularly in small urban centers. There is no reform project, sponsored either by the government or by an external agency, promoting improved planning, regulation, operation, financing, and construction of urban water and sanitation services.

In the rural sector the central government has an important role and has recently acted to strengthen the expansion of coverage and to improve the quality of provision. Rural water and sanitation has ranked high in the political agenda of successive governments. Following the Peace Agreements to end the civil war in the early 1990s, the "Water, Source of Peace" (*Agua, Fuente de Paz*) program was set up to reach communities that suffered from the war, usually located in remote poor areas of the country. The government of President Alvaro Arzú has shown a strong commitment to improved rural coverage. The Social Investment Fund has an important role in this process.

3.3.2 Strategies for the reorganization of service provision

Urban water

Nothing has happened to date on the reorganization of urban systems. They remain municipally run with no national or regional coordination, with the exception of some localized sectors of Guatemala City, where private companies run systems.

The absence of regionalization is an important issue, as it means that no agency gives technical assistance to municipalities, most of them too small to be technically self-sufficient. This sort of support could be offered at a regional or sub regional level.

The National Association of Guatemalan Municipalities (Spanish acronym: ANAM) promotes coordination between municipalities, but does not have a central role regarding water and sanitation services. The UNEPAR and INFOM have both have regional offices, which could potentially be used in providing technical assistance.

There has been little discussion in Guatemala to date on the reorganization of urban water services to increase autonomy and improve effectiveness in service operation, via corporatization, or privatization (through service, management, and lease or concession contracts).

However, in Guatemala City, which faces the double problem of a financial crisis in EMPAGUA coupled with a severe raw water shortage, moves have been made to mobilize private capital for system development. A public tender has been opened for a private company to build new infrastructure to bring water to the city, to be sold to EMPAGUA on a guaranteed ("take or pay") basis (a BOT contract). EMPAGUA will continue distributing and selling water to individual clients.

The case of private providers in Guatemala City is worth a short commentary. They account for approximately 8% of total connections in the city. A private water company, Mariscal, was awarded a "concession" to provide services using private wells in some parts of the city in the early 1980s. The rest of the private connections arise from small urbanization projects developed by private companies – often a long time ago - but whose water services were never incorporated into the city's water network.

Rural water

An important recent development has been the government-led effort to unify efforts and define common goals among the agencies concerned with rural water. This has brought together UNEPAR (*Unidad Ejecutora para Acueductos Rurales*), formerly a Ministry of Health program, with the *Agua Fuente de Paz* program, which was run directly by the Presidency of the Republic, under the aegis of INFOM, newly designated as the sector planning agency (see below).

Together with other programs funded by multi- and bilateral agencies, they have developed a Basic Model (*Modelo Básico*) establishes technical norms for the construction and operation of systems and incorporates sanitary and environmental education and community participation. As is well known, all these factors are important to making rural water projects sustainable. Nevertheless there is still a need to improve coordination between the institutions.

3.3.3 Sector planning and financing

Under a 1997 governmental decree, passed by the Ministry of Agriculture, the Institute for Municipal Development (Spanish acronym: INFOM) was placed in charge of sector planning. INFOM is the body that has traditionally supported municipalities in the development of infrastructure, awarding loans and providing technical assistance. The IADB is preparing a new loan operation that includes a component to strengthen INFOM's capacity to formulate policy.

Since the early 1990s the government's capital transfer to municipalities, totaling 8% of the national revenue budget, has helped local governments to develop their sanitary infrastructure. Some of these funds have been utilized to obtain loans from private banks on market terms.

The Social Investment Fund (SIF) is also becoming a key institution in expanding coverage of sanitary infrastructure. In 1998, the SIF requested that the central government assign to it investment funds previously assigned to INFOM-UNEPAR, since they were capable of quicker disbursement due to the normal FIS-style exemption from laws governing public contracting. In the 1999-2000 period close to US\$30 million will be spent on rural aqueducts by the government as a whole.

3.3.4 Sector regulation

Economic regulation

In the absence of any national legislation on the matter, sector regulation is a *de facto* an endeavor of local government, based on the precepts of municipal law. The setting of tariffs is a municipal responsibility, and (as observed elsewhere in municipally run systems) there is a widespread tendency towards under charging. Service regulation and the setting up of tariffs are seen as highly political issues.

