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Regional Analysis of Decentralization of Water
Supply and Sanitation Services in
Central America and the Dominican Republic

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by

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ACRONYMS

AARs	Asociaciones de Acueductos Rurales (Association of Rural Water Supply Systems—El Salvador)
ADIS	Asociación Dominicana de Ingeniería Sanitaria (Dominican Sanitary Engineering Association)
AGUA	Acceso Gestión y Uso Adecuado (USAID-funded project in El Salvador)
AMHON	Asociación de Municipalidades de Honduras (Honduras Municipal Association)
AMSS	Area Metropolitana de San Salvador
AMUNIC	Asociación de Municipios de Nicaragua (Municipal Association)
ANAM	Asociación Nacional de Municipalidades de Guatemala (National Municipal Association—Guatemala)
ANDA	Administración Nacional de Aguas (National Water Supply Agency—El Salvador)
ARENA	Alianza Republicana Nacionalista (El Salvador political party)
ARESA	Agencia Reguladora de Agua y Saneamiento (Water Supply and Sanitation Regulatory Agency—El Salvador)
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 (Central American WS&S Utilities Association)
CARE	US PVO
CAASD	Corporación del Acueducto y Alcantarillado de Santo Domingo (Santo Domingo Water Supply and Sewer Corporation)
CEE	Comunidad Económica Europea (European Economic Community)
CNSSP	Comisión Nacional Supervisora de Servicios Públicos (National Commission for the Supervision of Public Services—Honduras)
COMURES	Corporación de Municipios de El Salvador (Municipal Association)
CONAMA	Comisión Nacional para el Medio Ambiente (National Environmental Commission—Guatemala)
CONRA	Consejo Nacional del Recurso Agua (National Water Resources Authority —El Salvador)
COPECAS	Comité Permanente de Coordinación de Agua y Saneamiento (Permanent Committee for Coordination of Water and Sanitation—Guatemala)
CORAAMOCA	Corporación del Acueducto y Alcantarillado de Moca (Moca Water and Sewer Corporation—Dominican Republic)

CORAASAN	Corporación del Acueducto y Alcantarillado de Santiago (Santiago Water and Sewer Corporation—Dominican Republic)
CORSAS	Comisión Nacional de Regulación de Servicios de Agua y Saneamiento (National Commission for the Regulation of Water and Sanitation Services—Dominican Republic)
COSERHI	Comisión Coordinadora para la Reforma Sectorial de los Recursos Hídricos (Coordinating Commission for Reform of the Water Resources Sector—El Salvador)
COSUDE	Cooperación Suiza para el Desarrollo (Swiss Development Agency)
CPME	Comisión Presidencial de Modernización del Estado (Presidential Commission for Modernization of the State—Honduras)
CPMSP	Comisión Presidencial para la Modernización del Sector Público (Presidential Commission for the Modernization of the Public Sector—El Salvador)
CREA	Creative Associates Inc.
CTI	Comité Técnico Interinstitucional (Interinstitutional Technical Committee—Dominican Republic)
DAR	Dirección de Acueductos Rurales (Rural Water Supply Division—Nicaragua)
DIGENOR	Dirección General de Normas (National Directorate for Norms—Dominican Republic)
DIMA	División Municipal de Aguas (Municipal Water Supply Division—San Pedro Sula)
DIMOSEP	División Municipal de Obras y Servicios Públicos (Public Works and Services Division—Honduras)
ECOR	Empresa Comunitaria Rural (Rural Community Enterprise—Dominican Republic)
EIA	Evaluación de Impacto Ambiental (Environmental Impact Assessment)
EMPAGUA	Empresa Municipal de Agua (Ciudad Guatemala) (Municipal Water Supply Company for Guatemala City)
ENACAL	Empresa Nicaragüense de Acueductos y Alcantarillados (Nicaraguan Water Supply and Sewer Company)
FHIS	Fondo Hondureno de Inversión Social (Honduran Social Investment Fund)
FIAS	Fondo de Inversiones en Agua y Saneamiento (Investment Fund for Water and Sanitation—Dominican Republic)
FIS	Fondo de Inversión Social (Social Investment Fund—Guatemala)
FISDL	Fondo de Inversión Social para el Desarrollo Local (Social Investment Fund for Local Development—El Salvador)
FMLN	Frente Farabundo Martí para la Liberación Nacional (Salvadoran political party)
FUNDEMUN	Fundación para el Desarrollo Municipal (Foundation for Municpal Development—Honduras)
GSR	Gerencia de Sistemas Rurales (Rural Water Supply Division, ANDA—El Salvador)

HDI	Human Development Index
IDB	Inter-American Development Bank
INA	Instituto Nacional Agrario (National Agrarian Institute—Honduras)
INAA	Instituto Nicaragüense de Acueductos y Alcantarillados (Nicaraguan Institute for Water Supply and Sewers)
INAPA	Instituto Nacional de Acueductos y Alcantarillados (National Institute for Water Supply and Sewers—Dominican Republic)
INDRHI	Instituto de Dominicano de Recursos Hídricos (Dominican Institute for Water Resources)
INETER	Instituto Nicaragüense de Estudios Territoriales (Nicaraguan Institute for Territorial Studies)
INFOM	Instituto de Fomento Municipal (Institute for Municipal Development—Guatemala)
INPRA	Instituto de Protección Ambiental (Institute for Environmental Protection—Dominican Republic)
ISDM	Salvadoran Institute for Municipal Development
JICA	Japan International Cooperation Agency
KFW	Kreditanstalt für Wiederaufbau (Construction finance agency for the German government)
MAG	Ministerio de Agricultura (Ministry of Agriculture—Guatemala)
MARENA	Ministerio de Recursos Naturales y Ambiente (Ministry of Natural Resources and Environment—Nicaragua)
MARISCAL	Private water service provider, Guatemala City
MARN	Ministerio de Ambiente y Recursos Naturales (Ministry of Environment and Natural Resources—El Salvador)
MSP	Ministerio de Salud Pública (Ministry of Public Health—Honduras)
NGO	Nongovernmental Organization
O & M	Operations and Maintenance
ONAPPAS	Oficina Nacional de Planificación y Políticas de Agua y Saneamiento (National Office for Water and Sanitation Planning and Policy—Dominican Republic)
PAHO	Pan American Health Organization
PLANSABAR	Plan de Saneamiento Básico Rural, Ministerio de Salud y Bienestar Social (Basic Rural Sanitation Plan—El Salvador)
PDO	Private Development Organization
PVO	Private Voluntary Organization
PRASSAR	Programa de Sector Salud/Acueductos Rurales (Program for Health Sector and Rural Water Supply—Honduras)
PROCOMUNIDAD	Investment Fund (Dominican Republic)

PWSS	Potable Water and Sanitation Sector
RRNN	Recursos Naturales (Natural Resources)
RRASCA	Red Regional de Agua y Saneamiento en Centro América (Regional Water and Sanitation Network in Central America)
SA	Sociedad Anónoma (commercial company)
SANAA	Servicio Autónomo Nacional de Acueductos y Alcantarillados (National Water and Sewer Agency—Honduras)
SERNA	Secretaría de Recursos Naturales y del Ambiente (Secretariate for Natural Resources and Environment—Honduras)
SIF	Social Investment Fund
SINFASH	Sistema de Información en Agua y Saneamiento (Water and Sanitation Information System)
SNV	Holland's International Cooperation Agency
SRH	Secretaría de Recursos Hidráulicos (Secretariat for Water Resources—Guatemala)
TA	Technical Assistance
TAS	Técnicos en Agua y Saneamiento (Water and Sanitation Technician—Honduras)
TOM	Técnico en Operación y Mantenimiento (Operations and Maintenance Technician—Honduras)
UCM	Unidad Coordinadora de Modernización (Coordinating Unit for Modernization—El Salvador)
UGA	Unidades de Gestión Ambiental (Environmental Management Unit—Honduras)
UNDP	United Nations Development Program
UNEPAR	Unidad Ejecutora de Proyectos de Agua Rurales (Implementation Unit for Rural Water Supply Projects—Guatemala)
UNICEF	United Nations Children's Fund
URE	Unidad de Reestructuración Empresarial (Program for Business Restructuring—El Salvador)
USAID	US Agency for International Development
WAC	Water and Sanitation Committee
WS&S	Water Supply and Sanitation

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. The study aims to systematize information, identify the most successful and effective strategies, and determine to what extent decentralization needs to be complemented by other aspects of modernization such as 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 Status Quo

Little headway has been made in reforming WS&S; the structure of the sector remains largely as it was in the 1960s. State corporations with a national mandate for urban provision dominate the formal urban WS&S landscape, complemented by municipal arrangements in smaller cities. Only in Guatemala do municipalities cover the entire urban sector. Nowhere does the commercial private sector play an important role within the formal WS&S sector. However, in the informal sector (rural and peri-urban), small nonprofit private operators have evolved to fill the vacuum left by the state. At issue throughout the region is a confusion of functions among service provision, sector planning, and regulation.

2.1.1 Service Provision

Among the countries studied, the balance between national state corporations and municipal providers varies considerably. In Guatemala, virtually all the urban systems are municipal owned and operated. In Honduras, municipal providers account for 62 percent of urban water connections, including those of the second-largest city, San Pedro Sula. The state company is relatively strong in El Salvador, where municipalities provide but 20 percent of urban water connections. In Nicaragua, only 29 urban systems are municipally run, accounting for around 10 percent of all urban connections. The Dominican Republic has no municipal operators.

2.1.2 Relationship Between Decentralization and Resource Mobilization

Formal sector. Here, 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 apparently does not lead them to make greater efforts to collect tariff revenues. In fact, municipal systems tend to be even more prone to undercharge than the national operators, perhaps because the water tariff is relatively important within the municipality and therefore attracts much political pressure. The best performance on cost recovery is found in recently reformed systems, regardless of their level of decentralization; reorganizing appears to engender a phase of institutional vitality.

Informal (rural and peri-urban) sector. In urban and peri-urban areas, effective models for community organization and technical assistance have been developed which have, in some cases, led to higher tariff payments than in municipal systems or national state corporations. Affected communities are more willing to pay, partly because the cost of nonpiped water is very high and partly because they know they cannot get improved services otherwise. In contrast, formal-sector users may hope to get improvements via rent-seeking activities.

2.1.3 Sector Planning and Development

Urban systems. In urban areas, state water companies usually are responsible for WS&S planning. As a result, a disproportionate share of public funds is channeled to the national corporations and, especially, to the capital city. Although social investment funds (SIFs) work on system development in peri-urban and rural areas, often this is not well coordinated with the system's eventual owners. Where municipal provision exists, the *Consejo Municipal* decides upon investment plans, tariffs, and subsidies. Whatever the specific arrangements for sector planning, rarely is a formal statement of sector goals and resource requirements agreed upon or published, either at national or local levels.

