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El Salvador
Recent Economic Developments in Infrastructure - Strategy Report (REDI-SR)
Infrastructure Service Provision in El Salvador: Fighting Poverty, Resuming Growth

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Finance, Private Sector and Infrastructure Unit
Central America Country Management Unit
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ABBREVIATIONS AND ACRONYMS

AAC	Civil Aviation Authority	*Autoridad de Aviación Civil*
AC	Access Charge	*Cargo por Acceso/Conexión*
ACU	Automated Cargo Unit	*Unidad de Cargo Automático*
ADESCOs	Communal Development Associations	*Asociaciones de Desarrollo Comunal*
AHCIET	Hispano American Association of Investigation Centers and Telecommunications Enterprises	*Asociación Hispanoamericana de Centros de Investigación y Empresas de Telecomunicaciones*
AIES	International Airport of El Salvador	*Aeropuerto Internacional El Salvador*
AMP	Maritime Port Authority	*Autoridad Marítima Portuaria*
AMSS	Metropolitan Area of San Salvador	*Área Metropolitana del San Salvador*
ANDA	National Aqueduct and Sewerage Administration	*Administración Nacional de Acueductos y Alcantarillados*
ANDAR	National Association for the Defense, Development and Distribution of Rural Water	*Asociación Nacional por la Defensa, Desarrollo y Distribución de Agua Rural*
ANTEL	National Administration of Telecommunications	*Administración Nacional de Telecomunicaciones*
ASETCA	Association of El Salvadoran Cargo Handling Companies	*Asociación Salvadoreña de Empresarios de Transporte de Carga*
ASLA	Salvadoran Association of Air line representatives	*Asociación Salvadoreña de representantes de líneas aéreas*
ATM	Automated Teller Machine	*Expendedora Automática de Billetes*
CAESS	The Electrical Lighting Company of San Salvador	*La Compañía de Alumbrado Eléctrico de San Salvador*
CAFTA	Central America Free Trade Agreement	*Tratado de Libre Comercio de Centro América*
CASSA	Salvadoran Sugar Company	*Compañía Azucarera Salvadoreña S.A.*
CDC	Consumer Advocacy Agency	*Centro de Defensa al Consumidor*
CEL	Hydroelectric Executive Commission of Río Lempa	*Comisión Ejecutiva Hidroeléctrica del Río Lempa*
CEPA	The Executive Commission of Autonomous Ports	*Comisión Ejecutiva Portuaria Autónoma*
CESSA	Cement of El Salvador Company	*Cemento de El Salvador, S.A. de C.V.*
CLESA	The Electrical Light Company of Santa Ana	*La Compañía de Luz Eléctrica de Santa Ana*
CME	State Modernization Commission	*Comisión sobre Modernización de Estado*

COMURES	Municipalities Corporation of El Salvador	*Corporación de Municipalidades de la Republica de El Salvador*
CONIP	National Council of Public Investment	*Consejo Nacional de Inversión Pública*
CTE	Telecommunication Company of El Salvador	*Compañía de Telecomunicaciones de El Salvador*
DELSUR	Electricity Distributor of the South	*Distribuidora de Electricidad del Sur*
DEUSEM	Electrical Distributor of Usulutan	*Distribuidora Eléctrica de Usulutan*
DC	Consumer Advocacy Agency	*Defensoría del Consumidor*
DGICP	Office of Public Investment of the Ministry of Finance	*La Dirección General de Inversión y Crédito Público*
DPC	Office of Consumer Protection	*Dirección de Protección al Consumidor*
EEO	Electrical Company of the East	*Empresa Eléctrica de Oriente*
EHPM	Multi-Use Survey of Households	*Encuestas Anuales-Hogares de Propósitos Múltiples*
ERSP	Regulatory Agency of Public Services	*Ente Regulador de Servicios Públicos*
ETESAL	Transmission Company of El Salvador	*Empresa Transmisora de El Salvador, S.A. de C.V.*
FCC	Federal Communications Commission	*Comisión Federal de Comunicaciones*
FEFE	Stabilization and Economic Development Fund	*Fondo de Estabilización y Fomento Económico*
FINET	The National Investment Fund in Electricity and Telecommunications	*Fondo de Inversión Nacional en Electricidad y Telecomunicaciones*
FISDL	Social Investment Fund for the Local Development of El Salvador	*Fondo de Inversión Social para el Desarrollo Local*
FODES	Economic and Social Development Fund	*Fondo de Desarrollo Económico y Social*
FOVIAL	Highway Maintenance Fund	*Fondo de Mantenimiento Vial*
GAPI	Committee for the Approval for Investment Projects	*Comité de Aprobación de Proyectos de Inversión*
GDP	Gross Domestic Product	*Producto Bruto Interno*
GOES	Government of El Salvador	*Gobierno de El Salvador*
ICAO	International Civil Aviation Association	*Asociación Internacional de Aviación Civil*
ICT	Information and Communication Technologies	*Tecnologías de la Información y Comunicación*
IDB	Inter American Development Bank	*Banco Interamericano de Desarrollo*
IEA	International Energy Agency	*Agencia Internacional de Energía*
IMF	International Monetary Fund	*Fondo Monetario Internacional*

INCAE	Latin American Center of Competitiveness and Sustainable Development	*Centro Latinoamericano de Competencia y Desarrollo Sustentable*
INTEL	International Telecommunications	*Internacional de Telecomunicaciones*
ISP	Internet Service Provider	*Proveedor de Servicio de Internet*
LACAP	Law of Procurement and Contracting by the Public Administration	*Ley de Procuración y Contratación de la Administración Pública*
LMS	Local Measured Service	*Medida Local de Servicio*
LPC	Consumer Protection Law	*Ley de Protección al Consumidor*
MINEC	Ministry of the Economy	*Ministerio de Economía*
MDGS	Millennium Development Goals	*Objetivos de Desarrollo del Milenio*
MOP	Ministry of Public Works	*Ministerio de Obras Públicas, Transporte, Vivienda y Desarrollo Urbano*
MPWT	Ministry of Public Works and Transport	*Ministerio de Obras Públicas y Transporte*
NGO	Non-Government Organization	*Organización No Gubernamental*
OECD	Organization for Economic Co-operation and Development	*Organización para la Cooperación y Desarrollo Económicos*
OLADE	Latin American Organization of Energy	*Organización Latinoamericana de Energía*
PPA	Power Purchase Agreement	*Acuerdo de Compra de Energía*
PPI	Private Participation in Infrastructure	*Participación Privada en Infraestructura*
PSTN	Public Switched Telephone Network	*Red Pública de Telefonía*
SIEPAC	Electric Interconexion System of Central American Countries	*Sistema de Interconexión Eléctrica de los Países de América Central*
SIGET	General Superintendence for Electricity and Telecommunications	*Superintendencia General de Electricidad y Telecomunicaciones*
SME	Small and Medium Enterprise	*Pequeña y Mediana Empresa*
SNPC	National Consumer Protection System	*Sistema Nacional de Protección al Consumidor*
STP	Technical Secretary of the Presidency	*Secretaria Técnica de la Presidencia*
UN	United Nations	*Naciones Unidas*
UNCITRAL	UN Commission on International Trade Law	*Comisión de las Naciones Unidas para el Derecho Mercantil Internacional*
UNCTAD	United Nations Council on Trade and Development	*Consejo de las Naciones Unidas para el Comercio y el Desarrollo*
USAID	U.S. Agency for International Development	*Agencia de los Estados Unidos para el Desarrollo Internacional*
UT	Transactions Unit	*Unidad de Transacciones*

VMOP	Public Works Vice-Ministry	*Viceministerio de Servicios Públicos*
WB	World Bank	*Banco Mundial*
WCT	WIPO Copyright Treaty	*Tratado de la OMPI sobre Derecho de Autor*
WIPO	World Intellectual Property Organization	*Organización Mundial de la Propiedad Intelectual (OMPI)*
WPPT	WIPO Performances and Phonograms Treaty	*Tratado de la OMPI sobre Interpretación o Ejecución y Fonogramas*
WTO	World Trade Organization	*Organización Mundial del Comercio*

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General Index

EXECUTIVE SUMMARY

Infrastructure Service Provision in El Salvador: Fighting Poverty, Resuming Growth

Introduction to the REDI-Strategy Report; Recent Economic Development in Infrastructure

Table of Contents

List of Figures

List of Tables

1. INTRODUCTION TO THE REDI-STRATEGY REPORT

THE SHORT-LIST OF CHALLENGES IN INFRASTRUCTURE

1.1 El Salvador faces a list of policy challenges related to infrastructure that will impact the country's ability to reduce poverty and resume growth. Most urgently, the Government must:

- Address shortfalls in the provision of basic social infrastructure, particularly in water and sanitation;
- Improve logistics infrastructure and services in order to help firm productivity and export competitiveness; and
- Meet these and other service provision needs within severe fiscal constraints.