Environmental regulation

A Ministry of Water Resources (Spanish acronym: SRH) was created by Governmental decree in 1992. The Ministry was abolished in 1997, and a residual Directorate was placed within the Ministry of Agriculture. Its main responsibilities were to prepare a national policy and plan for water resources, to prepare a cadaster of resources and to administer the use of water sources.

In the field of legislative modernization, a General Environmental Law was passed in 1986, the first such law to be passed in Central America. However, it has experienced a number of difficulties in its implementation. A draft General Water Law (*Ley General de Aguas*) which was presented to the National Congress in 1993 is still awaiting discussion. Also still in draft is a law to control wastewater discharges into urban sewers.

3.4 Honduras

3.4.1 Overview of the reform process

Honduras' urban WS&S are mainly run by municipalities, which are responsible for an estimated 62% of all connections, compared with 23% for the National Autonomous Service for Water and Sewerage (Spanish acronym: SANAA) and some 15% run by private voluntary entities in urban marginal areas. At a national level, sector planning – formally the responsibility of the Health Ministry - is effectively delegated to SANAA, which therefore has a conflict of interest between its service provision and planning roles. The municipal sector has no economic regulation. The National Commission for the Supervision of Public Services (Spanish acronym: CNSSP) controls SANAA's tariff.

Between 1994-96 there was an intensive debate over reform, triggered by a proposed sector adjustment operation proposed by the IADB and the World Bank, who offered US\$ 65 million in balance of payments support. The reform initiative failed because no political consensus could be reached between the different actors involved, and the loan operation was dropped.

The main lines of the proposed reform were:

- 1) For sector planning: the creation of a Vice Ministry of Health responsible for Water and Sanitation (in a later version, a specialized planning agency was to be created out of the rump of SANAA).
- 2) For service provision: (a) The mandatory municipalization of the 20 or so secondary city systems operated by SANAA, with a presumption that municipalities would seek indirect forms of service provision wherever possible and that small municipalities would seek a viable scale of operation through multi-municipal schemes. (b) The letting of a management contract for SANAA's metropolitan system in Tegucigalpa, with a view to proceeding later to a full concession.
- 3) The creation of an independent regulator who would supervise the municipal service providers.
- 4) Rural water: SANAA was to remain as a technical body responsible for rural aqueducts.

A draft law to this effect was prepared by the State Modernization Commission and revised several times (most recently in 1998). In 1997, SANAA, together with other institutions opposed to the original project, prepared an alternative reform proposal. The National Congress requested that a third project be prepared, based on consensus between the two. However, there is no clear indication that WS&S reform has any priority in the congressional agenda.

Other agencies – most notably USAID and the Spanish development agency – have strongly promoted the municipalization of WS&S as part of their general support for decentralization and the strengthening of governance. In this context they have given both technical assistance and loans to strengthen municipal water operators, tying their resources to improved performance on financial and technical sustainability. However, they have shared the municipalities' opposition to the creation a national regulator, which they view as an intrusion on municipal autonomy. In the

rural sector, USAID has also worked effectively to promote a sustainable model for the development and operation of small systems, working closely with SANAA.

More recently, the IADB's strategy has shifted to emphasize the transformation of the larger municipal service providers, such as San Pedro Sula and Puerto Cortés, through lease and concession contracts, which aim to isolate the operator from political interference. Although the IADB has continued to promote the creation of a national regulator and has conditioned access to loan resources on this, this shift to working with the municipalities has led to a growing consensus among key actors about what should be the main elements of reform.

3.4.2 *Strategies for the reorganization of service provision*

Initiatives to strengthen municipal service provision

As mentioned above, the idea of municipalization is at the heart of the debate on the reform in Honduras. The Law of Municipalities, passed in 1990, provides a statutory basis for this, and during the nineties, the growing strength of the municipal movement has been reflected in demands for the devolution of systems from SANAA. These have been successful in the cases of Puerto Cortés and San Lorenzo.

Although skepticism about municipal capacity effectively to administer services was one of the factors which undermined support for the reform proposed by the CPME, the fact that most urban WS&S services are already provided by municipalities makes obligatory their inclusion in any reform effort. In spite of the stalling of the reform, various programs offer technical assistance to municipalities to strengthen their WS&S services. However, there are differing points of view about how this should be done.