Rural systems. The planning and development of rural water systems, unlike urban systems, generally falls under the aegis of a division of the Ministry of Health. For many years rural programs received a fairly small slice of the resource pie, but governments are beginning to establish special programs for rural water. In Honduras and Nicaragua, the state water companies have special divisions that give technical assistance for the design and construction of rural water systems.

2.1.4 Regulation

Economic Regulation. This is a technical function which determines the minimum cost of reaching the desired scope and quality of service. The regulator checks that service providers are meeting agreed-upon service goals and calculates 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, which led to erosion of real system income during inflationary periods.

Municipal operators are self-regulated. Traditionally, it was assumed that state-owned operators (either national or municipal) would be guided by the maximization of the social benefit and would somehow know what was an efficient level of costs. In practice, however, state systems have been subject to "capture" by interest groups and have lacked complete information about necessary costs.

Environmental regulation. This category of regulation includes protection of raw water resources, regulation of their use, and regulation of the impact of sewage discharges on receiving bodies. However, the recognition of environmental externalities and conflicts over alternate uses of water resources are contemporary themes, which are reflected only partially in the legal framework for the operation of WS&S services.

2.2 Progress of Reforms in Water Supply and Sanitation

Although in most countries decentralization is a goal of the state modernization process, it has not necessarily resulted in proposals for municipalizing WS&S. In Honduras and El Salvador, the reform process has led to conflicts between municipalities and the central government. Honduras, Nicaragua, El Salvador, and the Dominican Republic have proposed framework legislation for WS&S covering sector planning, regulation, and reorganization of service provision. In Nicaragua, recent legislation created new institutions, and a sweeping reorganization is underway. Most countries have also seen efforts at reform "from below," geared toward resolving specific problems (such as peri-urban or rural provision) within the context of existing sector legislation. Debates over the relative merits of decentralization have surfaced relative to reorganizing service delivery, reorganizing sector government (including planning and financing), and strengthening the economic and environmental regulation of service providers.

2.2.2 Strategies for Reorganizing Formal Service Provision

Devolution, used here to describe a transfer of responsibility between government levels, in practice means municipalization. To date, only in Honduras has municipalization been a central

theme in the reform debate; however, in El Salvador, debate is growing over municipalization. The proposal for mandatory municipalization in Honduras failed. *Deconcentration* of state corporations has been implemented in Honduras, Nicaragua, and the Dominican Republic via regionalization strategies. *Corporatization* (in which 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 Dominican Republic, in Nicaragua, and in the Honduran municipality of Puerto Cortés. Thus far, initiatives for *private sector participation* include failed proposals to let private management contracts for the metropolitan aqueducts of Tegucigalpa and Managua. The concession of San Salvador is being considered, and the Dominican Republic proposes to let a concession in tourist areas. San Pedro Sula proposes a concession to a mixed company with 49 percent private participation.

2.2.3 Impact of Reform on the Rural and Peri-urban Sectors

Nongovernmental organizations (NGOs) have generally been the most effective agencies for the development of rural and peri-urban systems. Normally they work closely with the community to identify and construct the project and then remit its operations to community-based committees. In recent years, national water and sanitation companies in Nicaragua and Honduras have established more effective divisions for providing engineering support and ongoing technical assistance to rural communities. The Dominican Republic has developed but not yet implemented a promising strategy for rural WS&S with the national WS&S institution (INAPA) whereby it would contract with NGOs to work directly with communities, and INAPA would act as a regulator. Most countries have not developed effective arrangements for providing services in peri-urban areas although in Honduras SANAA and UNICEF have a successful program that has created 30,000 connections in the past five years. It is fair to say, however, that in general the impact of decentralization on rural and peri-urban areas has not been a primary concern in the planning of reform programs. The primary concern has been on formal urban and municipal systems.

2.2.4 Sector Planning and Development

Many of the arrangements proposed for strengthening sector government involve increased decentralization. A national WS&S planning office has been proposed in Honduras, Nicaragua, El Salvador, and the Dominican Republic. The creation of a municipal planning function has been promoted in Honduras. All the study countries have seen moves toward decentralizing public investment resources via Social Investment Funds (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 the farthest in economic regulation; nothing has been defined in other countries. In the field of environmental regulation, water-rights legislation remains badly outdated in all study countries except the Dominican Republic. Most countries have recently created or plan to create general environmental laws. Regardless of the degree of WS&S decentralization, local governments are assuming a growing role as environmental control is modernized. Local governements are increasingly aware of the need to couple this effort with environmental education and promotion efforts. As yet little evidence suggests that the degree of WS&S centralization has much bearing on local environmental regulation.

2.3 Conclusions and Recommendations

2.3.1 General Principles for Effective Reform

To date most of the reform initiatives have centered on reorganizing service provision, especially that of the excessively centralized state water companies. Given the failings of the existing providers, this emphasis is understandable. Many of these failings, however, are due to the lack of planning and regulatory functions. The study identifies the following principles. *First,* whichever political level of the state (national or municipal) is in charge of ensuring service provision, it needs to develop a clear plan for scope and quality, a plan which should be agreed upon with the community. Such a plan needs to include a commitment to assign enough resources to meet the goals. *Second,* national and municipal planners need the support of a technical office to supply information about necessary costs and to help with technical supervision of the service provider. *Third,* in systems of any size or complexity, the use of indirect provision (through corporatization or private-sector participation) improves the probability that service providers will meet the planning goals.

2.3.2 Role of Decentralization in Reform

In this context, what can we say about the role of decentralization in the future of the sector? Some conclusions are beginning to crystallize:

- *Decentralization and the cost-effectiveness of service provision.* A key factor limiting municipalization is the cities' small size. One way around this is to establish intermunicipal organizations.
- *Decentralization, sector planning, and governance.* Awareness is growing 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 already municipally owned and run, the challenge is for local government to understand the distinction between the planning and operating functions and, where possible, to pass system operation to a contractor or to establish a separate company. Systems still owned by the national government could proceed directly to a package of local government control and indirect service provision.
- *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 prone to undercharge. In contrast, where services are independent of political control, users are more willing to pay, even in low-income communities.
- *Decentralization and economic regulation.* With the move to decentralize the services, there has been reluctance at municipal levels to accept the tutelage of a national regulatory office. However, a single-municipality regulatory office would be relatively expensive and also relatively ineffectual. A practical and acceptable solution might be to establish a national regulatory office controlled collectively by the municipalities.
- *Decentralization and environmental regulation.* WS&S modernization should normally involve the separation of the 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 WS&S decentralization

1 INTRODUCTION

1.1 Overview

This study presents an overview of the decentralization process in water supply and sanitation services in Central America (Nicaragua, Honduras, El Salvador, and Guatemala) and the Dominican Republic. The study countries, among the poorest in the Americas, have reported poor performance for the water supply and sanitation sector (WS&S), both in service coverage and in quality—this despite considerable public investment in recent decades. The resulting lag in health and environmental improvements has spurred a variety of reform initiatives to improve sector performance. Many of these initiatives have promoted decentralization as a central tenet of reform.

The study set out to systematize information about the decentralization processes and other reform initiatives taking place in the countries in question and to evaluate the results from a development perspective. The study draws conclusions about which strategies are most successful and effective—and, therefore, candidates for generalization—and which are less promising and why. The paper also aims to draw general conclusions about the extent to which decentralization, as such, can adequately address sector problems, and to what extent it needs to be complemented by other aspects of modernization such as the development of effective agencies for sector planning and finance and for economic and environmental regulation.

1.2 Socioeconomic Context

Table 1 presents general socioeconomic data on each country studied. Populations range from 4.1 million in Nicaragua to 10.6 million in Guatemala. In both Nicaragua and the Dominican Republic, 62 percent of the population is urban, while the other three countries are mainly rural (61 percent in Guatemala, 56 percent in Honduras, and 55 percent in El Salvador.)

Table 1
Socioeconomic Indicators for the Countries Studied

	Unit	El Salvador	Guatemala	Honduras	Nicaragua	Dominican Republic	Source
Population 1998	Millions	5.7	10.6	5.7	4.1	7.8	1
Urban	%	51	39	44	54	62	1
Rural	%	49	61	56	46	38	1
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 El Salvador by EHP consultancies in 1998, and for Nicaragua by ENACAL's Planning Department.

Population growth is highest in Honduras (3.2 percent) and lowest in El Salvador (1.8 percent). The poorest country is Nicaragua, measured either by the Human Development Index (HDI) of the United Nations Development Program (UNDP), which scores it 0.55, or by per-capita income ($380). Although the Dominican Republic places highest on the HDI (0.72), 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, health performance 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 reading suggests that national efforts in primary health, including provision of safe water and sanitation, might be making a big difference to health conditions, despite relative poverty in other respects.

1.3 Recent Trends in Water Supply and Sanitation Coverage

Data on WS&S coverage in the countries studied can be unreliable; moreover, comparative study is complicated by differing definitions of "coverage" in the various national statistical sources. The best available data, brought together in a recent study commissioned by the Interamerican Development Bank (IDB) and the Pan American Health Organization (PAHO), are summarized in Table 2.

According to these data, potable water coverage varies considerably from country to country, with coverage in Guatemala and Nicaragua around 55 percent of the total population and in El Salvador, Honduras, and the Dominican Republic above 75 percent.

This disparity stems mainly from variations in rural coverage, which is reported at just 28 percent in Nicaragua and 32 percent in Guatemala, compared with 75 percent in El Salvador, 66 percent in Honduras, and 58 percent in the Dominican Republic. An important

part of these differences, however, may arise from the definitions used to define coverage. In all the countries studied, urban coverage shows much less variance, lying in the range of 80 percent to 92 percent.

The improved coverage registered over the last decade has varied considerably from country to country. While total coverage rose by 19 percent in the Dominican Republic and by 15 percent in Honduras, the increase in Guatemala and in Nicaragua was only 9 percent.[1] Sanitation coverage (including latrines) also shows important divergence within the region, ranging from a low of 49 percent in Guatemala to a high of 82 percent in Honduras.

The differences among countries 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.[2] These data are consistent with the hypothesis that improved WS&S coverage might explain part of Honduras's relatively good performance in infant mortality, which was noted in Table 1.

Table 2
Trends in Water Supply and Sanitation Coverage

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

Notes:
1. EHP-commissioned studies in 1998 cite the following figures for coverage: For water supply, the national figure is 55%, with 88% in urban areas and 18% in rural areas. For sanitation, the national figure is 69%, with 84% in urban areas and 52% in rural areas. 2. Data for 1984 and 1994. 3. Data for 1990 and 1995. According to the Investment Priorities Study in 1996, if sewers, pit latrines, and septic tanks were added, urban coverage would be 93%. 4. Data for 1981 and 1993. 5. Sanitation data for Nicaragua include only sewers, not latrines.