1.2 *Social Infrastructure: Services for Domestic Use.* While there have been great strides in basic service provision for the poor since 1990 —particularly in electricity and mobile telephony—, El Salvador continues to struggle with access to social infrastructure. Low access rates are felt disproportionately by the poorest and also by households located in rural areas. That said, the number of poor urban households is growing while connectivity of the urban poor is slowing. [1]

1.3 Coverage rates of social infrastructure in El Salvador were moving toward Latin American standards during the 1990s. However, growth in access has stagnated in the last four years. Expansion rates of electricity access stopped in 2001, while coverage rates for water and sanitation service have actually declined each year through 2004. Population growth levels are outstripping modest expansions in service provision. The primary challenges for the Government in this area will be to realign subsidies and public investments in social infrastructure with the needs of the poor. In particular, the Government will have to confront the failures of the national water utility, ANDA, and address the sector's poor performance in a holistic fashion. This means the implementation of an integrated legal, regulatory, institutional and financial strategy.

1.4 *Productive Infrastructure: Services for Competitiveness*. Despite the remarkable growth in the electricity, telecommunications, and primary road networks of El Salvador, firms still find it expensive to produce and difficult to ship their output. Of the three most important infrastructure-related inputs to costs and productivity—electricity, telecommunications and transport—it is the latter which remains the greatest challenge. While there are many important steps to be taken in the electricity sector in the months and years ahead to reduce price volatility, attract greater investment in generation and provide predictability to large energy users, El Salvador's retail prices to firms remain some of the lowest in the region and the quality of service

[1] The separation of social and productive infrastructure is not meant to suggest that improvements in social infrastructure do not impact productivity at the household or macro-economic level. Nor does it suggest that improvements in productive infrastructure do not help the poor. The separation is instead intended as a tool to assist analysts and policy makers to focus on the primary objectives of each service element and to group policy options according to their likely impacts.

is generally high. Similarly, the telecommunications sector shows room for improvement in regulatory oversight, management of the radio spectrum, and price mechanisms related to interconnection and internet access. While these initiatives will help the penetration of e-commerce into the economy and, in turn, firm competitiveness, El Salvador's overall performance in the area of telecommunications services is already fairly strong. From the perspective of firm costs, the remaining challenges are the transportation network and the logistics services that are operated over transport infrastructure.

1.5 The primary highway network of El Salvador also expanded at a rapid rate throughout the 1990s and has been well maintained through the national road fund, FOVIAL. In addition, El Salvador's loan cargo port, Acajutla, has been successfully reformed, turned around its finances, and seen a near-doubling of containerized cargo every year over the last four years. Despite these remarkable achievements in underlying infrastructure, the "productive" transport network is not able to live up to its potential under current regulatory practices and logistics bottlenecks.

1.6 Direct logistics costs for value-added goods—namely, trucking service contracts, warehousing, and ocean borne shipping tariffs—remain a heavy and growing burden on Salvadoran producers. Moreover, indirect or "hidden" costs caused by delivery delays, lost, damaged and stolen cargo are hurting sales and directly affecting the competitiveness of El Salvador's firms. Many of the shortcomings of the logistics network can be fixed by the public sector. This will require greater attention to the regulation of roadside land use, rights of way and trucking services as well as investments in bypasses and alternative routing. These initiatives, in conjunction with a rational port and highway development strategy, will free up the flow of traffic, help El Salvador to consolidate greater amounts of cargo at its own export facilities and reduce both direct and indirect costs along the logistics network.

ROLE AND STRUCTURE OF THE REDI-SR

1.7 As a result of the challenges described above, the Government of El Salvador has embarked on a program to evaluate its infrastructure in terms of financing, poverty and growth impacts, as well as access to services and the performance of providers at the sectoral level. By delving into these issues and presenting strategic options, the Recent Economic Developments in Infrastructure Strategy Report (REDI-SR) is meant as a resource guide and a policy aide for the Government of El Salvador, donors, advisors, non-governmental organizations, consumers and businesses interested in the endowment and performance of El Salvador's infrastructure.

1.8 The REDI-SR follows a structure that recognizes both the cross-cutting importance of infrastructure services to growth and poverty alleviation and the unique challenges of each sector. The first three chapters serve to place infrastructure within the framework of an economy striving to improve basic services for its poor and underserved while also triggering a return to competitive performance and higher growth levels. Since the ability of the Government to achieve these goals is subjected to the realities of fiscal and institutional constraints, Section I is structured as follows:

- Chapter 1: Social Infrastructure and the Fight Against Poverty
- Chapter 2: Productive Infrastructure and Logistics Services for Competitiveness
- Chapter 3: Financing Infrastructure and the Institutional Framework for Development

1.9 Section II of the REDI-SR offers diagnoses of the main infrastructure sectors covering access, demand, pricing, financing, performance, regulation and institutional issues. The sectoral section is divided into four chapters: Electricity; Telecommunications; Water and Sanitation; and Transport Infrastructure and Services, including Ports, Airports, Roads, Trucking Services and Urban Transport.

1.10 The rest of this Executive Summary presents an overview of the primary findings according to the themes of social needs, competitiveness and investment under fiscal constraints.

2. SOCIAL INFRASTRUCTURE AND THE FIGHT AGAINST POVERTY

2.1 Access to, and the quality of, basic infrastructure services—water, sanitation, electricity—are defining elements in the fight against poverty. These services provide not only direct and intrinsic benefits, but also have important indirect effects on living conditions such as child mortality and maternal health.[2] Today, 53 percent of poor children in El Salvador's rural areas suffer between 1 and 15 days per month from stomach diseases.[3] This is directly related to the quality and availability of water and sanitation services.

2.2 Infrastructure services are also crucial to personal productivity and the opportunity for advancement. While this is intuitive for electricity and telecommunication services which carry with them the promise of study and connectivity, it is also true for water and roads. Families without household water connections use 9 percent of their time to collect water. Among the extreme poor this time expense rises to 14 percent—the equivalent of 3 hours per waking day—that could otherwise be used to study or work. Furthermore, children help in water collection in over a third of all households without water connections and 12 percent interrupt school activities to do so.[4] As for access to markets, jobs, health care and education, the extreme poor in rural communities of El Salvador live over 5 kilometers from the nearest paved road—almost twice as far as non-poor rural households.