The USAID model: devolution as a component of municipal strengthening

USAID has promoted municipal strengthening, including the municipalization of WS&S service delivery, as part of the general strengthening of local government through the expansion of functions, under its democracy and governance program. For USAID, local democracy constitutes the most effective mechanism to ensure satisfactory performance by the WS&S utilities and the absence of local control is regarded as the main source of the sector's problems. The problem is therefore understood as "excessive centralization" and the solution is understood as "decentralization" (bringing the decision-making process closer to popular scrutiny).

The Foundation for Municipal Development (Spanish acronym: FUNDEMUN), supported by USAID, is active providing technical assistance to improve municipal operations in 45 municipalities. It promotes a model for WS&S service provision based on the organization of Public Works and Services Divisions (Spanish acronym: DIMOSEPs). These replace the old engineering departments, which had a strong construction bias and tended to disregard operation and maintenance and cost recovery, which USAID stresses as the key to sustainability. More recently the DIMOSEPs have evolved into the more specialized Water and Sanitation Departments (Spanish acronym: DAP's).

Both DIMOSEPs and DAPs are part of the ordinary municipal administration, but enjoy elements of autonomy. In some cases efforts have been made to separate their accounting from other municipal functions, such as tax collection. Their permanence within the municipal apparatus is justified on the grounds that the municipalities are too small to permit the creation of viable independent WS&S operators governed by contractual relationships.

The Honduran Association of Municipalities (Spanish acronym: AMHON) is a key counterpart of USAID's governance program and acts as a lobby on proposed changes in the WS&S sector's organization. It was an important actor in blocking the proposed reform in 1995, and its participation is close to being a *sine qua non* for the political viability of any changes that bear on the municipalities. This was recently illustrated in the case of Tela, where the unsolicited devolution of the water system's administration to the municipality by SANAA at the start of 1996 (apparently in a deliberate effort to discredit municipalization) initially produced negative results. This led to an agreement between SANAA, the Ministry of the Interior and AMHON to regulate future devolutions from SANAA to local governments.

The IADB model: promoting autonomous service operation

Following the failure of the global municipalization proposal included in the proposed reform law of 1995, the IADB has also begun to work intensively with municipal providers, but with a quite different emphasis, compared with that of USAID. While the latter sees municipal level political control as the key to improved performance, via accountability, the IADB's stress is on *the promotion of autonomy from political interference for the service provider*, both at municipal and at national level.

The IADB vision is that political control of the service (either centralized or decentralized) will always lead to problems of "political capture", which will be reflected in undercharging and overstaffing. These problems may even be greater in decentralized systems, due to the relative importance of the WS&S service in the municipal context, which makes it a relatively more attractive target for the politicians.

On this view, the appropriate degree of centralization or decentralization is not an organizational principle, but rather a matter of scale economics. And, regardless of the level of centralization or decentralization of the political control of the service, the IADB advocates the separation of planning, regulatory and service provision functions in order to avoid "political capture". The politicians should be restricted to the realm of planning, consultation and strategic decision making. The service operators should be given a clear remit, including targets for service scope and quality and rules for tariff levels (specified in real terms). They should be protected from political interference through a contractual guarantee of some sort. The regulator should then act to keep the operator to their contractual commitments.

In *Puerto Cortés*, the IADB is financing a \$12 million loan for a sewerage system and in parallel is promoting an institutional reform to establish greater autonomy for the service provider. The municipality is creating a mixed company (S.A.) with the majority of the stock owned by the municipality. This company will operate the WS&S services under a leasing contract with the municipality, which remains the owner of the infrastructure. The company will operate under private sector commercial law (*Código de Comercio*). The lease payments (calculated to cover real capital consumption at replacement cost) will be placed in a capital development trust fund, which may also receive loans and capital transfers, and will finance both works and debt service. The idea is to protect the system's capital resources from political diversion to other purposes.

The IADB has a municipal development program to support the cities of Tegucigalpa and San Pedro Sula. Each program has a water and sanitation component, and promotes institutional transformations involving the private sector, as a pre-condition for investment finance.

In San Pedro Sula, the WS&S system is municipally owned and run, and for many years the Municipal Water Division (Spanish acronym: DIMA) was considered a model operator. However, during the 1990s, local politicians pillaged DIMA's resources and brought the operation near to collapse. In order to provide future protection from political interference, the IADB program is promoting a concession contract between the municipality and a newly constituted operator. The operator will be a mixed company with a 49% private participation; the private partner will be required to invest significant amounts in the development of the infrastructure.