Source: PiD/PAHO 1998 report for each country in El

1.4 Outline of the Report

The ensuing material is divided into two large chapters. Chapter 2 first develops an analytical framework for discussing the issues in the region's sector modernization. It describes existing arrangements for the *organization of service delivery* and the performance of the system operators and sustainability of their services. It then looks at arrangements for *sector government* and *regulation* (in each case, both economic and environmental).

The second part of Chapter 2 discusses recent initiatives for sector reform, highlighting the theme of decentralization. It comments on the options proposed and implemented in the study countries and draws general conclusions as to achievements of the decentralization and modernization processes and the elements of

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

[2] The data in Table 2 for sanitation coverage include sewer connections, septic tanks, and pit latrines. For Nicaragua, however, the data reported are for sewer connections only and are therefore not comparable with the other countries. No sanitation coverage data are available for the Dominican Republic.

consensus and divergence regarding the future shape of the sector.

Chapter 3 presents detailed case studies of the study countries, showing how each experience fits into the analytical framework developed in Chapter 2. 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 SECTOR MODERNIZATION AND DECENTRALIZATION: A REVIEW OF THE ISSUES

This chapter, divided into two parts, develops an analytical framework for the study of the reform process in the sector. The first part describes existing arrangements for service provision, for sector governance, and for regulation (both economic and environmental). The second outlines recent reform proposals and initiatives, highlighting the initiatives for decentralization. This framework is then used to analyze each country's experience in the detailed case studies that appear in Chapter 3.

2.1 Status Quo

Although WS&S reform has been on the agenda for some time in most countries of the region, much more remains to be done. Although real change is beginning to occur, the structure of the sector is still largely as established in the 1960s, with state corporations charged with urban provision dominating the formal urban sector. These corporations are complemented in smaller cities by municipalities and in rural and peri-urban areas by private development organizations (PDOs) or private voluntary organizations (PVOs). Only in Guatemala do municipalities cover the whole urban sector. Nowhere does the commercial private sector play an important role within the formal sector. In the informal sector, private operators have evolved to fill the vacuum left by the state, but these are in almost all cases small, nonprofit bodies[3].

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

[3] Guatemala City is to some extent an exception. The private company Mariscal has 10,500 connections in the metropolitan area (accounting for 7.5 percent 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 nonprofit, but functionally mercantile. The relative importance of private provision in Guatemala is partly a function of the city's dependence on groundwater sources, exploited through wells. This makes small-scale aqueducts economically feasible. Due to the scale economics of dams, it is much more difficult to make small systems which use surface water economically feasible. 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.

Table 3
Types of Water Service Operator and Relative Importance

	El Salvador	Guatemala	Honduras	Nicaragua	Dominican Republic
	% of total connections provided by each type				
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, co-ops) etc)[6]	0	6	15	0	0
Private for-profit systems[7]	0	2	0	0	0
Rural					
State companies with national scope	13				90
Private voluntary systems (juntas, co-ops etc)[8]	87	100	100	100	10

1/ Does not consider the recent organization of public companies responsible for Managua and Occidente, which would reduce ENACAL's proportion to 29% and state companies with local scope to 61%.

Source: Our estimates, based on diverse sources. See footnotes for details.

2.1.1 Service Provision

Provider Types

All but one country studied has one or more state corporations—established in the early 1960s—with formal responsibility for WS&S provision in urban areas. Nevertheless, municipal[4] entities are to some degree involved in providing urban services in all the countries studied except the Dominican Republic. In Guatemala, for example, 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. (See Table 3 for available data on the relative importance of each provider type.)

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 corporation was required by funding agencies financing capital investments in secondary cities.[5]

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

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

[6] In Nicaragua, El Salvador, and the Dominican Republic 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 percent 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 percentage covered by PVOs outside the capital city area is lower, at 20 percent. It is estimated that 25 percent of all households in Guatemala City are in asentamientos, and that 15 percent of households in other urban centers are in asentamientos. The metropolitan area is 30 percent of all urban populations. The estimated percentage of total urban connections provided by PVOs is 6 percent. In Honduras, 25 percent of urban connections in Tegucigalpa and an estimated 10 percent in other urban centers are provided by PVOs. Tegucigalpa has 30 percent of all urban connections. The total share of PVOs is 15 percent.

Box 1
A Typology of Water Supply 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 Servicio Autónomo Nacional de Acueductos y Alcantarillados (SANAA) in Honduras, Empresa Nicaragüense de Acueductos y Alcantarillados (ENACAL) in Nicaragua, Instituto Nacional de Acueductos y Alcantarillados (INAPA) in the Dominican Republic, and Administración Nacional de Aguas (ANDA) in El Salvador. Guatemala, however, has no such corporation. Normally the state corporations are constituted under public law (*empresas públicas descentralizadas*), but in the Dominican Republic an effort is underway to reconstitute them as *Sociedades Anónomas* (SAs), 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 SAs.

State Corporations With a Limited Geographic Scope
These corporations are similar to the national companies, but limited to a given zone by their constitutions. Examples in the region include the *Corporación de Acueducto y Alcantarillado de Santo Domingo* (CAASD) and the *Corporación del Acueducto y Alcantarillado de Santiago* (CORAASAN), both in the Dominican Republic.

Municipal Operators
These might be public corporations, such as Empresa Municipal de Agua-Cuedad de Guatemala (EMPAGUA) in Guatemala City and in San Julian in El Salvador. Sometimes various municipalities join together in forming a shared public company to run their water services (such as the Tetralogía project of six municipalities in Usulután, El Salvador).

More often, however, municipal operators are divisions of the municipal administration, such as División Municipal de Aguas (DIMA) in San Pedro Sula, Honduras. They might also be SAs in which a municipality holds all or part of the stock (mixed capital companies), such as that under development in Puerto Cortés and San Pedro Sula in Honduras.

Private Voluntary Systems
Examples are *Juntas de Agua*, cooperatives, NGOs, and PVOs. 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

The balance between national state corporations and municipal providers varies considerably from country to country. In Guatemala, which has no national state company, all urban systems but one are municipal—the exception being one private operator covering part of Guatemala City.

In Honduras, where SANAA (the state corporation) has not expanded aggressively outside the capital city of Tegucigalpa, municipal providers account for 62 percent 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 Potable Water and Sanitation Sector (PWSS) to the municipalities, while SANAA simultaneously has the same mandate. This contradiction has led to conflicts, as municipalities have sought to wrest

[7] The connections supplied by private for-profit organizations in Guatemala are those of the private company Mariscal, which has an estimated 10,500 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.

[8] In Honduras, the Dominican Republic, 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 classified here as private voluntary systems. In the Dominican Republic 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, previously run by the Health Ministry, was recently transferred to ANDA control. However, these systems are still administered by local committees.

control of services from SANAA when provision became ineffective. 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 percent of urban water connections. Here, there are a variety of models for decentralized provision: in some cases, municipal departments handle the engineering, while the municipal treasury handles billing and collection; in others, intermunicipal associations are in charge (the case of the yet-to-be-approved "Tetralogía" project—see Box 1); and in one case, a local nongovernmental organization (NGO) operates the system (Lolotique).

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

The Dominican Republic experimented with municipalization in 1955, but poor results led to the recentralization of the services, with the formation of INAPA in 1962. Today, there are no municipal operators.

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 WS&S provision is the prevalence of "low-level equilibria," which relate to a failure to mobilize enough resources to pay for the level of service people wish to have.[9] This section reviews available evidence on the resource-mobilization performance of different types of service providers.

Resource Mobilization by National and Municipal Operators in the Formal Sector

In general, the most subsidized systems are those run by national corporations, which 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 frequency of service)—not because they are more efficient or effective than other providers, but because their greater command over subsidy resources outweighs their relative inefficiency. Normally, the tariff effort of such systems is limited to covering operational costs, 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 as well.

Normally, municipal systems have more limited access to public capital resources than do national corporations. Although one might expect this to lead them to make a greater effort to collect tariff revenues from users, little evidence suggests this to be the case. On the contrary, municipal systems tend to be even more prey to undercharging than do national operators, perhaps because the water tariff is a relatively important component of the *plan de arbitirios* of the municipality and 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 for more-efficient use of resources, the outcome is often inferior service.

Table 4, which reflects a recent study of physical/financial performance indicators in a sample of nonmetropolitan systems run by municipalities and by SANAA in Honduras, illustrates this point. In the municipal systems, tariff income is significantly lower than in the SANAA systems[10]. Due to the shortage of resources, staffing levels are much lower,

[9] 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.

[10] 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 nonmetropolitan SANAA systems and municipally administered systems. See Walker et al, 1996.

Table 4
Performance Indicators for Nonmetropolitan 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 six SANAA and seven municipal systems undertaken by Economia Sociedad Ambiente Consultores and FRISA Engineering for the IDB in 1998.

leading in many cases to inefficient operation. The higher production of water per person in municipal systems is actually associated with higher physical losses and not with better service—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 the table are unavailable for other countries in the study area, the pattern revealed in Honduras very likely has general validity.

Table 5 presents comparative performance indicators for urban formal-sector provision in the region as a whole. Although gross production and income vary widely from place to place, loss levels are similar (at close to 50 percent) for all the systems where data are available. Production variation 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 Dominican Republic.

The best income performance is seen in ANDA (El Salvador), ENACAL (Nicaragua), and CORAASAN (Dominican Republic), while the weakest performers are the Honduran municipal systems and the INAPA system of San Juan de la Manguana in the Dominican Republic. It is striking that the best performance is found in recently reformed systems, regardless of their level of decentralization. Seemingly, the act of reorganization engenders a phase of institutional virility, even when the new arrangements have apparent weaknesses. The only case with a good tariff effort but no recent reorganization is ANDA in El Salvador.

Table 5
Performance Indicators for Different Operators of Urban Potable Water Services

	Gross production per capita (lppd)	Annual income per connection (US$)	Unaccounted for Water (%)	Date and source
Metropolitan				
CAASD	677	64	58	1997.IDB 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	1998. ESA / HYTSA
ENACAL-Reg III	305	108	55	1996. FUMANITAS 1998. ENACAL
Nonmetropolitan				
CORAASAN	659	82	54	1997. IDB Proj.Report
CORAAMOCA	709	26	60	1997. IDB Proj.Report
INAPA-San Juan de la Maguana	306	11	55	1997. IDB Proj.Report
SANAA Systems	467	22	n.d	1997. FRISA /ESA
Honduras-Municipal Systems	545	11	n.d	1997. FRISA /ESA

In Honduras, for example, the 1996 municipalization of the Puerto Cortés System and the regionalization of the nonmetropolitan part of SANAA 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 holds true in the case of CORAASAN 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 CAASD.