> *"The truth is that nobody would move to this town, because there is not a single basic service here. Those who are here are really needy…we are on a boat with many problems, but if we abandon it, we will drown. If somebody would offer me money, I would take it and leave everything here. There is no light, no water, no basic services, and to top it off, when we finish paying, we will not hold any property title."*
>
> Resident of Villa Belen
> Source: From a Focus Group conducted for the REDI-SR to complement Household Survey data

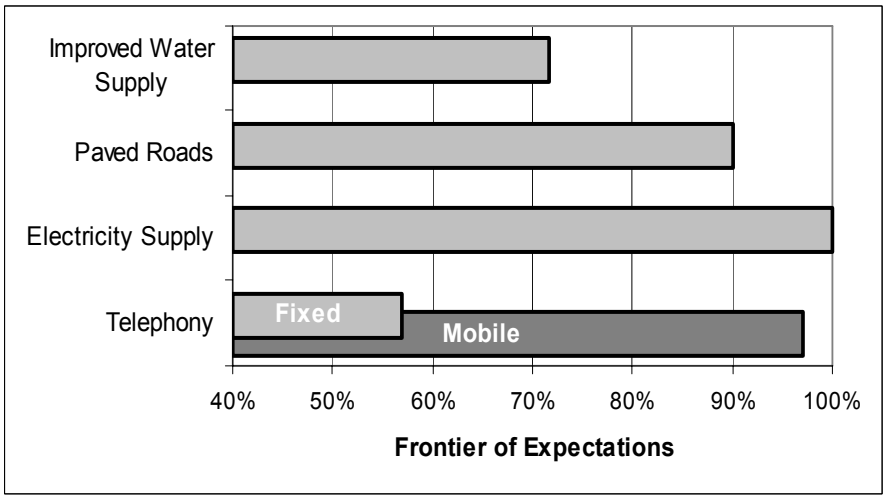
2.3 Over the past 15 years, significant progress has been made in raising El Salvador's basic services to the standards of Latin America. However, much remains to be done to increase connectivity and service quality, and to bring the poor into the mainstream of El Salvador's economic activities. Indeed, growth in access to electricity has come to a standstill in the past four years and there has been an actual decrease in access to water and sanitation over the same period. This section examines El Salvador's performance in these areas vis-à-vis its neighbors and regional peer group.

[2] Fay, et al (2005).
[3] FISDL (2004), Rural Water and Schools Program for El Salvador, Research and Development Unit.
[4] Ibid.

2.4 Despite significant progress in the post-crisis years, El Salvador faces difficult challenges in most social infrastructure categories, particularly in water supply and sanitation. While the comparative rankings raise concerns about access levels, the absolute numbers highlight the scope of the issue. Nearly half the houses in the country are without water connections and one million households—two-thirds of El Salvador's population—are without a sewerage connection. The majority of these are in the poorest segments of society.

2.5 After a review of the benchmarks and absolute numbers, the question of how El Salvador should be performing in each area of social infrastructure still remains. That is, given El Salvador's income levels, demographic features and geography, what levels of coverage and density would one expect in water supply, paved roads, electricity and telephony? The Figure below presents the results of an analysis using data from all Latin American countries to derive El Salvador's "Frontier of Expectations." In this analysis, achieving 100 percent of expected performance for a sector would mean that the country is doing as well as could be expected given its income (per capita GDP), demographics (population density, urbanization level and growth), and income distribution (Gini co-efficient). A performance of less than, say, 80 percent indicates a failure in achieving reasonable targets for reaching consumers at the sectoral level.

Figure 2.1: Performance of El Salvador's infrastructure against a Frontier of Expectations



Source: Authors' calculations based on LAC regional data from World Bank Development Indicators, WHO and ITU.
Note: Indicators to determine Frontier of Expectations, based on a weighted analysis of demographic, geographic, and economic Indicators.

2.6 This analysis suggests that El Salvador is performing as one would expect in electricity supply, paved roads and mobile telephony. Although it has very low levels of fixed telephony, the penetration levels are increasing steadily and mobile service, for most of the country's needs, acts as a substitute to fixed-line telephones. In contrast, the water sector's performance is far below expectations. Water supply is barely achieving 70 percent of its expected performance according to the standards set by the Latin America data set. This disappointing rating is, if anything, a generous interpretation of El Salvador's water sector performance given that: (1) Latin America as a whole, which serves as the standard-bearer for the analysis, is underperforming in water services and is highly unlikely to meet its Millennium Development Goals; and (2) the data are based on World Health Organization (WHO) figures for "improved"

water supply and so value community and household wells equally with household connections (regardless of the health and quality of life issues that are felt throughout El Salvador).[5]

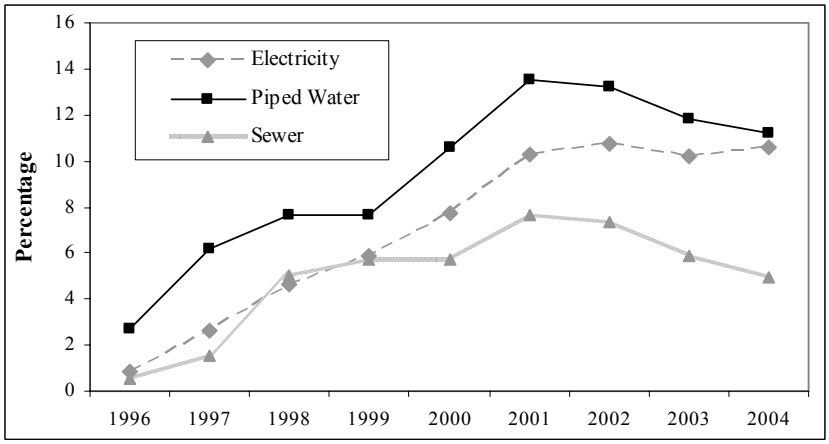
2.7 The benchmarking and frontier analysis of social services point to two conclusions:

- Although overall access levels are within expectations for electricity, telecommunications and roads, access to all basic services remains elusive for the poor; and

- The priority sector needing immediate attention among all areas of social infrastructure is water and sanitation.

2.8 The expansion in access to piped water, sewerage and electricity that El Salvador enjoyed through the 1990s has stagnated, with zero or negative growth from 2001 to 2004. Sewerage connections increased to 43 percent from their original level of 25 percent in 1995, but have since decreased to 40 percent in 2004. Expansion of access to piped water and electricity was also slow during this time period. Access to piped water grew from 47 percent in 1995 to 60 in 2001 but fell to 58 percent in 2004. Access to electricity reached 87 percent in 2001 and is still the same in 2004. This slowing and decline of infrastructure expansion since 2001, as seen in Figure 2.2, corresponds with a sharp decline in infrastructure financing.

Figure 2.2: Accumulated percentage since 1995 of households connected in El Salvador



Source: FUSADES elaboration based on EHPM

[5] The Frontier of Expectations is based on WHO figures for "improved access to water" in order to have a single source of data for all countries throughout the region. While "household connectivity" would have produced even more negative results for El Salvador, it is probably the more appropriate of the two approaches for understanding the depth of El Salvador's problems in water delivery. The "improved access to water" criterion is generally most relevant for countries with a large percentage of rural and isolated communities and an abundant supply of clean water resources (since well water is often untreated or undertreated). As a small, highly urbanized country with depleted water resources, El Salvador's success in bringing water to its citizens should be judged primarily on household connectivity. For the purposes of this analysis, however, consistency is paramount and so WHO criteria and data were adopted.

2.9 In order for specific policies to be derived from these conclusions, an analysis of the affordability of services and a review of the efficacy of current subsidy schemes are required. By calculating full cost recovery rates for each social infrastructure service and applying those rates to household incomes through El Salvador, it becomes clear that the poorest 20 percent would have trouble paying bills for basic services.[6] The rest of society would almost universally be able to pay for cost recovery services in water supply, electricity and telecommunications. The challenges then become: (1) identifying resources to meet expansion needs and, for the very poorest, service provision support; and (2) assuring that the institutions responsible for infrastructure are able to facilitate expansion to the poor and operate their services efficiently.

2.10 In terms of resources to meet expansion and institutional viability, the electricity and telecommunication sectors appear to be relatively robust.[7] The water and sanitation sector stands out in this regard and thus becomes the priority for sectoral reform.

RECOMMENDATIONS FOR ADDRESSING THE SHORTFALLS OF EL SALVADOR'S SOCIAL INFRASTRUCTURE

2.11 The REDI-SR identifies two key policy initiatives that are required to achieve universal access in social infrastructure within a reasonable period of time and with reasonable budgetary impact:

- The redesign of subsidies and cross-subsidies to ensure that the poor are the primary beneficiaries of the transfers from taxpayers to users; and
- A concerted reform of the water sector that will put it on sound and sustainable financial footing and that will allow the utility or utilities that emerge from the reform to make significant investments and operate their systems with reasonable efficiency.