In Tegucigalpa, where WS&S is presently run by SANAA, the IADB has proposed that the municipality should take over the system and contract a private company, initially on a management contract, with a view to proceeding eventually to a full concession. However, following the death during Hurricane Mitch of *alcalde* Cesar Castellanos, the political momentum was lost from this initiative. It now (March 1999) seems unlikely that the Tegucigalpa municipal development loan will disburse funds for the WS&S sector.

Regionalization of SAANA

SANAA has implemented an alternative model to the mandatory municipalization of its system, based on the creation of regional offices to supervise local operations. At present, it has 7 regional offices, with growing autonomy. Revenues that originate in the regions are no longer

transferred to Tegucigalpa, but remain in the regions, where operational decisions are taken. SANAA continues training its regional personnel to strengthen their technical and administrative capabilities.

An advantage of the regionalization scheme, compared with municipalization, is that there are economies of scale in support services, making for better economy in the use of and access to the human resources and equipment needed for effective operation. However, the system provides better incentives to increase incomes than it does to improve operational efficiency, since the regions are effectively unregulated. Strategic decisions are still taken at the center, and the relation between SANAA and locally elected authorities (mayors), remains weak.

Privatization

In 1996, the then *alcalde* of Tegucigalpa, Roberto Acosta, expressed his reluctance to take over the city's WS&S system, fearful of the political risk that a failure would ensue. Since Tegucigalpa accounts for some 50% of SANAA's connections, this was a major blow to the reform strategy whose central tenet was municipalization of SANAA's systems. In an attempt to rescue the reform strategy, an alternative proposal was developed for a management contract between SANAA and an international operator and the draft reform legislation was amended to allow this to happen. The CPME requested letters of interest from international companies but the operation was later abandoned when the reform initiative failed.

However, in December 1998 the National Congress passed a Law of Concessions, which allows for such operations in all areas of infrastructure. Although this was passed with the road, energy and communications sectors in mind, rather than WS&S, it will open the way for privatization in the WS&S. In this context, the above-mentioned proposal for a concession contract in San Pedro Sula has brought privatization firmly back onto the agenda.

The modernization of rural and urban-marginal service provision

Many rural and urban-marginal systems have been built by the communities' own effort, with no support from central or local government. Other systems have been built with the assistance of special government programs of the Ministry of Health, some financed by external agencies or by NGOs and some by the FIS. SANAA has developed the most successful model for rural water development (PRASSAR, the Rural Aqueducts component of USAID's Health Sector project).

Programs such as PRASSAR and SANAA's Tegucigalpa Marginal Barrios Project, funded by the UNICEF, yield important lessons. In both cases, the key precepts are cost recovery and community organization coupled with appropriate technical assistance. The technical assistance scheme developed by SANAA under the PRASSAR project uses a body of Technicians in Operation and Maintenance (Spanish acronym: TOMs) and Technicians in Water and Sanitation (Spanish acronym: TAS) that support minor urban and rural systems, respectively. A positive recent development has been the promotion of a universal set of operating rules for the *Juntas de Agua* which operate most rural and urban-marginal systems.

During the reform debate in 1995-96, no clear strategy was proposed for the future of rural systems. However, SANAA was generally thought to be the right organization to oversee development in rural areas and it was proposed that it would remain as a technical office supervising construction processes and providing technical assistance.

3.4.3 Sector planning and financing

The planning function is not done effectively by any institution. The Ministry of Health presides over SANAA's board, but is ineffective in that capacity. The ministry is centered on the operation of its network of clinics and hospitals. It has channeled resources for building rural water systems, and its health promoters in rural health centers (CESARS) have a remit to develop proposals for sanitary systems (water and sanitation). However, the ministry pays little attention to the operation of established WS&S systems in larger towns, effectively delegating this problem to SANAA and the municipalities.

Prior to Hurricane Mitch, Government budgetary transfers to SANAA had been decreasing over the years in real terms. This was due to several factors. In the first place, the pressure for fiscal control led to an agreement to contract no new external loans except on concessionary terms. Secondly, following the failure of the 1995-96 reform effort, the World Bank and IADB's boycotted further finance to SANAA until satisfactory legislation is passed. Since these two organizations are the main sources of concessionary finance, external capital resources have dried up. As a result, apart from reconstruction works linked to hurricane damage (for which these conditionalities were waived) SANAA has negotiated no new externally financed projects since 1994.