In Nicaragua, the recent sectoral reform 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 improvement will be sustained in the long term. In the other cases, failing the implementation of reforms to improve planning and regulation, the tariff effort may well 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 sectors have stepped into the vacuum. Most rural systems in the region and many peri-urban systems are privately administered, usually on a voluntary basis. The construction of such systems is normally funded by grants, often with support (including financing, design, and construction of capital works) from development agencies, from the national or municipal corporation, or from social investment funds.[11]

These systems show diverse results on resource mobilization. In Honduras, El Salvador, and the Dominican Republic, there has been a considerable effort over several years to channel public capital resources toward financing the expansion of rural water supply; 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 upon 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 coverage and sustainability of rural water, following the peace agreements.

With respect to revenue costs, many rural and peri-urban systems have been neither technically nor 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 operation and maintenance (O&M) of systems. In some cases (for example, in Tegucigalpa's peri-urban project) this has generated 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: first, the alternative cost of nonpiped water is very high; second, the operator (normally a *junta de agua* or *patronato*) has greater credibility, in the double sense that users believe that 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) that bring about increased capital or revenue subsidies for their systems.[12]

[11] Apart from SIF-funded projects in Honduras and El Salvador, municipalities in the region have done little to develop rural aqueducts.

[12] 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.

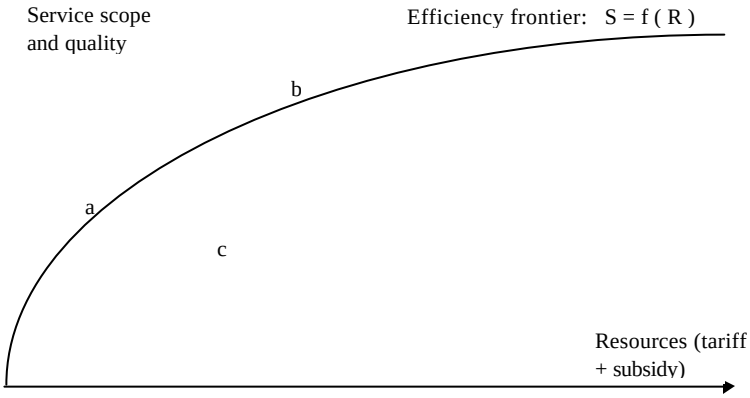

Figure 1
The Policy Decision about Service Scope and Quality

2.1.2 Sector Planning and Development

Principle of the Planning Function

Competitive markets are characterized by the presence of many producers, with uniform products and a large number of consumers. In such markets, the interaction of the private decisions of suppliers and consumers creates an equilibrium 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.

When an industry is a natural monopoly, however, it is not always feasible for each consumer to make independent choices about the level and quality of service desired. 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. Thus, individual consumers are left only with the relatively constrained choice of how much water they will consume subject to (a) whether they are covered by the network and (b) the frequency of service and quality of water the network supplies.[13]

For this reason political decisions must be made about the scope of the network and the quality of the service offered. The community must reach a collective agreement about the type of service that 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 communities face, showing how improved service scope and quality implies a progressive increase in total resources applied to the sector. As drawn, the figure also assumes that beyond some point there will be diminishing marginal returns to additional resources applied to the sector. Two possible positions 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

[13] 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*.

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 Ministry of Public Works 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 oversees 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. Usually, however, 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.

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 toward the operations of the national corporation itself, especially in the capital city, at the expense of other operators and their users (such as municipal operators).

Where an SIF exists, the fund will often work on the development and upgrading of systems and subsystems in both urban and rural areas, and then transfer these to the relevant operator when completed. In Guatemala, the SIF has been a major driving force behind improved coverage in recent years. By contrast, in Honduras, the SIF has contributed relatively little toward increased coverage of water services, tending rather to concentrate on improving existing networks in urban areas (ESA Consultores, 1999).

Where municipal provision exists, the municipal council has global planning responsibilities for its municipality and makes 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, rarely is a formal statement of sector goals and resource requirements agreed upon or published, either at national or local levels. Planning remains an ad-hoc process, normally remitted to the system operators themselves at whichever level; thus, 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[14]

Often the planning and development of rural water is 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 (INFOM). In El Salvador, the Ministry of Health initiated the now defunct Plan de Saneamiento Básico Rural (PLANSABAR) for developing rural water systems, while in the Dominican Republic, 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 systems are administered by

[14] 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 considered network services and are normally developed by separate agencies or are in programs separate from water supplies, raising completely different issues.

local community-based organizations. In the Dominican Republic, INAPA has built many rural aqueducts and in recent years has developed a program for decentralizing these 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, however, donors have responded to this situation by establishing special programs for rural water in some countries.

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 the minimum costs for desired outcomes relative to service scope and quality. This office undertakes studies of available technologies and physical constraints in each locality, in order to define for each system the exact shape of the water and sanitation production function drawn schematically in Figure 1. This information allows the planners, and community as a whole, to know the cost of reaching 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 planners to ensure that the system operates at an efficient point (such as "a" or "b" in Figure 1), where a better outcome could be secured without assigning additional resources, rather than at an inefficient point (such as "c").

As well as advising planners about possibilities, the regulator also supervises the service-providers to ensure they meet agreed-upon goals for service scope and quality. 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 operators receive the real resource assignment necessary to meet the planning goals agreed upon.

In the pre-reform model, which prevailed until recently in the region, economic regulation has normally been either nonexistent or very weak. Little or no effective regulation was in place to protect sector consumers 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, 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 during inflationary periods.

Regulation of National State Companies

In El Salvador and the Dominican Republic 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 have the power formally 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 Púbicos, CNSSP*). Although the intent of this reform was to depoliticize the tariff-setting process, this did not happen. No planning framework was established, and tariff setting continued to be regarded as a taxation decision and not one based upon adequate analysis of the company's real resource needs. In spite of persistently high inflation, adjustments took place only at long intervals, leading to severe erosion of SANAA's income in real terms[15].

Only in Nicaragua has any coherent reform of the planning and regulatory framework taken place. This came about through legislation passed in the first half of 1998, which assigned the sector planning function to the Ministry of

[15] See Walker et al, 1997, for more detail.

Construction and Transport and transferred system operation to ENACAL, leaving the Instituto Nicaragüense de Acueductos y Alcantarillados (INAA) to function as a specialized regulatory body. This legislation is discussed in more detail in Chapter 3.

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. 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 arbítrios*). In Guatemala City, the tariff of EMPAGUA is set by municipal legislation.

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

Public Ownership as an Alternative to Regulation

Traditionally, the absence of regulation has been justified by the fact that almost all operators of urban services were public bodies with little 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 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 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 agendas into play once more.

This cocktail of operational inefficiency and low revenues has led to a vicious cycle of low service quality (both in network coverage and in service quality within the established networks) and consumers' low willingness to pay for the existing services. Within this context, actual and potential consumers have rarely been given effective rights to protest the treatment they receive from ineffectual providers.

Environmental Regulation

A second important regulatory issue is that of environmental impact, which would include protection of raw water resources and regulation of their use, as well as regulation of the impact of sewage discharges on receiving bodies. Both these processes might give rise to social opportunity costs (called *externalities*), which are not reflected in the financial cost function of the water-providers and could lead to socially suboptimal results in resource allocation.

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

In most of the countries in the region, there is a water resource law, but these laws are antiquated. Although the governments of Honduras, El Salvador, and Guatemala have expressed a desire to modernize their legislation, they have not yet been successful. In the case of the Dominican Republic, a new law was passed in 1998 (discussed in more detail in 2.2).

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, which 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 landowners adjacent to the river are allowed to use the water but not to interfere with downstream rights. This is a somewhat contradictory principle, however, and in some places there can be intermunicipal conflicts over water sources such as 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 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,[16] and the state power company for hydropower schemes. Although various places have engineering schemes which supply drinking water, irrigation water, and hydropower, there is normally no clear legislative framework to define the relationship among them. Generally, 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 Dominican Republic, the *Instituto de Dominicano de Recursos Hídricos* (INDRHI) charges for water taken for irrigation purposes from the hydroelectric dam of the electricity company. However, even here, no charge is made for raw water supplied for the purpose of human consumption.

Awareness of the importance of issues related to water rights varies from place to place. In tiny El Salvador, whose water resources are extremely limited and contaminated relative to the size of the population, water rights have become a central issue. The Dominican Republic has also given increasing attention to the theme. In Honduras, Nicaragua, and Guatemala, where larger territories and/or higher rainfall alleviate 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. As yet Guatemala and the Dominican Republic have no modern MARN: in the former, environmental regulation is still in the hands of a presidential commission (*Comisión Nacional para el Medio Ambiente*,

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

CONAMA); in the Dominican Republic, 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. Electric and water companies sometimes take on watershed management in the cachement areas of their existing and planned reservoirs, and municipalities sometimes do likewise with regard to their own water sources.

Drinking Water Quality

Generally, health ministries set norms for drinking water quality and are responsible for oversight of compliance. 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 sanctions applied.

2.2 Advance of Reforms in the Water Supply and Sanitation Sector

2.2.1 Overview of the Reform Process

Over the last decade, the patent inefficiencies of the WS&S—in terms of coverage, service quality, value for money, and equity—have led to a series of reform initiatives. However, the diagnosis of the problem and prescription of the appropriate solution have varied among countries, and often there have been conflicting reform agendas within a single country. Details of the country reform process are presented in Chapter 3.

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 efficient execution), and wherever possible passing functions from the state to private agencies. This is the case in Honduras, where municipalization and privatization have been 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 IDB and World Bank offered a sector-adjustment loan in return for the reform package. This initiative stalled, however, due to conflicts between the CPME and SANAA (the main state water company), which opposed the municipalization of its services.

In other countries, the CPME or its equivalent has been more successful in working with existing sector organizations, sometimes delegating the whole reform effort to them, and the avoidance of intragovernmental 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 Dominican Republic, where the proposal for modernization in WS&S centers upon 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 telecommunications, but regionalization rather than municipalization is the central strategy for the decentralization of service provision.

In some cases the decentralization thrust has led to direct conflicts between municipalities and the central government over ownership of WS&S systems. El Salvador is a case in point: here, the modernization process has focused on the promotion of indirect providers (specifically, privatization), to be regulated by national bodies. There has been a growing municipal lobby to take over their own water systems, but the central government has resisted. In early 1999, a new effort went underway in Hondouras to

reach consensus on reform, whereby municipalities would become owners of their systems but would in many cases hire 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 Dominican Republic have seen attempts to engineer a wide-reaching sector reform based on framework legislation, which deals with all these issues.

In Nicaragua, this has led to laws creating new institutions, and a sweeping reorganization of the sector is underway. El Salvador has seen considerable advances on the modernization of the natural resource management aspects of the sector, but the WS&S reform has proceeded more slowly. In Honduras the global reform effort stalled in 1996 following conflicts between SANAA, the municipalities, and the CPME about proposals for service provision and regulation. In the Dominican Republic, at the time of writing [February 1999], sector reform is still at a relatively early stage of political negotiation. Guatemala has undertaken no coherent effort to organize a wide-reaching reform; however, a presidential decree passed in 1998 established that the INFOM should become the sector planning and development agency.