2.12 The growing trend of decentralization of federal resources to municipalities has not been accompanied by clear mandates for use of funds or with regulatory institutions to monitor service quality or cost. Moreover, the transfers do not accompany the decentralization of authority that would allow each municipality to raise its own resources or even utilize user fees. An analysis conducted of the various types of service providers suggests that this has resulted in higher costs of basic services in poor communities (see Water and Sanitation Chapter for more details) and unregulated services in areas relying on independent provision from housing complexes or small-scale private companies. In contrast, the *Red Solidaria* program of FISDL has recently expanded its scope to cover water connectivity for the poorest towns. While this initiative is an important start to increasing water supply connections that are carefully targeted to the poor in tandem with some oversight, it cannot by itself address the national shortcomings of ANDA or the lack of sector-wide regulation of cost or quality.

2.13 *Efficiency of Current Subsidies and the Resources for Reaching the Poor.* Current subsidy schemes in water, electricity and gas are intended to address the affordability gap described above. In water, prices are kept below cost recovery throughout the national water

[6] Fifteen percent of disposable income on these three services is generally considered a level of expenditures that begins to interfere with subsistence. See Social Infrastructure Chapter for complete analysis.

[7] Specific regulatory needs for these sectors as well as concerns about market power and market structure are addressed in some detail in the respective sector-related chapters as well as the final section of the Social Infrastructure Chapter dealing with access to regulation and consumer rights.

utility system and are thus subsidized by taxpayers. In addition, a system of cross-subsidies exists within the tariff structure intended to benefit low level consumers. In electricity, the subsidy system is generated through a fund derived from privatization proceeds, which subsidizes consumers of less than 100kWh of electricity per month. In gas, all small volume canisters of propane are subsidized through a fund that is financed with a special tax on gasoline.

2.14 Over the last five years, subsidies for these three basic infrastructure services has cost between US$100 million and US$200 million annually. On average, of the total subsidies, 57 percent go to water services, 26 percent to electricity and 27 percent to gas for cooking.[8] While these transfers are significant in terms of the taxpayer burden, their effectiveness is dubious. A calculation of the impact of these subsidies on the poor based on data from the national Household Survey suggests that the poor are not the primary beneficiaries.

Table 2.1: Cost, share allocation and inefficiency of social infrastructure subsidies

	Electricity	Water	Gas	Total
Average Yearly Cost of Subsidy (US$ millions)	$35	$61	$33	$129
Share of Subsidy that Goes to Poor Households	42%	22%	27%	29%
Inefficiency: Subsidies Going to Non-Poor (US$ millions)	$20	$48	$24	$92

Source: These figures have been calculated by the WB REDI team and FUSADES and they have not been separately corroborated with any of the relevant lines agencies.

2.15 As can be seen from the table above, the poorest 40 percent of El Salvador is receiving about 29 percent of the US$129 million spent in an average year on subsidies of basic services. The rest is going to the non-poor. That misdirected money is significant; the public sector's share in the cost of reaching universal access over the next decade in electricity, water and sanitation is estimated at US$150 million per year (see Table in the Financing Section of this Executive Summary). A better design and implementation of subsidies could pay for half to two-thirds of that cost. Other potential sources are discussed in the final section of this report.

2.16 *Reforming the Water Sector.* The problems of the water sector in El Salvador can hardly be overstated:

- Hundreds of thousands of households without connections;
- A national utility which is effectively bankrupt trying to serve over 80 percent of the country's connected households;
- A tariff that does not cover operations and maintenance costs, let alone depreciation and capital costs;
- A history of serious underinvestment in sewerage, wastewater treatment and storm drainage; and
- A lack of clear institutional or legal strategy for addressing the utility's needs.

2.17 While the Government of El Salvador has recently begun to address rural access by expanding the *Red Solidaria's* scope to include water provision in the poorest towns of El

[8] See Social Infrastructure Chapter of Section I for full analysis of affordability and subsidy efficiency.

Salvador, the main sectoral challenges remain unsolved. This should be done through a multi-phase program that might resemble the following stages:

- Creation of a Presidential Commission on Water Sector Reform for consensus building among major stakeholders at the central, local and non-governmental level. A primary focus for this commission would be the design of a new water and sanitation utility structure (e.g., regional, watershed-based and/or municipal companies vs. a national utility);

- Overhaul of the legal and institutional framework for the sector to properly assign the functions of service provision, policy formulation and regulation and to allow for a flexible definition of the scope of water utilities. This should lead to the passing of a new comprehensive Water and Sanitation Law by Congress;

- Establishment of a viable financial structure for the sector, based on fair and sustainable tariffs;

- Design and creation of the new sector institutions and gradual transfer of responsibilities, personnel and assets from the existing to the new institutions; and

- Analysis of potential for large-scale private participation in the operations and/or investment of the new company/companies.

2.18 Both the subsidy design and water sector reform initiatives represent the most difficult *and* probably the most urgent infrastructure-related reforms required by the Government of El Salvador in the months and years ahead. They will require considerable political will as well as leadership from Cabinet-level executives such as the *Secretaría Técnica de la Presidencia*. In addition, the complexity of the reforms demands broad understanding and support from all sector stakeholders, including civil society, local governments, the legislature and the private sector. The recommendations are discussed in greater detail in the Social Infrastructure (for subsidy design) and Water and Sanitation (for sectoral reform) chapters.

3. PRODUCTIVE INFRASTRUCTURE FOR COMPETITIVENESS AND GROWTH

3.1 Throughout the 1990's, El Salvador made significant strides in the rehabilitation of its primary road network, the development of its international airport and, more recently, the reform of its primary cargo port, Acajutla. These important improvements have earned the country strong rankings by regional standards in Global Competitiveness surveys as well as the respect of the global community in its ability to manage transport investments—particularly through highway maintenance funds.[9]

[9] Global Economic Forum, World Competitiveness Report (2005)

3.2 Despite these advances and parallel improvements in electricity and telecommunications, the firms of El Salvador still find it expensive to produce and difficult to ship their output.[10] This may in part explain the flat performance of Salvadoran exports over the last several years. As Central America Free Trade Agreement (CAFTA) comes into effect and the country rededicates itself to the goal of competing in the global market, a focus on the underlying productivity of firms and their key cost components will shed light on the prioritization of investments, policies and regulatory initiatives.

3.3 For the REDI-SR, a survey was conducted of locally-produced and export-oriented products. The purpose of the survey was to determine the impact of infrastructure costs and services on the competitiveness of El Salvador's most promising industries and to use the data to shed light on the primary bottlenecks along the supply chain. In addition, an analysis was conducted of the cost and quality of input services (electricity, telecommunications and logistics), and the underlying transport infrastructure from factory shop to final market so that a supply-side view of the network could be mapped against the survey findings.

3.4 The results of the two pieces of research can be summarized as follows:

- Direct logistics costs—most notably, trucking and ocean shipping services—are both a high and growing portion of the delivered cost of goods for El Salvador;

- Hidden or indirect costs along the supply chain—delays, lost, stolen and damaged goods—are subtracting significantly from the sales of delivered products and may be impacting direct costs of shipping as well; and

- Electricity and telecommunication inputs are competitively priced and of reasonable quality so as not to represent a significant bottleneck to competitiveness at this time. That said, regulatory and policy actions are required to sustain the current levels of service, attract needed investment and to further stabilize electricity and reduce telecommunication costs in the years ahead.

THE DIRECT COST OF MOVING GOODS

3.5 The table below illustrates a basic point about the delivery of El Salvador's final products for export: infrastructure, and particularly logistics and transport, are a significant contributor to cost. For the sectors selected to be surveyed for the REDI-SR, infrastructure costs—including logistics—represent between 15 and 22 percent of their cost structures. The non-maritime logistics component of these costs is significantly higher than it is for the high value-added product spreads of OECD countries. The identification of these costs represent an opportunity for Salvadoran policy makers to help the competitiveness of Salvadoran firms by addressing transport and logistics inefficiencies.