The Honduran Social Investment Fund (FHIS, *Fondo Hondureño de Inversión Social*) has a growing role in the construction of sanitary infrastructure at a local level. This will increase further following the delegation of increased discretion to local communities regarding the assignment of FHIS funds. Following a public consultation in September 1998, almost 25% of all FHIS programming for the next three years was assigned to WS&S projects.

The transfer of 5% of the national revenue budget to the municipalities for capital works will continue to be an important source of revenues in general, as will the 4% transfer of customs revenues to port cities. The municipality of Puerto Cortés has recently used the guarantee of future revenues from the port levy as a guarantee to the central government it will repay its IADB sewerage project loan, where the government acts as guarantor to the bank.

Another important new initiative for sector finance in Honduras is the establishment of trust funds to manage IADB loan finance for municipal governments. In Puerto Cortes the municipality is in the process of setting up a Fund for Investments in Water and Sanitation (FIAS, *Fondo de Inversiones en Agua y Saneamiento*). A similar fund is being set up for municipal development projects in Tegucigalpa and San Pedro Sula, and may be extended to other secondary cities, including some whose water services are currently run by SANAA. Access to fund resources is linked to changes in the models for the provision of services.

In the rural sector, an important role in planning and coordination is played by the Collaborative Group on Water and Sanitation, which brings together public and private voluntary institutions, donors etc. It was constituted by Presidential Decree in 1995. To date, one of its most significant achievements has been the setting up of an Information System for Water and Sanitation (SINFASH, *Sistema de Información en Agua y Saneamiento*).

3.4.4 Sector regulation

Economic regulation

There is a National Commission for the Supervision of Public Services (CNSSP, *Comisión Nacional Supervisora de Servicios Públicos*) which was created in 1990. The Commission has always been a weak institution in the sense that is a deliberative body (14 members representing diverse social groups and frequently conflicting interests). CNSSP's sole role in WS&S has been limited to the infrequent review and approval of increases in the SANAA tariff. The Commission deals with all public services sectors that do not have their own regulator, and in general lacks the necessary resources to perform its duties effectively.

The draft reform promoted by the CPME was proposed to create a specialized regulatory body. Made up three members, selected according to merit and named by the President of the Republic based on nominations from relevant professional bodies.

In the context of proposed IADB loan operations with the municipalities of Puerto Cortés, San Pedro Sula and Tegucigalpa, and a number of intermediate cities, local regulatory instruments are being proposed. These are viewed as a step forward in the transition toward a national regulatory scheme. In Puerto Cortés the leasing contract must be reviewed periodically by a panel of experts to ensure compliance. In the case of San Pedro Sula the technical and financial capabilities of the Municipality are strengthened in order to regulate prices and service quality for the concessionary company. Intermediate cities will be required to organize Water and Sanitation

Committees and make a public declaration of Water Policy, which can then be subjected to popular scrutiny. Environmental regulation.

Environmental regulation

The 1906 Water Code remains the main legal instrument concerning the allocation of water rights, though in practice, the code is used almost exclusively in the resolution of conflicts. A number of proposals to modernize the legislation have been prepared, but because of their controversial nature they fared badly in the legislature. The most recent proposal for a new water law was presented to Congress in November 1998, sponsored by the Ministry of the Natural Resources and the Environment (SERNA, *Secretaría de Recursos Naturales y del Ambiente*), but there is no clear indication as to when the law may be promulgated.

The General Law of the Environment and the Ministry of the Natural Resources and the Environment (SERNA, *Secretaría de Recursos Naturales y del Ambiente*) are the main institutions responsible for environmental regulation in the country. A number of Environmental Management Units (UGAs, *Unidades de Gestión Ambiental*) are the liaison bodies between the SERNA and the rest of the government. An UGA must be organized within all ministries and the municipalities, in order to ensure compliance with the environmental law at a local or sector level. The principal instruments for environmental control are the Environmental Impact Assessment (EIAs, *Evaluaciones de Impacto Ambiental*) and environmental audits, supervised by the National System for Evaluation of Environmental Impacts.

Honduras has adopted the CAPRE norms for water quality and wastewater. In practice, it is the large operators (SANAA and DIMA) that exercise some control over their own systems and assist others in the country. For municipal systems (the majority in Honduras), the Ministry of Health has sporadic controls, with the exception of cases where there are epidemiological threats. Formally, this responsibility lies with the Ministry of Health, but there is no evidence that the function is being strengthened.