Reform from Below: Piecemeal Advances

At the same time, in most countries there have been efforts at reform *"from below,"* geared toward developing a methodology to resolve specific problems (such as peri-urban provision or rural provision) in the context of existing sector legislation.

In Honduras, there has been a plethora of such initiatives, including municipalization (supported by USAID, the World Bank, and the IDB) and—as an alternative, promoted by SANAA—regionalization of service delivery. Initiatives also include development of the peri-urban program SANAA-UNICEF in Tegucigalpa and the development of a working model for rural water provision under the USAID-sponsored Programa de Sector Salud/Acueductos Rurales (PRASSAR). In the municipal sector, already responsible for some 62 percent of urban water supply, the IDB 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.

Although national-level reform has advanced slowly in the Dominican Republic, the country has 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 USAID[17]. 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 upon 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 2.1:

- Reorganizing service delivery, with a tendency toward promoting decentralization and/or privatization
- Strengthening and reorganizing sector government (including planning and financing)
- Establishing or strengthening the economic and environmental regulation of the service providers

Debates over the relative merits of centralization and decentralization have surfaced

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

relative to each of these functions. For example: should service provision be undertaken through national companies, regional companies, municipal companies, or submunicipal 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 reviewing the debate on each of these themes, one sees that neither centralization nor decentralization, in and of itself, will resolve all the problems faced by the sector. However, in many cases decentralization of some or all key functions is highly appropriate and should therefore be an important aspect of the future anatomy of the sector.

2.2.2 Strategies for Reorganizing Service Provision

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

- ***Devolution***: changing the level of government responsible for WS&S provision.
- ***Deconcentration***: reorganizing service provision with no formal transfer of responsibility between government levels, e.g. through the regionalization of national state-owned companies.
- ***Corporatization***: establishing publicly owned companies governed by private law (*sociedades anónimas*) to operate water and sanitation services. These might later be privatized, wholly or partially.
- ***Privatization:*** contracting private agencies to operate systems owned by the public sector, via management or leasing contracts or concessions; also, passing 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 seeking 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 various 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

	Level of state responsibility for service provision		
Relationship with the service provider:	Centralized	Deconcentrated	Devolved
Direct provision	•	•	•
Corporatizatized	•	•	•
Privatized	•	•	•

Devolution

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

Although in most countries of the region municipal development has been a central theme of the general state modernization process, only in Honduras has municipalization dominated the debate over WS&S reform. In Guatemala, where WS&S services are already municipally controlled, attention has concentrated on ways to improve the performance of existing municipal suppliers. In El Salvador the municipal movement is gaining force, and a growing debate is foreseeable over the transfer of water systems from ANDA to the municipalities in coming years (see box). In the Dominican Republic, the discussion has focused on regionalizing state corporations and involving private providers; municipalization is not now on the agenda.

The proposal for sector reform in Honduras, promoted by the CPME in 1995-96 with IDB and World Bank support, involved the transfer of all urban water services to municipal control. The state corporation, SANAA, would provide technical assistance to rural suppliers and participate 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 wary of the regulatory arrangements in the reform proposal, which they felt would undermine municipal autonomy through the imposition of tariffs by central government. Municipal autonomy is also an issue in Guatemala and is likely to become an issue in El Salvador.

Nevertheless, in Honduras, local campaigns following system breakdowns have led recently to the transfer of some secondary city water systems to municipal control, via an

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 percent 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 Usulatán 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 go ahead only when ANDA, which owns the infrastructure, agrees to cede administration of the system to the new organization.

administrative delegation by SANAA. Such transfers took place in San Lorenzo in 1994 and in Puerto Cortés in 1995; in Puerto Cortés the success of the municipal administration led to the transfer of full system ownership 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. 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 resubmitted to the Honduran Congress in early 1999. Municipalization is now promoted on a permissive rather than mandatory basis. In this context, more attention is focusing on ways to raise 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 that aim to locate operational decisions and resource control closer to the communities they serve.

- ***Honduras.*** SANAA responded to the municipalization proposal by establishing six regions, which were allowed to retain their tariff income and given substantial control over day-to-day operations. Revenue generation improved markedly, on average doubling over a two-year period (FRISA Engineering and ESA Consultores, 1998).
- ***Nicaragua.*** A law passed in 1998 created ENACAL, which was mandated to take over the operation of INAA's systems—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 regional operations will gradually be privatized.
- ***Dominican Republic.*** INAPA has been progressively broken down into regional state corporations, including Santiago's CORAASAN and Moca's CORAAMOCA, 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.

Corporatizing Public-Sector Providers

The aim of corporatization is to establish an arm's-length relationship 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. Such arrangements should make it easier to separate functions and responsibilities and should therefore improve accountability and effectiveness.

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

The operating company is a commercial company (*sociedad anónomia*, or SA) 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 SA. The corporatization model, which comes from Chile, is a strategy the IDB has promoted in the region.

- ***Dominican Republic***. Under a global sector reform project in an advanced stage of planning (in early 1999), it is proposed to corporatize the state water operators CAASD (Santo Domingo), CORAASAN

(Santiago), and CORAAMOCA (Moca). Supported by the IDB, the program will attract $50 million in investment funds to strengthen the corporatized systems.

- ***Honduras***. The municipality of Puerto Cortés is establishing an SA to operate its water and sanitation system on a leasing contract, and a similar arrangement is planned in San Pedro Sula. Initially, each municipality will wholly own the operator, but it is expected that private investors will eventually become involved. Once again, these initiatives are linked to IDB investments.
- ***Nicaragua***. The regionalized components of the state water operator, ENACAL, are to be turned into SAs. In this case, the initiative is "home grown" and not linked to any investment or reform program promoted by an external agency.

Private Sector Participation

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 accepts little risk; although the firm is paid to operate the system, the owner (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 scope of service and quality (and therefore, implicitly, investment requirements) and on tariff limits.

The differing levels of private responsibility associated with these diverse options allow for the design of strategies to gradually increase the level of private-sector participation 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 enough to become 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-upon planning goals. This always applies under any form of privatization, although the contractor's scope of responsibility will vary according to the type of contract.
- To mobilize private capital for investment in the system, a circumstance arising only under relatively advanced forms of privatization such as full concessions and the sale of assets.

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

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

In the Dominican Republic there is a proposal to let a private concession to operate some 10 water systems in the main tourist areas, including Puerto Plata, Cabarete, Boca Chica, Juan Dolio, Samaná, Sosua, and Barahona.

Linked to a $120 million World Bank investment, this proposal is likely to be approved in 1999.

Reform of Arrangements for Rural and Peri-Urban Service Provision

The lack of sustainability in rural water systems has led to various initiatives in recent years to improve performance through better 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 training and technical assistance (TA). Often, this TA is given during the phase of system development, when the *junta* is organized and trained.

For example, in Honduras, PRASSAR (part of USAID's Health Sector II project) financed *técnicos en agua y saneamiento* (TAS) to promote system development and *técnicos en operación y mantenimiento* (TOM) to support the *juntas de agua* in system operation. These technicians are hired and trained by SANAA; however, at present SANAA has only 40 TOMs, which is half the number that would be needed to adequately support the country's 4,000 rural aqueducts.[18]

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 Dominican Republic, a USAID-sponsored pilot program is proposed in El Hato Mayor 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 peri-urban 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. The committees purchase water on the block tariff from SANAA and repay the loan for network construction into a revolving fund, which then supports further developments elsewhere. Over a five-year period this program has established some 30,000 new connections—amounting to 15 percent of the city's total. Users pay more than SANAA's formal-sector clients, however, often for a markedly inferior service.

It is striking that, in many countries of the region, the most effective arrangements for development of rural and peri-urban systems are in the hands of the national state water 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 become a casualty of the reform process. In Honduras, the 1995-96 reform effort concentrated on the peri-urban sector, and rural water cropped up only as an afterthought in the design of the reform.

Similarly, the future of initiatives to improve peri-urban coverage might be placed in jeopardy through schemes to let concessions for the metropolitan systems to private operators. If these operators regard the business of selling water in peri-urban areas as low profit or high risk, they will be tempted to sideline plans to increase coverage or improve service quality there. Such an outcome could be avoided by clear provisions in concession contracts regarding the scope and quality of service coverage in peri-urban areas. In many cities, where the local communities have constructed rudimentary networks, major investments will be needed to improve these and make their operation economically attractive. They should be fully costed in the concession contract. Once this is done, it will be possible to individualize the service and bill for metered consumption. It is the absence of such investment—not the absence of willingness or capacity to pay—

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

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 ideally remitted to a planning office nominated by the level of government to which 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, concerns the function of planning and goal setting for urban water and sanitation, which has normally been remitted to the main state-owned operating companies. This has been the case in Honduras, Nicaragua, El Salvador, and the Dominican Republic. 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.

This issue has received widespread discussion—promoted by the World Bank, the IDB, PAHO, Comité Coordinador de Instituciones de Agua Portable y Saneamiento en Centro América, Pananmá, y la República Dominicana (CAPRE) and USAID—in the technical bodies related to WS&S in the region. It is now generally accepted that a sector-planning body is needed at national levels, which has no direct responsibility for service operation. However, there is less clarity about the need for separation between the planning and operating functions at the 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 the sector, many of which involve increased decentralization. The following paragraphs summarize the main initiatives.

Creating a National Planning Office for WS&S

A National Planning office has been proposed in Honduras, the Dominican Republic, Nicaragua, and El Salvador.

- ***Honduras***. The first version of the reform legislation, presented to the congress in 1995, proposed a new vice-ministry within the Ministry of Health to take over sector planning. In a later version, however, it was proposed that SANAA specialize in the planning function and surrender the operation of systems.
- ***Dominican Republic***. Here, it is proposed to create the *Oficina Nacional de Planificación y Politicas de Agua 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 2.2.1. Each operator will be subjected to a contractual mandate to meet agreed-upon goals through contract plans or concession contracts, as appropriate.
- ***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. These plans were complemented by an engineering and socioeconomic study of the country to prioritize investments, a study which served as a background document for the sector-development plan.
- ***El Salvador***. It is proposed that the Ministry of Economy assume responsibility for sector planning. This is part of an IDB-promoted package of reforms, called the Reform Program for the Water Sector and the Potable Water and Sanitation Subsector,

initiated in 1998, and complemented by investment funds of $60 million.

- ***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 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.

Creating a Municipal Planning Function

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

For larger Honduran municipalities, such as Puerto Cortés and San Pedro Sula, the IDB has proposed leasing and concession arrangements between corporatized (but publicly owned) operators and the municipal government, as detailed in section 2.2.1. In this case the municipal government retains the planning function, and the operator is subject to a leasing contract, mandating agreed-upon goals.