[10] For a full description of the industry survey results as well as the selection criteria for the sectors covered, see the Productive Infrastructure for Competitiveness and Growth Chapter (Section I) of the main report as well as the Appendix to that chapter.

Table 3.1: Cost structure of surveyed firms (by sector)

Cost	Processed Foods	Chemical Products	Textiles
Labor	32%	18%	43%
Capital	6%	10%	5%
Raw materials, materials, packaging	41%	42%	32%
Other	5%	8%	4%
All Infrastructure	15%	22%	17%
Breakdown of Infrastructure Costs			
Transport & Logistics	55%	33%	55%
Electricity, gas, and other energy sources	32%	58%	36%
Telecommunications	13%	9%	8%

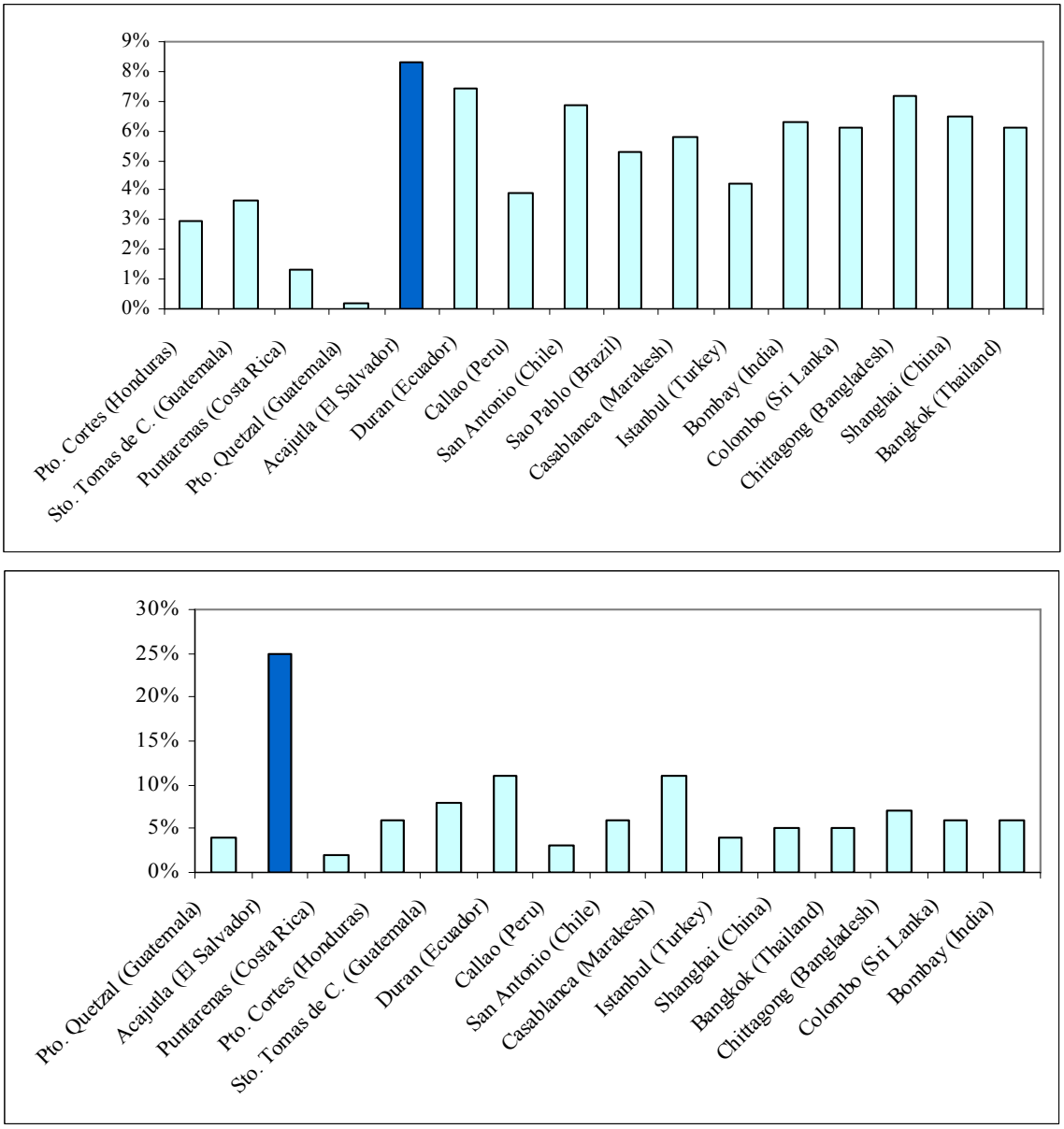
Note: For the majority of exporters surveyed, products are not headed overseas. As such, the above costs do not include ocean shipping which are typically 3 to 4 times the cost of land shipping for East-bound cargo and 10 to 15 times the cost of land shipping for Pacific-bound cargo. As a result, ocean shipping costs were analyzed separately.

3.6 *Trucking Cost.* Constraints on highway infrastructure are starting to manifest themselves in increasing contracted logistics service costs. Between 2002 and 2004 alone, just the *increase* in the share of logistics services to the cost of delivered goods was 1.2 percent in the three sectors studied. This increase is mainly due to the rise in contracted trucking and warehousing costs resulting from congestion—an indirect cost that has been internalized by trucking companies and thus translated into a direct cost for firms. Road congestion and related delays should thus be addressed as an important contributor to both direct and indirect costs.

3.7 *Ocean Shipping Increases*. While most of El Salvador's high value cargo is east-bound and, as such, is subjected to congested border crossings, greater losses of cargo, changing road conditions and the inefficiencies of Honduran and Guatemalan ports. Once the cargo arrives in Honduras, rates to Miami average over US$2000 per 40' container. The ocean shipping leg alone for East Coast-bound cargo is thus about 70 percent of all direct transport costs at the point of arrival. Yet even for El Salvador's West Coast-bound exports leaving from the Port of Acajutla—where there are no international boundaries to cross and much shorter trucking distances—the cost of exporting a 40' container is extremely high: US$3400 or more to reach Long Beach.[11] As a result, ocean shipping costs for garment exports to the United States from the Port of Acajutla are higher than those from other Central American ports and even many Asian ports (see Figure 3.1)

[11] The Acajutla-to-Long Beach cost disadvantage vis-à-vis a Caribbean-port-to-Miami is a result of lower cargo volumes (Acajutla handles about 15 percent of the traffic as Puerto Cortes) and longer distances (Los Angeles is more than twice as far from San Salvador as Miami).

Figure 3.1: Transport costs for garment exports to the USA by port from the East and West coast



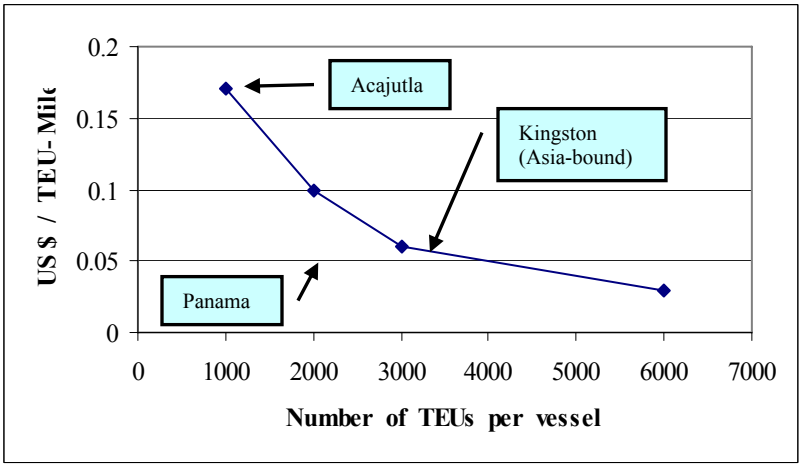
Source: U.S. Department of Transportation, El Salvador ICA (2004)

3.8 Despite the reduction in port fees, increased efficiency, and a jump in container trade through Acajutla over the last four years, the vessels that continue to call El Salvador can be characterized as "early generation" or inefficient container carriers by global standards. They must carry on board their own cranes for loading and unloading containers, they cannot draw more than about 34' of water and they must be willing to call a port for relatively small lots of cargo. Since the size and type of vessel calling at a port has a significant impact on the maritime transport fees that shipping lines request, ocean shipping fees to and from El Salvador have increased in recent years—driven by global freight trends and fuel prices. The port reforms of Acajutla have simply not resulted in the kinds of investment in port infrastructure and equipment or brought in enough container traffic to warrant the repositioning of better vessels. The port is

not equipped to handle larger or more modern container ships that would be able to offer more efficient prices.