3.5 Nicaragua

3.5.1 Overview of the reform process

The action of two successive administrations (Chamorro 1990-1996 and Alemán 1996 to the present) allowed the relatively rapid modernization of the water and sanitation sector. This by itself is an extraordinary achievement in the Central American context, where the discontinuity in government policies is normally experienced when a new administration comes to power. The Chamorro administration tackled the basic reorganization of services after nearly 11 years of neglect during the civil war; the Alemán administration is consolidating what its predecessor started.

An interesting characteristic of the development of the Nicaraguan WS&S services in the 1990s has been the government's selective utilization of external resources in the form of technical assistance or finance. This was possible because the government had a clear idea as to where the sector was heading. In other countries, the vacuum of national political leadership has left the sector prey to externally imposed agendas, often conflicting between themselves.

The multi-sector Commission and Program for the Reform of Public Enterprises has provided this political leadership. The Commission includes the Ministries of the Presidency, Finance, Economy and Development, Construction and Transport, Social Action and the Interior. The Minister of Construction and Transport acts as the Coordinator for Infrastructure. The Commission has a Coordinating Unit for the Program (*Unidad Coordinadora del Programa*), its technical support body, which supervises developments in communications, energy and water and sanitation. The water and sanitation reform program is based on three pieces of legislation:

- The General Water and Sanitation Service Law (*Ley General de Servicios de Agua Potable y Alcantarillado Sanitario*);

- Reforms to INAA's Organic law, converting it into the sector regulator. Prior to INAA's assumption of the regulatory function a new tariff was approved for all systems in early 1998 by the Congress for the period 1998-2000.
- The law that creates *the Empresa Nicaraguense de Acueductos y Alcantarillados* (ENACAL) by converting INAA's former operating branches into a fully-fledged, publicly owned commercial enterprise. ENACAL is now responsible of providing services to 173 cities and small towns, with close to 356,000 registered connections.

3.5.2 *Strategies for the reorganization of service provision*

The general Service Law lays out the general basis for awarding service concessions:

"the concessions...will be awarded to state or private companies organized as Sociedades Anónimas under the conditions established under the present law and according to what is stipulated under Law 169, 'Law for the Use of Public Goods and Regulatory Bodies for the Regulation of Public Services, and its reforms as stated in law 204'".

Corporatization and privatization

The creation of ENACAL establishes a corporate basis for the operation of the services previously run by INAA, opening the way for progressive private sector involvement in coming years. According to the Sector Development Plan (1998-2000), among the planned operations are the following:

- A service contract to produce and distribute payment notices in Managua (1998),
- A service contract for vigilance of pumping equipment in Managua in (1999).
- Service contracts for other administrative services, such as physical installations' maintenance, security and messenger services (1998).

More advanced forms of private participation are expected to follow, including a service contract for the commercial system in Managua or possibly a management contract for the full operation, in 1999. The Western Region (León and Chinandega) is expected to undergo a pilot experience with a management contract with an international operator. From 2001 onwards concession contracts are to be signed, following a detailed study to identify the most appropriate systems.

Municipal involvement in service provision

As in Honduras, WS&S service provision is formally a responsibility of local governments. Laws 40 and 261 (which reform the Law of Municipalities, 26-8-97) state that is a municipal responsibility to provide "basic services of water, sanitation and electricity to the population". In spite of the above, the transfer of responsibility for service provision to municipal hands is not mandatory, and no law states anything about the transfer of assets to the municipalities, in so far as there is no local capacity to manage water and sanitation systems.

However, the direct provision of services by the municipalities is not a general practice. This is justified by the existence of a relatively efficient central government institution. As a result, unlike in Honduras, there is relatively little pressure to devolve the responsibility to the municipalities. The Nicaraguan Municipal Association (AMUNIC, *Asociación de Municipios de Nicaragua*) is mostly concerned with lobbying to ensure that the central government's transfer is paid on a timely fashion.

Nevertheless, there are cases of successful municipal administration of WS&S in Matagalpa and Jinotega, where INAA delegated the administration to the local authorities in 1992 following local government pressure. There are mixed reports of the results, but there has apparently been a progressive improvement in service delivery.

Regionalization

Between 1990-1996 INAA organized 8 territorial enterprises, each covering a number of systems. These are now part of ENACAL. An effort is made to run these systems according to technical and financial criteria, simulating market conditions. At the time of the field visit undertaken for the present study (December 1998), the regional operations were still remitting locally collected revenues to Managua, but operational decisions and strategic thinking were undertaken at a regional and local level.