Decentralizing Public Investment Resources

All the countries in the region have seen moves in this direction. For example, social investment funds have been created, which channel capital resources directly into works at a local level in Honduras, Nicaragua, Guatemala, the Dominican Republic, and El Salvador, and part of their resources finance WS&S works. The SIF procedures for allocating resources and for selecting and executing projects vary from country to country. In Honduras, the municipalities have an important role in the SIF decision process; this is not so, however, 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 percent be transferred in this way. Municipalities with port facilities receive a greater impulse in the form of 4 percent of the revenues of the *Empresa Nacional Portuaria* (ENP) received at their borders. In Guatemala the law mandates that 8 percent of the state budget be transferred to municipalities, and in El Salvador the figure is 6 percent.[19] However, in all cases, it is not unusual for the total transferred in practice to fall well short of the legal mandate.

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

Improving the Planning and Development of Rural Water Systems

In Guatemala, within 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 progam, UNEPAR. The latter is funded by the IDB, Kreditanstalt für Wiederaufbau (KFW), and AID's PAYSA project. In 1997, the various actors involved in rural water in Guatemala—including NGOs such as UNICEF, CARE, and *Agua para el Pueblo*—agreed upon a basic intervention model (m*odelo básico de intervención*) to standardize their methodologies.

In 1982, El Salvador's Ministry of Health initiated PLANSABAR for developing rural water systems. However, little progress was made, and in 1996 responsibility for rural systems was transferred to ANDA's control. The IDB is now giving technical assistance to develop a proposal for financing more rural aqueducts through the *Gerencia de Servicios Rurales* within ANDA.

2.2.4 Sector Regulation

As with sector-planning reform, the advances in regulation have been limited.

Economic Regulation: Tariffs and Service Quality

The country that has advanced the most in this area is Nicaragua, where 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 passed by Congress in 1998 before INAA assumed its new role as sector regulator. This tariff is oriented toward recovery of full costs, including capital costs, although 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, a point of contention with the municipalities that were to take over system operation under the same law. The municipalities argued that imposition of a national regulator was inconsistent with municipal autonomy and that they should 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 unclear on this point.

In the Dominican Republic, the reform proposal (still being negotiated between the government and the IDB 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). It would determine maximum allowable tariffs in each system, protect consumer rights, and supervise the compliance of service operators with planning goals set by the sector planner—ONAPPAS—goals 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 IDB loan) has developed a proposal to establish the *Agencia Reguladora de Agua y Saneamiento* (ARESA), which was to be put into place following the March 1999 elections. This agency would be charged with establishing norms and controls for service delivery, arbitrating conflicts, and setting tariff ceilings for all public and private suppliers of urban services. However, with the recent elections it is unclear whether this plan will be put into effect.

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

Environmental Regulation: Water Rights, Watershed Management (Source Protection and Pollution Control), and Water Quality Norms

Legislative Modernization

El Salvador has shown growing concern about the environmental regulation of water, reflecting the increasing awareness within this small country of the severity of the water resource constraint. In 1997, MARN was created and, in 1998, a *Ley de Ambiente* was passed. However, there are still conflicts over the purposes of the new law, and the government has dragged its feet on drafting the implementing regulations, pending resolution of these disputes.

Nor has El Salvador yet managed to pass a modern water resources law. However, the government proposes to create a *Consejo Nacional del Recurso Agua* (CONRA), which will have executive powers to allocate water rights among alternative uses. This proposal is supported by the IDB project and is under discussion by the government-elect.

In the Dominican Republic there is a new water resource law, passed in 1998. Nicaragua and Guatemala have made little progress on water 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 in November 1998 and is presently [March 1999] awaiting a committee report prior to proceeding to the second debate.

The reorganization of the Ministry of Natural Resources in Honduras has also led to improvements in sector administration. 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 del Ambiente (SERNA). This agency has general functions of environmental supervision and has absorbed the *Dirección de Recursos Hídricos* from the old Ministry of Natural Resources. Coupled with the *Ley de Ambiente* (1991) and *Ley de Municipalidades (1990-91)*, which establish a framework for the watershed management and discharge control, 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, 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, source of a large proportion of the city's water and pollution control to safeguard subterranean sources. ANDA, in El Salvador, 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 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 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 are playing an important role in the new system of environmental control, establishing *unidades ambientales* and accepting formal responsibility for protecting watersheds used as 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 likewise strengthen the management of the environmental aspects of WS&S.

Decentralization and Health Promotion

The drive to improve rural and peri-urban WS&S, driven in most countries by health concerns, has usually been led by health ministries. Increasing access to safe water and sanitation facilities has played a key role in national strategies to reduce infant mortality and improve the health status of the poor.

During the last decade, there has been a growing awareness of this effort needing to be coupled with education and promotion efforts to ensure that users get the maximum possible gain from the improved facilities. For example, users need to know how to use and maintain latrines properly, how and when to wash their hands, how to avoid contaminating 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, little evidence suggests that the degree to which service provision is centralized 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 Ministry of Health, which simply supplied pipeworks, showed few beneficial health impacts. But now a full-fledged water and health program has been developed—the *Modelo Básico*—which includes strong components for community participation, health promotion, and environmental education, as well as for construction. 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, WS&S reform in the study countries has been a complex and rather messy process. Most of the reform initiatives have concentrated on reorganizing 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 Dominican Republic corporatization and privatization are under consideration for different parts of the system. Guatemala has of yet no proposal to change from the existing scheme of municipal provision, and in El Salvador the proposals for service reorganization are not yet determined although a struggle is emerging between some municipalities and ANDA.

Given the failings of existing providers, the emphasis on service reorganization is understandable. 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 itself. 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 be 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:

- First, whichever political level of the state—national or municipal—is in charge of ensuring service provision, it needs to make a clear plan for scope and quality, which should be agreed upon politically with the community. That agreement needs to include a commitment to assign enough resources to meet the goals, preferably through tariff income but otherwise through transparent subsidies.
- Second, national and municipal planners need the support of a technical office, which can supply information about costs and help with the technical supervision of the service provider. This regulatory function is absolutely necessary and should probably be located at the national level in order to avoid duplicating costs and to promote effective comparison of system efficiency. It might be collectively controlled by the municipalities, however.
- Third, in systems of any size or complexity, the use of indirect provision (through corporatization or private-sector participation) improves the probability that service providers will meet the planning goals. This is the case because it places 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 that 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 afoul of the lack of national consensus on the organization of service provision and disputes about the appropriate scope of national regulation. In the Dominican Republic 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. A coherent overall reform strategy agreed upon between the Salvadorian government and the IDB in 1998 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 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 relative to effective performance identified in the present study? Although the evidence is still patchy, some conclusions are beginning to take shape and are summarized in the following paragraphs.

Decentralization and the Cost-Effectiveness of Service Provision

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

In Honduras, for example, only 12 cities (out of 292 municipal capitals) have populations above 25,000. This constitutes an obstacle to

making existing municipal systems more effective and is a valid argument against breaking up the SANAA's seven regional operations (which all have 5,000 or more potential connections). Similarly, in El Salvador, 65 percent of the municipal capitals have a population under 3,000, and 51 percent have less than 2,000.

One way round this is to establish intermunicipal organizations. This idea was broached in Honduras during 1995-96, with the Colombian example of Aqua Valle touted as a model. However, intermunicipal rivalries might make such cooperation difficult to achieve. 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, awareness has also been growing of the importance of popular consultation and transparency to increase the legitimacy of 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 that 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 public consultation, and little has been done to trace through the resource requirements implicit in different service-development decisions. Rarely has planning amounted to more than costing the next capital project and negotiating funding from the government or a development agency.

In systems that 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 now 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 would 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 against political interference in the system's operation, and whose scale is large enough to provide good value for money.

Decentralization and Cost Recovery

The region under study provides no good evidence that decentralization, as such, improves cost recovery in WS&S. In the absence of

appropriate separation of the service operation from political control, both nationally and municipally run systems are prey to undercharging.

Users tend to regard the tariff as a tax, which, technically, it usually is because there is little metering. The users' optimal strategy is to attempt to minimize the tax, since this will not directly affect the service they receive. In the face of gathering clouds of low-level equilibria, which inevitably result from lack of system income and limited 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, 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. Because the operator has no potential access to subsidy resources and has high credibility in turning tariff revenues into delivered services, users believe the only way of getting or improving services is to pay for them.

Decentralization and Economic Regulation

In the past regulation has been confined to tariff laws covering national water companies; in some countries not even this has existed. With the move to decentralize control of the services, there has been reluctance at the 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 2.1.3 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 trust 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 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 likely be not only relatively expensive but also relatively ineffectual. This problem might be overcome, however, 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

Normally the modernization of WS&S should 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

nonexistent. 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 national authorities should largely delegate to local governments, regardless of the level of decentralization of WS&S. This is starting to happen in Honduras, where municipalities are setting up *unidades ambientales* that 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 peri-urban 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. In general health promotion is best carried out at the local level, whether by local offices of the Ministry of Health, the municipality itself, or the WS&S operator.

3 CASE STUDIES

3.1 Dominican Republic

3.1.1 Overview of the Reform Process

Only recently has the Dominican Republic initiated systematic efforts to modernize its WS&S sector. In early 1996, President Leonel Fernández Reyna took office and introduced reform initiatives geared toward improving the country's public administration and strengthening the economy. The debate over reform began in the middle of that same year, a meeting of the *Asociación Dominicana de Ingeniería Sanitaria (*ADIS), the professional body of Dominican sanitary engineers.

At that meeting the public institutions responsible for WS&S provision agreed 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 establishment of an interinstitutional technical committee to oversee sector reform and the drafting of a sector diagnosis (completed in April 1998) to serve as a starting point for developing concrete reform initiatives.

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

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

3.1.2 Strategies for Reorganizing Service Provision

Centralization versus Municipalization

Between 1955 and 1962, the Dominican Republic experimented with the devolution of WS&S to the *ayuntamientos* (municipalities). This phase of sector development, generally regarded as having been a failure, ended with the recentralization of services under INAPA in the early 1960s. Following this, CAASD 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, present opinion among WS&S sector leaders does not favor a future role for the *ayuntamientos* in service provision. Political tensions between the executive and municipal governments were exacerbated by the 1998 elections, when 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 reorganizing service provision, based upon corporatization of the main urban systems; concessions for potentially profitable systems in tourist areas; and devolution

of small-scale urban and rural systems to community control.

Urban Systems

An outstanding fact about the Dominican case is that, although large investments have been made in the sector over the last two decades, system operation remains deficient, with very high levels of unaccounted-for water. Apart from CORAASAN, the operating companies have implemented no sound cost-recovery practices, depending heavily upon 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, CAASD, CORAASAN, and CORAAMOCA, are to be transformed into SAs, which will operate under private law, applying commercial principles consistent with an efficient set of incentives. These companies will have contract programs, to be agreed upon with 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 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 permitting financial sustainability.