3.9 Although local ports and traders cannot drive ocean shipping costs, Governments can invest and put in place policies that make ports efficient and more attractive hubs. This is the Government's plan with the Port La Unión. Over time, these policies and investments may generate sufficient cargo so that larger, more modern vessels will call and rates will decrease. Until this happens, El Salvador will be unable to address its ocean shipping costs which represent about 70 percent of all shipping costs to the East Coast of the U.S. and over 90 percent of all costs to the West Coast. The graph below shows the drop in the unit price of maritime freight transport per size of vessel and the location along the curve of a typical vessel calling Acajutla.

Figure 3.2: Freight transport cost per vessel size and average vessel sizes calling selected ports



Source: ECLAC (2001)

3.10 As El Salvador moves forward with the development of the Port La Union and builds out its logistics network in the years to come, it should be able to consolidate at its ports a much larger share of its own exports and, perhaps, a significant share of Pacific-bound regional traffic. This will increase its attractiveness as a hub and maritime shipping costs will become more competitive. A rational plan for the use of La Union as well as Acajutla will become important tools for the consolidation of cargo.

IDENTIFYING THE INDIRECT OR HIDDEN COST OF LOGISTICS

3.11 Beyond port tariffs, shipping fees and trucking contracts, the logistics network can impose hidden or indirect costs on firms that reduce profits, inhibit competitiveness, and even impede market access. These costs, which may in many cases be greater than the direct costs of shipping, are incurred by firms through theft, losses and damage to goods as well as delays to the delivery of inputs and finished products. In the case of El Salvador these costs are derived from unregulated and poorly managed trucking services, road and highway bottlenecks, congestion, inefficient port services (in ports of disembarkation) and, to a lesser degree, customs clearance constraints. Addressing these costs would make it possible for firms to internalize inefficiencies that must be translated in part into direct costs. It should also promote the optimization of the existing infrastructure in order to reduce indirect costs. For example:

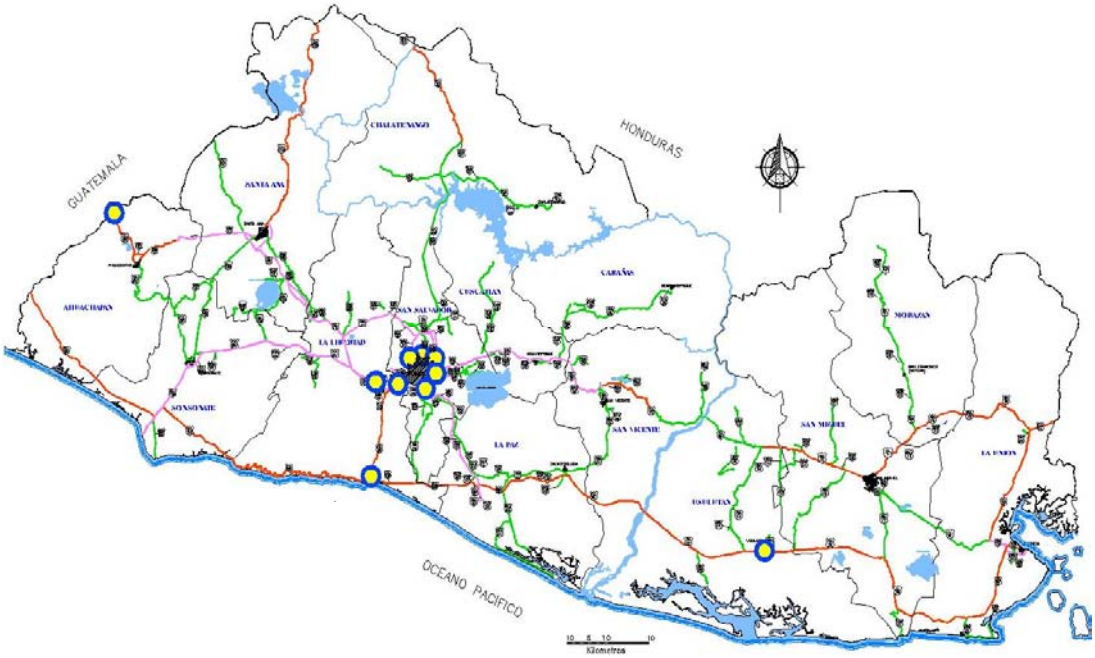
- Investments in urban bypasses and highway accesses to maintain higher speeds in the primary highway network will keep traffic moving more quickly;
- Regulation of the use of land alongside roads and the rights-of-way will allow for the safe and free-flowing movement of goods thus protecting the massive investment made to date in rebuilding El Salvador's primary road network;
- Improvements in the regulation of road usage by trucks could increase the reliability and safety of cargo handling companies and reduce degradation of road surfaces; and
- Improved port efficiency will reduce demurrage costs (penalties for delay) and, eventually, allow El Salvador to attract more competitive ocean shipping service offering greater scale economies.

3.12 As urbanization continues and automobile usage has boomed in El Salvador in recent years--growing twice as quickly as GDP--so too has road congestion. While the primary highway network was built and is maintained to the standards of an industrialized nation's highways, average speeds have come down, time delays have increased and opportunities for theft have risen as trucks sit in traffic. Implementing the program for building bypasses and addressing roadside land use through better regulation will be necessary to forestall this creeping tax on the competitiveness of El Salvador's firms. The figure below illustrates the main congestion areas around El Salvador and how the bottlenecks map against the logistics network: the border with Guatemala; the demand and production centers of San Salvador; the main cargo corridor of the Litoral; and the Port of Acajutla.

3.13 According to the survey of firms and the trucking sector analysis, El Salvador's trucking services are highly inefficient and unreliable. An indicator of the lack of quality provision can be found in the age of the trucking fleet: 70 percent of trucks currently moving cargo is more than 15 years old.[12] The lack of professionalism in the operation of the service results in a high level of negative externalities that are suffered by users and third parties. These externalities that drive indirect costs include congestion, the degradation of road due to overloading, accidents, deterioration of merchandise, delays and interruption of service. Stricter regulation of the sector could help address many of these deficiencies.

[12] The average age of Salvadoran trucks appears to be close to 20 years as opposed to 16 for Mexico—a country that has been highly criticized for the poor quality of its trucking fleet—and 8 years for the United States. Sources: Logistics Today, June 2004 and U.S. Federal Highway Administration Homepage, 2003 data.

Figure 3.3: Congestion bottlenecks on the Salvadoran road network



3.14 As the Table below illustrates, the cost of delays from transport services hits the bottom line of firms and directly impacts profitability. These costs are derived from demurrage charges from keeping other transporters waiting, warehousing costs, higher inventory requirements, and, finally, reduced sales or even lost customers from missed orders.

Table 3.2: Costs of delays in the transport services (% total sales)

Sector	3 Sectors	Land	Sea	Air
Food	3%	2%	4%	0%
Textiles	18%	15%	22%	15%
Chemical Prod.	8%	5%	10%	6%

Source: REDI-SR Survey of Firms

3.15 These losses may be as great as or greater than the direct costs incurred from the chain of shipping contracts depending upon the type and value of cargo and the sensitivity of its buyers to time and reliability factors.