The next step is to be the establishment of public regional enterprises (*Empresas Públicas Regionales*), working under commercial law. So far, such enterprises have been legally established for Managua, Matagalpa, Jinotega, and the Western Region (León and Chinandega). These public S.A.s will be given transitional concession rights to operate systems. After three years they will be required to compete with other companies, public or private, for the rights.

Rural provision

The standard model for rural systems is community management of WS&S services. There is a strong leadership from the Directorate for Rural Aqueducts (DAR, *Dirección de Acueductos Rurales*) which is part of the ENACAL. This office sets the norms and procedures for rural systems, emphasizing community participation and gender considerations. It also provides and promotes the use of appropriate technology. The DAR has developed an information system to monitor rural coverage. It coordinates rural programs with public and private external agents, such as CARE, COSUDE, KFW, SNV (Holland), UNICEF and others. In 1997, the programs run by the DAR had a total of 48,000 beneficiaries in water and 31,000 in letrine programs. Close to 400 Water Committees had been organized and trained by 1997.

3.5.3 Sector planning and financing

According to the new legislation, the Ministry of Construction and Transport is responsible for planning in the WS&S sector. However, the Ministry was incapable of assuming those duties, so a National Water Commission was formed to temporarily act as coordinator, and later become a fully fledged planning agency. The Commission is made up by the Executive Presidencies of INAA and ENACAL, the Ministry of Health, the Ministry of Natural Resources and the Environment, and the head of INETER.

The planning function was previously carried out by INAA, which demonstrated significant capabilities in the drafting of the Sector Development Plan 1998-2000, the only document of its kind found in any of the countries visited for this study. The Plan is accompanied by a management plan for the operator. These documents specify goals for coverage, targets for reducing staffing levels, levels of unaccounted for water, and energy losses.

INAA also prepared a Plan to Prioritize Investments for all its systems (excluding Managua, Matagalpa and Jinotega) which was completed in 1996. This was a key input to the Sector Development Plan. INAA also prepared a National Tariff Study, completed in 1994, which makes a clear proposal to the effect that the sector should be financed through user charges which reflect marginal costs.

The Social Investment Fund for Emergencies (FISE, the *Fondo de Inversión Social para Emergencias*) is also an important actor in construction, and will continue to be so in the coming years. In contrast to other SIFs in the region, the Nicaraguan FISE coordinates closely with ENACAL's *Departamento de Acueductos Rurales* on the building new systems in rural areas, complying with all existing regulations and methodologies set up by ENACAL.

3.5.4 Sector regulation

Economic regulation

INAA is in charge of economic and service quality regulation duties, surrendering its operational functions in order to assume this new role. The Directive Council of INAA is made up by three members of known technical capacity, named by the President of the Republic. INAA's duties are those typical of a regulatory entity, including: the regulation of service provision and consumers'

rights; the awarding of concessions; the establishment and monitoring of approved tariffs; dictate norms and specifications; supervise capital works; ensure compliance with environmental norms (together with MARENA); ensure compliance with water quality norms (together with the Ministry of Health); impose sanctions, and mediate in conflicts.

Environmental regulation

There is a draft Water Law in the National Assembly, which has not been passed.

For the protection of water sources and the control of pollution, the 1996 General Law for the Environment and Natural Resources is the main regulatory instrument. The law allows for the creation of a National Environmental Commission and a Special Procurator for the Environment and Natural Resources. It gives the Nicaraguan Institute for Territorial Studies (INETER, *Instituto Nicaraguense para Estudios Territoriales*) and MARENA powers to undertake the environmental and territorial ordering of the country. It creates the system of protected areas and creates the system for Environmental Permits and Impact Evaluations. It establishes the National Environmental Information System, and creates the National Environment Fund.

The implementing legislation of the system for Environmental Permits and Impact Evaluations was created in 1994, and in 1995 the "Dispositions for the Control of Pollution from Domestic, Industrial and Agricultural discharges" sources came into effect.

In relation to the regulation of discharges into receiving bodies, ENACAL is strengthening its laboratory capacity for the analysis of residues. It has also created a Directorate for Environmental Quality. As part of a "Plan to rescue Lake Managua", a sewerage master plan for Managua has been developed in partnership by ENACAL, MARENA and the Municipality of Managua

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