In the tourist zones of the country, where 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 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. The agency is formally responsible for 252 rural aqueducts, but most of these systems are unproperly managed and receive sporadic technical support through INAPA's regional offices. This lack of institutional support for rural systems leads to *de-facto* self-administration: 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 own systems.

The sector diagnosis identified the need to support INAPA's regional operations, which are divided into eight different zones, as a preparatory step in a transition toward creating 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 promoting the creation of local operations, managed by either municipal or private operators.

Prior to the present discussions about sector reform, the 1995-99 period saw a variety of initiatives from "below" geared toward improving INAPA's performance with rural aqueducts; these will likely be influential in shaping the eventual reorganization of the sector.

Systems construction is now coupled with 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 the Japan International Cooperation Agency, USAID, and the European Economic Community have supported such programs in both rural and peri-urban areas.

A program for rural aqueducts decentralization was organized within INAPA, with a mandate to develop and implement a national strategy for decentralizing rural WS&S services. USAID has assisted in setting up a program-executing office. 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 community participation at all levels. INAPA would "contract" with NGOs in each of its operating regions to work directly with communities. A rural community enterprise (*empresa comunitaria rural*, ECOR) runs WS&S in each locality, with a common legal basis and standard training and operating routines developed for all these associations. Unfortunately, the rural aqueducts decentralization program ground to a halt in mid 1998, due to Hurricane Georges and 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, coordinating among institutions, and mobilizing 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 lack of transparency in contracting procedures. At present the awarding of contracts seems 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.

To address the planning function, the Dominican government organized an *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 interinstitutional technical committee mentioned earlier.

During the transition, the oficina rectora will perform regulatory functions, supervising the contract programs (performance contracts) the government will sign with service providers. Performance contracts are selected as the means to improve overall efficiency through a regulatory mechanism, ensuring better accountability from the operators.

Eventually the Oficina Rectora de la Reforma will be converted into the new sector planning office, to be called ONAPPAS. This office will determine sector policies and decide upon 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.[20] The top officials of ONAPPAS will be appointed by the executive.

A Water and Sanitation Investment Fund (Spanish acronym: FIAS) is being developed as a key agency for sector finance. The fund—to be capitalized initially with an IDB loan 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 funding access to sound tariff-setting practices and overall efficiency of the service providers.

Another source of finance for small-scale systems is the Dominican Republic's social investment fund, PROCOMUNIDAD, established in 1995 and financed by a number of multilateral and bilateral agencies and countries. The fund builds and rehabilitates local infrastructure while generating employment. Regarded as an agile instrument for local-level interventions, although it does not have a strong WS&S component, the fund 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

[20] IDB Project Report (draft), November 1998.

The sector reform proposal was developed with TA funds from the IDB and is at present [March 1999] under discussion between the government and the Bank. 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 determining maximum permissible tariffs according to efficiency criteria; protecting consumers' service rights; and supervising compliance of contract programs to be agreed upon between the service operators and ONAPPAS.

CORSAS is conceived as a technical office. To avoid political interference it is proposed that the appointment of its principal officials should cover administrative periods that do not coincide with the presidential cycle. Two consultative bodies will be attached to CORSAS: one composed of service users' representatives and the other of private development and voluntary organizations active in the sector. This seems to be a confusion of functions, since public consultation is normally regarded as a planning rather than regulatory function. There may be a danger of "user-capture" of the regulatory body as a result of this arrangement, leading to pressure to undercharge.

Environmental Regulation

As yet the Dominican Republic lacks inadequate legislation, administrative dispositions, and institutions to deal with environmental regulation. In March 1998, a Water Code *(Código de Aguas)*, sponsored by INDRHI, was approved by the lower house of Congress, but not by the upper house. This code regulates the use, administration, and conservation of water, watercourses, and engineering works related to water, and it makes INDRHI the organization responsible for applying the code. However, the draft law for Environmental Protection *(Anteproyecto de Ley de Protección Ambiental*) remitted to congress in 1996 has not advanced, and it seems unlikely 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 Environmental Awareness Education. However, the executive has not withdrawn the previous draft law from the congress.

To further complicate matters, 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, the institute 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 no simplified and effective mechanism exists to monitor, supervise, 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, 1993-99). 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 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. The commission, 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 a National Council on Water Resources (CONRA), 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 established, CONRA will be the sole agency with the right to assign concession rights to water users. It, along with the Ministry of the Environment and Natural Resources, also has the remit to prepare a Clean Water Law. CONRA's governing body will include a president and three councilors, all appointed by the president of the Republic following a merit-based public competition. CONRA will have the power to nominate watershed management boards.

The proposal for reorganizing the WS&S sector has been negotiated between ANDA, acting as leader within the sector, and the IDB, all under the context of a loan operation worth approximately US$60 million.

Pending the national elections of March 1999, the rhythm of reform slowed. The new government has made decentralization one of its primary objectives and is currently developing its policy.

3.2.2 Strategies for Reorganizing Service Provision

Urban Systems

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

- A model geared toward private-sector participation as a first principle, sponsored by the IDB.
- The municipalization model, based upon 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 IDB is offering (in comparison with other programs) makes the Bank model the more likely to succeed. The municipalization model relies upon 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 IDB-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 option 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. ANDA's most attractive operation, San Salvador's population of around 2 million accounts for 56 percent of ANDA's connections and 70 percent of its revenues. Similar schemes are foreseen for Santa Ana and San Miguel (each with 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, in which ANDA's president has sued the municipalities following their takeover of the physical installations and administration of the water systems; the formal charge is "usurpation" of state goods. ANDA has used the resulting legal impasse as a pretext to halt other initiatives involving devolution of water systems to municipalities, including those that form the Tetralogía project.

Although the municipal movement in El Salvador is relatively young, it is gaining strength. It draws 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 FISDL, the social investment fund.

However, there remains 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, although certain articles 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 Salvador's 252 municipalities, only 78 manage their own water systems (31 percent 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.[21]

Rural Systems

In recent years the management of rural water has become more centralized. For example, 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 in 1996; ANDA now directly manages close to 700 rural systems. (Around 400 systems were built by the SIF.) System management is done locally through rural aqueduct associations (Spanish acronym: AARs). A number of systems have also been built with the assistance of USAID, CARE, 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 adequate provisions for technical and administrative support are not yet in place.

[21] In El Salvador, 65 percent of the municipal capitals have a population under 3000, and 51 percent have less than 2000.

3.2.3 Sector Planning and Financing

According to the IDB proposal for sector reorganization, the planning function is to become the responsibility of the Ministry of the Economy, which is charged with approving the policies, plans, and strategies for the delivery and expansion of WS&S 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 percent 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, obtained through COMURES, are channeled through the recently renamed Social Investment Fund for Local Development (Spanish acronym: FISDL).

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

- Who oversees 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 a centralized state-run unit such as the existing Gerencia de Sistemas Rurales (GSR) within ANDA, acting through its regional offices?
- Who supplies the technical assistance needed for major maintenance of equipment/engineering[22] and basic administration of the rural systems?

3.2.4 Sector Regulation

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 conflicts.
- Apply incentives, and stimulate efficiency.

The ARESA board will consist of three members nominated by the president of the Republic, following a public contest to select candidates according to merit. A portion of users' water fees, the amount of 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 operators the right to provide services. The draft law sets out criteria for defining quality in service provision and establishes the following principles to govern tariff setting: economic efficiency, financial sufficiency, equity, transparency, simplicity, and 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. National and local public officials, as well as the general public, will need to understand the link between regulation and better WS&S services. At municipal levels, there is a general lack of knowledge as to what regulation entails, and little is known about the initiative to create ARESA. As a result, once ARESA is in operation, one can anticipate conflict between

[22] Some rural systems are quite complex, providing water to a number of localities, or are multipurpose, all in accordance to local conditions of scarcity and pollution of existing sources.

central government regulation and municipal autonomy, similar to that recently experienced in Honduras (see case study). Such conflict could be avoided by a concerted effort to provide information and reach 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 an 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 percent of forest coverage has been eliminated, making El Salvador the second most deforested country in the continent.

Given Salvador's already scant water sources, the serious pollution in water sources and 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 nearly 90 percent of superficial water sources are contaminated. Despite the gravity of the problem, however, little precise technical information is 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. For this reason the government chose to tackle the issue by creating CONRA as the sole water authority, with discretion to assign water rights, rather than by 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 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 norms, adopted in 1995. Formally, oversight responsibility for 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. Although passed in 1998, the Law of the Environment 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 fully decentralized. The municipality is already the central actor, effectively responsible for service provision and for planning and regulation of urban services.

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. At present no reform project, sponsored either by the government or by an external agency, promotes improved planning, regulation, operation, financing, and construction of urban WS&S services.

In the rural sector the central government has an important role and has recently acted to expand coverage and improve delivery. 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, usually located in remote poor areas of the country, that had suffered from the war. The government of President Alvaro Arzú has shown a strong commitment to improved rural coverage, and the social investment fund has an important role in this process.

3.3.2 Strategies for Reorganizing Service Provision

Urban Water

To date the reorganization of urban systems remains static, with systems municipally run—with the exception of localized sectors of Guatemala City, where private companies run systems—and under no national or regional coordination. The absence of regionalization is an important issue because no agency is giving technical assistance to municipalities, most of which are too small to be technically self-sufficient. Such support could be offered at a regional or subregional level, however.

The National Association of Guatemalan Municipalities (Spanish acronym: ANAM), which promotes coordination among municipalities, has no central role regarding water and sanitation services. But UNEPAR and INFOM both have regional offices, which could potentially be used in providing technical assistance.

Little discussion has taken place 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 and 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 and sell it 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—who account for approximately 8 percent of total connections in the city— is worth a short commentary. In the early 1980s, a private water company, Mariscal, was awarded a "concession" to provide services using private wells in some parts of the city. The rest of the private connections arise from small urbanization projects developed, often long ago, by private companies 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, 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.

Together with other programs funded by multi- and bilateral agencies, the agencies have developed a Basic Model (Modelo Básico) that establishes technical norms for the construction and operation of systems and incorporates sanitary and environmental education and community participation—all factors 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, 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 IDB 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 percent of the national revenue budget—has helped local governments develop their sanitary infrastructure. Some of these funds have been used to obtain loans from private banks on market terms. SIF is also becoming a key institution in expanding coverage of sanitary infrastructure. In 1998, SIF requested that the central government assign to it investment funds

previously assigned to INFOM-UNEPAR, since the fund was capable of quicker disbursement due to the normal FIS-style exemption from laws governing public contracting. In the 1999-2000 period, the government as a whole will spend close to US$30 million on rural aqueducts.

3.3.4 Sector Regulation

Economic Regulation

In the absence of national legislation on the matter, sector regulation is a de facto 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 toward undercharging. Service regulation and fee setting are seen as highly political issues.