RECOMMENDATIONS FOR ADDRESSING THE LOGISTICS BOTTLENECKS IN EL SALVADOR'S PRODUCTIVE INFRASTRUCTURE

3.16 The REDI-SR identifies several initiatives related to better policy setting and regulatory intervention, which could promote and protect the logistics network and services of El Salvador. These cross all areas of transport. The most important of the recommendations are as follows:

- Update the Law on Highways and Minor Roads (*Ley de Carreteras y Caminos Vecinales*) to reflect modern principles for coordination, planning, construction and maintenance of highways and roads as well as the use of roads and that of adjacent land. Clearly establish the role that the Ministry of Public Works and Transport (MPWT) should have in this activity, and allow the Ministry to coordinate territorial planning;

- Strengthen the legal framework related to obtaining and protecting rights of way; and strengthen and update the penalties and sanctions that MPWT can apply, to promote correct road usage.

- Adopt a new strategy for road development that identifies and develops key logistics corridors through the development of an integrated infrastructure investment program; a program for road rehabilitation; a medium and long term program to separate international and local traffic; a long term program to improve standards and designs; and institutional and supervision/enforcement measures to maintain the functionality of roads.

- To improve domestic connectivity in the medium term, develop the longitudinal north road as a secondary road. For regional connectivity, the Government of El Salvador should engage actively with the Government of Honduras on the reform of Puerto Cortez and both the Governments of Honduras and Guatemala for the constant improvement of the cross-border road network.[13]

- Formulate an overall strategy for the ports sector that establishes complementary roles for both Acajutla and the new port at La Unión. As an example, Acajutla could focus on bulk and general cargo while La Unión should specialize in containerized cargo. This should mitigate the risk of predatorial pricing, redundant investments and a division of containerized cargo that inhibits the creation of a hub strategy.

- Establish a legal and regulatory framework for trucking services, including minimum standards for quality, safety and supervision. This framework could be based initially on the rules applying for international road freight.

- Improve capacity in the trucking sector by increasing staffing and training levels for the Vice-Ministry of Transport; developing indicative scale of payments, maintenance, insurance, taxes, for different vehicles; gradually developing ability to effectively control market entry; and working with MPWT to ensure weigh stations at key logistics points function properly; offering training programs for operators and information dissemination on transport operations, as well as targeted support for small operators to improve their efficiency and competitiveness.

- Establish incentives for the trucking sector to work more efficiently by introducing programs to withdraw from service old and sub-standard vehicles; promote and facilitate "formalization" of small operators, including tax incentives for correct and timely reporting.

[13] Along with multilateral agencies such as the IADB and the World Bank, the Government of Japan may serve as an important partner in this dialogue.

4. MONEY, INSTITUTIONS AND PROCESSES: FINANCING INFRASTRUCTURE IN EL SALVADOR

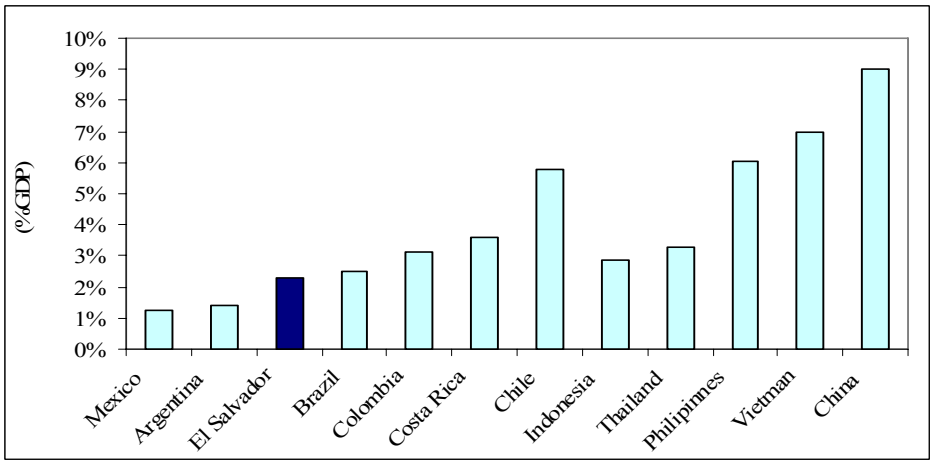
4.1 Against a background of fiscal restraint, the Government of El Salvador has worked to meet the growing needs of its population–from healthcare and education to pensions and provision of basic infrastructure services. Much of the spending required to satisfy these needs has come at the cost of infrastructure financing, which has dropped as a percentage of public investment from between 70 and 80 percent to 30 and 40 percent over the past decade. In absolute terms, public expenditures on infrastructure have dropped from an average of US$250 million per year through most of the 1990's to less than US$100 million in 2004.

4.2 In parallel to the drop in public funding of infrastructure, private investment has also fallen since the reform of the telecommunications and electricity sectors of the late-1990s—from US$240 million in 2000 to less than US$100 million in 2004. Though these early reforms unleashed large-scale private investment in the expansion and updating of assets and the procurement of new equipment by investor-operators, private flows in infrastructure observed in the past three years have returned to a level that is consistent with the long-term yields anticipated by private investors. As such, it is unlikely that the current batch of private operators will significantly increase their investments in the near future.

4.3 Unless a concerted effort is made to increase public investments in infrastructure or new private investment opportunities come to financial closure, El Salvador's low total infrastructure investment will likely remain at approximately 1.5 percent of GDP per year. This will not be sufficient to expand service, to raise the competitiveness of El Salvador's logistics backbone or to break the cycle of low investment and low growth.

4.4 The level of investment that El Salvador maintained through much of the 1990s investment level of between 2 to 2.5 percent of GDP is higher than that of some middle income Latin American countries such as Mexico and Argentina. However, it is not comparable with the faster growing economies in the region. Costa Rica and Chile, for example, have sustained levels of investment in infrastructure between 3.5 and 5.5 percent for many years and have sustained rates of economic growth between 4 and 7 percent. Additionally, high growth economies in East Asia such as Vietnam, Thailand, and China, that have overhauled their infrastructure to stimulate exports, invest between 3 and 9 percent of GDP in infrastructure each year. Moreover, while El Salvador has posted a drop in its spending in infrastructure since 2001, regional and Asian competitors have sustained their levels of investment to help them compete with China.

Figure 4.1: Average investment in infrastructure as % of GDP 1998-2001



Source: World Bank EAP Infrastructure Flagship, 2004; El Salvador Ministry of Finance; Fitch Ratings; and Easterly and Serven, 2000.

FINANCING SOCIAL AND PRODUCTIVE INFRASTRUCTURE NEEDS

4.5 Based on the costing exercise described below, El Salvador could achieve universal coverage of homes in electricity, drinking water and sanitation; maintain consistent growth in the availability of telecommunications; and improve all the roads in poor and fair condition, with an annual investment in infrastructure of approximately 2.9 percent of GDP. If the policy objective of converting El Salvador into a logistics center is pursued, this level of spending would go up to approximately 4.1 percent of GDP. In either case, the private sector could cover approximately 1.5 percent of the total investment, leaving the government with 1.4 percent to 2.5 percent of GDP on infrastructure, again depending of how ambitious the logistics program is. This suggests that if El Salvador reaches a level of investment slightly above its historic levels in the short to medium-term, it could achieve universal access in social infrastructure and meet the growing demands of the business community in providing competitive services.

4.6 In order to meet these goals, expenditures would need to be effectively allocated and implemented. The approach to achieving effective expenditure—particularly through better subsidy design—is discussed in more detail in the Social Infrastructure Chapter.

4.7 The Table below delineates those investment estimates by sector for low and high (with logistics backbone) scenarios. It also divides the source of financing according to public and private sources based upon government agency assumptions about potential private participation at a project-by-project or sectoral level.[14]

[14] The assumptions behind the estimates can be found in Chapter 3 which focuses on financing and institutional issues.