Environmental Regulation

Although a Ministry of Water Resources was created by governmental decree in 1992, the ministry was abolished in 1997, and a residual Directorate placed within the Ministry of Agriculture. The main responsibilities of the Directorate were to prepare a national policy and plan for water resources, to prepare an inventory 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, the law has experienced a number of difficulties in its implementation. A draft General Water Law *(Ley General de Aguas)* 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 percent of all connections, compared with 23 percent for the National Autonomous Service for Water and Sewerage (Spanish acronym: SANAA) and some 15 percent run by private voluntary entities in peri-urban areas. At a national level, sector planning—formally the responsibility of the Ministry of Health—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; however, the National Commission for the Supervision of Public Services (Spanish acronym: CNSSP) controls SANAA's tariff.

Between 1994 to 1996 an intensive debate over reform occurred, triggered by a sector-adjustment operation proposed by the IDB and World Bank, who offered US$65 million in balance-of-payments support. When no political consensus could be reached between the different actors involved, the reform initiative failed and the loan operation was dropped.

The main lines of the proposed reform were these:

- ***Sector planning***: 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).
- ***Service provision***: 1. 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. 2. The letting of a management contract for SANAA's metropolitan system in Tegucigalpa, with a view toward proceeding later to a full concession.
- ***Regulation:*** Creation of an independent regulator who would supervise the municipal service providers.

- ***Rural water:*** Continuation of SANAA 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 and 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 decentralizing and strengthening governance. In this context they have given both technical assistance and loans to strengthen municipal water operators, tying the resources to improved performance in financial and technical sustainability. However, the agencies have shared Honduran municipalities' concern about the creation of a national regulator, which they view as a potential intrusion upon 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 IDB'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 that aim to isolate the operator from political interference. Although the IDB has continued to promote the creation of a national regulator and has conditioned access to loan resources upon such creation, this shift toward 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 Reorganizing Service Provision

Initiatives to Strengthen Municipal Service Provision

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

Although skepticism about municipal capacity to administer services effectively was a factor undermining 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

Under its democracy and governance program, USAID has promoted municipal strengthening—including the municipalization of WS&S service delivery—as part of the general invigoration of local government through expansion of functions. For USAID, local democracy constitutes the most effective mechanism to ensure satisfactory performance by the WS&S utilities, and 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 providing technical assistance to improve municipal operations in 45 municipalities. FUNDEMUN promotes a model for WS&S service provision based upon 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: DAPs).

Although both DIMOSEPs and DAPs are part of the ordinary municipal administration, they 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 upon the municipalities. This was recently illustrated in the case of Tela, where SANAA's unsolicited (and ambiguous) devolution of the water system's administration to the municipality at the start of 1996 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 IDB Model: Promoting Autonomous Service Operation

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

The IDB 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 be even greater in decentralized systems, due to the relative importance of WS&S service in the municipal context—making WS&S a relatively more attractive target for politicians.

In 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 service's political control, the IDB advocates separating planning, regulatory, and service-provision functions in order to avoid captures. In other words, politicians should be restricted to the realm of planning, consultation, and strategic decision making. Service operators should be given a clear remit, including targets for scope of service and quality and rules for tariff levels (specified in real terms). The operators should be protected from political interference through a contractual guarantee of some sort; the regulator should then act to keep operators to their contractual commitments.

In Puerto Cortés, the IDB is financing a $12 million loan for a sewerage system and is promoting institutional reform to establish greater autonomy for the service provider. The municipality is creating a mixed company (SA) with the majority of stock owned by the municipality. Functioning under private-sector commercial law (*Código de Comercio)*, this company will operate the WS&S services under a leasing contract with the municipality, which remains the owner of the infrastructure. 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 IDB has a municipal development program to support the cities of Tegucigalpa and

San Pedro Sula, each of whose program has a WS&S component and promotes institutional transformations involving the private sector, as a precondition 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 IDB program is promoting a concession contract between the municipality and a newly constituted operator. The operator will be a mixed company with a 49 percent private participation; the private partner will be required to invest significant amounts in infrastructure development.

In Tegucigalpa, where WS&S is presently run by SANAA, the IDB has proposed that the municipality take over the system and contract a private company, initially on a management contract but with a view to proceeding eventually to a full concession. However, following *alcalde* Cesar Castellanos' death during Hurricane Mitch, 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 upon the creation of regional offices to supervise local operations. At present, it has seven 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 to train its regional personnel in technical and administrative areas.

Putting the regionalization scheme at an advantage in comparison with municipalization are the economies of scale in support services, which allow 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 to improve operational efficiency, since the regions are effectively unregulated. Strategic decisions are still taken at the center, and the relationship between SANAA and locally elected authorities (mayors) remains weak.

Privatization

In 1996, the then-mayor 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 percent of SANAA's connections, this was a major blow to a reform strategy whose central tenet was municipalizing 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. But, although the CPME requested letters of interest from international companies, the operation was later abandoned when the reform initiative failed.

In December 1998, however, 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, the legislation will open the way for WS&S privatization. In this context, the previously noted proposal for a concession contract in San Pedro Sula has brought privatization firmly back onto the agenda.

Modernization of Rural and Peri-Urban Service Provision

Many rural and peri-urban systems have been built by the communities' own efforts, with no support from central or local government; others have received help from special programs of the Ministry of Health or from external agencies, NGOs, or 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 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 TOMs and TASs 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* operating most rural and peri-urban 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 remain as a technical office supervising construction processes and providing technical assistance.

3.4.3 Sector Planning and Financing

Thus far the planning function is not done effectively by any institution. Although the Ministry of Health presides over SANAA's board, the ministry's real focus centers 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 issue 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. Second, following the failure of the 1995-96 reform effort, the World Bank and IDB have 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 more discretion to local communities regarding the assignment of FHIS funds. Following a public consultation in September 1998, almost 25 percent of all FHIS programming for the next three years was assigned to WS&S projects.

The transfer of 5 percent 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 percent 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 that it will repay its IDB 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 IDB loan finance for municipal governments. In Puerto Cortes the municipalty is 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 secondary cities, including some whose water services are currently run by SANAA. Access to fund resources is linked to changes in the models for service provision.

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. Constituted by

Presidential Decree in 1995, one of its most significant achievements to date 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

A National Commission for the Supervision of Public Services (CNSSP: *Comisión Nacional Supervisora de Servicios Públicos)* was created in 1990, although it 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, but 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 of three members selected by the president of the Republic according to merit. Selections would be based upon nominations from relevant professional bodies.

In the context of proposed IDB loan operations with the municipalities of Puerto Cortés, San Pedro Sula, Tegucigalpa, and a number of intermediate cities, local regulatory instruments are being proposed. These instruments 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

The 1906 Water Code remains the main legal instrument concerning the allocation of water rights, although 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 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 SERNA 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 SERNA and the rest of the government. In order to ensure compliance with the environmental law at a local sector level, a UGA must be organized within all ministries and the municipalities. The principal instruments for environmental control are 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) which 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 epidemiological threats exist. Formally, this responsibility for water quality monitoring 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 1990-96 and Alemán 1996 to the present) allowed the relatively rapid modernization of the WS&S sector. This in itself is an extraordinary achievement in the Central American context, where 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 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 of where the sector was heading. In other countries, the vacuum of national political leadership has left the sector prey to externally imposed, often conflicting, agendas.

The multi-sector Commission and Program for the Reform of Public Enterprises has provided such political leadership. The commission includes the ministries of the Presidency, Finance, Economy and Development, Construction and Transport, Social Action, and Interior; the minister of Construction and Transport acts as 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 WS&S reform program is based upon 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. In early 1998, congress approved a new tariff for all systems for the period 1998-2000 prior to INAA's assumption of the regulatory function.
- Legislation creating the *Empresa Nicaragüense de Acueductos y Alcantarillados* (ENACAL) by converting INAA's former operating branches into a full-fledged, publicly owned commercial enterprise. ENACAL is now responsible for providing services to 173 cities and small towns, with close to 356,000 registered connections.

3.5.2 Strategies for Reorganizing Service Provision

The general Service Law lays out the 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 operation of 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 oversight of pumping equipment in Managua (1999)
- Service contracts for other administrative services, such as maintenance of physical installations, 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 involving a management contract with an international operator. From 2001 onward 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 it to be a municipal responsibility to provide "basic services of water, sanitation, and electricity to the population." Some points in the municipal code remain unclear, and while responsibility has been given to the municipalities, nothing is stated regarding the transfer of assets.

However, direct service provision by the municipalities is not a general practice, a circumstance justified by the existence of a relatively efficient central government institutions. As a result, unlike in Honduras, there is relatively little pressure to devolve 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 in a timely fashion.

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

Regionalization

Between 1990 and 1996, INAA organized eight territorial enterprises, each covering a number of systems—now all part of ENACAL. An effort has been 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 regional and local levels.

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 SAs 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 these rights.

Rural Provision

The standard model for rural systems is community management of WS&S services. There is strong leadership from the Directorate for Rural Aqueducts (DAR: *Dirección de Acueductos Rurales)* which is part of ENACAL. This office sets 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 and coordinates rural programs with public and private external agents, such as CARE, Cooperación Suiza para el Desarrollo (COSUDE), KFW, Holland's International Cooperation Agency (SNV) , UNICEF, and others. In 1997, the programs run by the DAR had a total of 48,000 beneficiaries in water and 31,000 in latrine programs. By 1997, close to 400 water committees had been organized and trained.

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, since the ministry's capacity to perform those duties is

low, a national water commission was formed to temporarily act as coordinator and later become a full-fledged planning agency. The commission is made up of the executive presidents of INAA and ENACAL, the Ministry of Health, the Ministry of Natural Resources and the Environment, and INETEA.

Previously the planning function was 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, documents which specify coverage goals and 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 completed a National Tariff Study in 1994, which makes a clear proposal to the effect that the sector should be financed through user charges reflecting 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, Nicaragua's FISE coordinates closely with ENACAL's *Departamento de Aqueductos Rurales* on 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 consists of three members of known technical capacity named by the president of the Republic. INAA's duties are those typical of a regulatory entity, including regulating service provision and consumers' rights; awarding concessions; establishing and monitoring approved tariffs; dictating norms and specifications; supervising capital works; ensuring compliance with environmental norms (together with Ministerio de Recursos Naturales y Ambiente-MARENA); ensuring compliance with water-quality norms (together with the Ministry of Health); imposing sanctions; and mediating conflicts.

Environmental Regulation

A draft Water Law is before the National Assembly but has not yet passed. For water-source protection and pollution control, the 1996 General Law for the Environment and Natural Resources is the main regulatory instrument. This law allows for 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 Nicaragüense para Estudios Territoriales)* and MARENA powers to undertake the environmental and territorial ordering of the country. The legislation also creates a system of protected areas and establishes a 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.

Relative 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 collaboratively developed by ENACAL, MARENA, and the Municipality of Managua.

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