Table 4.1: Yearly investment needs estimate for El Salvador (in millions of US$), 2006 - 2010

	Maintenance	Investments	Total Spending	Est. % Private	Private Investment	Public Investment
Electricity	$53	$83	$136	55%	$75	$61
Water	$21	$28	$49	20%	$10	$39
Sanitation and Urban Drainage	$21	$47	$68	20%	$14	$54
Telecommunications	$47	$47	$95	95%	$90	$5
Roads (minimum)	$90	$34	$124	14%	$17	$107
Roads (Logistical Center)	$126	$170	$296	14%	$41	$255
TOTAL MINIMUM	$232	$239	$471	44%	$205	$266
% 2004 GDP	1.5%	1.5%	2.9%		1.3%	1.7%
TOTAL MAXIMUM	$268	$375	$643	36%	$229	$414
% 2004 GDP	1.7%	2.4%	4.1%		1.4%	2.6%

Source: These figures have been calculated by the World Bank REDI Team and FUSADES, and they have not being separately corroborated with MINEC, ANDA or any of the relevant lines agencies.

4.8 In order to meet these goals, expenditures would need to be effectively allocated and implemented.[15]

FINDING THE MONEY: SOURCES OF FINANCING AND FISCAL SPACE

4.9 Regardless of whether the public or the private sector finances investment in infrastructure, ultimately all costs are absorbed or reimbursed by users (through tariffs, tolls or other direct fees) or by taxpayers (through general tax revenue). For this reason, the most effective means of mobilizing and allocating resources must be considered for both public and private financing in order to avoid over taxing and unfair allocation of costs across segments of society. This section presents the current fiscal situation and sources and uses of funds that are being spent on infrastructure. It also considers constraints and opportunities for mobilizing financing, so as to achieve the investment levels required over the next five to seven years.

4.10 As explained above, infrastructure investment between 2.9 percent and 4.1 percent of GDP should be feasible for El Salvador. Compared with most countries in Latin America, El Salvador has benefited from stable macroeconomic policies and has a commercial grade sovereign risk rating in international financial markets. That said, large-scale reconstruction efforts and a modest tax base have contributed to an increase in public debt since 2000. [16] Slow economic growth has further limited fiscal space for public expenditure over the past four years.[17] While the Government recognizes the importance of prudent fiscal management, there is a growing sense of awareness that the low-investment, low-growth cycle must be broken in order

[15] The approach to achieving effective expenditure—particularly through better subsidy design—is discussed in more detail in Chapter 1 which focuses on social infrastructure.
[16] World Bank, Public Expenditure Review (2004).
[17] The fiscal space is defined here as the amount of budgetary resources that can be assigned to a desired purpose – such as investment in infrastructure – without endangering the sustainability of its financial position or the stability of the economy.

for El Salvador to achieve its social policy goals and to compete for investment and in export production.

4.11 Fiscal space can be increased through a combination of steps including an increase in tax revenue; redesign and reduction in subsidies to public services; increase in fees and user charges; and partnerships with the private sector to undertake investment more efficiently. In El Salvador, tax revenues equal only 11.6 percent of GDP. This is much lower than the 15 percent target suggested by the International Monetary Fund. The Government of El Salvador has set the goal of increasing tax revenue by 2.5 percent of GDP for 2009. However, competition for those resources will be fierce given El Salvador's debt overhang, pension liabilities and other social needs.

4.12 *Re-evaluation of subsidies and publicly provided infrastructure services*. As explained in the Social Infrastructure Chapter, El Salvador spends on average over US$100 million per year on water, electricity and gas subsidies which primarily benefit the non-poor. A redirection of the electricity and water subsidies using more effective means testing—as is being developed for the *Red Solidaria*—and the gradual elimination of the cooking gas subsidy will free up as much as US$90 million per year for better targeted infrastructure-related subsidies.

4.13 *Increase in tariffs for services to users*. It is not a coincidence that the sectors that have experienced a rapid expansion and investment outside of public spending—electricity and telecommunications—have achieved it due to tariffs that make it possible to recover costs. Though the regulatory challenges persist (see the respective sector-oriented chapters) the tariffs in these sectors are making it possible for private providers to meet most of the demand of these services when they recover the yield on investment. In contrast to electricity and telecommunications, the water and sanitation sector – the sector with the greatest capital needs– charges tariffs to users that do not cover the operating and maintenance costs of service provision, let alone depreciation, cost of capital and new investment needs. The sustainability of the tariff structure and levels should be revisited.

4.14 *Gains from operational efficiency by means of public-private partnerships.* The participation of the private sector in the provision of infrastructure services can reduce the financial burden of the public sector or otherwise increase fiscal space by:

- Introducing operational efficiencies that reduce investment costs.
- Introducing efficiencies in capital spending: Although costs of capital in financing may appear higher, private sector operators and investors are generally able to negotiate cheaper acquisition costs, significantly reducing the principal on borrowing.
- Distribution of investment load through credit enhancements: In cases where the public sector is unable or unwilling to borrow, private financing can be used to distribute "lumpy" costs over many years.

4.15 Even though the private sector does not represent a free source of money that is derived from outside the economy, it can help to improve the efficiency of public spending, provide a better quality of service to users and provide alternative financing for public transfers. This would reduce financing of infrastructure by the public sector. The following section considers the current framework for the private provision of infrastructure and analyzes options for improving that framework.

4.16 Over the coming months and years, El Salvador hopes to expand the role of the private sector in the provision of infrastructure services—beyond electricity and telecommunications into ports, airports, roads and perhaps water and sanitation. The transport and water sectors are considered more socially sensitive, more naturally monopolistic and riskier for investors than power and telecommunications. The success of the private participation in infrastructure program going forward will thus depend on its adherence to the basic principles of public-private contracting, namely:

- *Credibility*: Transparency of bidding, selection and contracting processes as well as clarity in the service obligations of potential operator-investors;

- *Efficiency*: Competition for the right to serve (particularly where competition within service provision is not possible) and economic regulation when necessary as a proxy for real competition;

- *Sustainability*: Equilibrium between the private sector's costs (investments, operations, financing, transfers to government) and potential benefits (profitability) as well as protection from arbitrary political interference; and

- *Accountability*: Regulatory arrangements that provide consumers with both a voice and a response to their concerns.

4.17 El Salvador is faced with the challenge of deciding on the appropriate institutional framework for a successful private participation program in the sectors of infrastructure. The institutional options for designing and implementing a successful reform program in the sectors of infrastructure are various. To create concession schemes and public/private associations, some countries—such as Bolivia—have opted to create new agencies dedicated exclusively to seeking novel investment schemes in infrastructure.

4.18 Countries, such as El Salvador, that are trying to avoid expansion of public agencies may have to adapt the existing institutions to their capacities. In addition, regardless of the model that is finally chosen, it is necessary to clarify the respective responsibilities and prevent different institutions from having overlapping functions or acting simultaneously. Moreover, it is necessary for the institutions involved in the process to take all the potential aspects of the private participation into account, such as fiscal constraints, the necessary sector reform, chronology of the required process and potential social and environmental impacts.

RECOMMENDATIONS FOR THE FINANCING AND INSTITUTIONAL FRAMEWORK FOR INFRASTRUCTURE

4.19 To improve access to basic services for the poor, stimulate economic growth and increase competitiveness, El Salvador needs to increase its public spending on infrastructure to approximately 3 percent of GDP. In particular, investments should be increased in water and sanitation to achieve coverage in accordance with the level of development of El Salvador. If the concept of a logistics center is to be developed, El Salvador would need to increase spending in infrastructure to approximately 4 percent of GDP.

4.20 Because of fiscal constraints, approximately 1.5 percent of spending needs to come from the private sector, mainly through concessions and other forms of public-private partnerships.

Additional resources could be generated from a redesign of the allocation of subsidies, particularly the gradual elimination of highly inequitable subsidies to gas and an improved focus on subsidies in the water and sanitation sector.

4.21 Since tax payers and consumers inevitably underwrite all investments, whether publicly or privately financed, it is essential that the private sector is leveraged effectively and incentivized to operate and invest efficiently. In its first phase of reforms, competition has fostered effective use of private financing in telecommunications and, to some degree, electricity. However, the sectors which are now being considered for public-private partnerships—ports, airports, highways, and water and sanitation—are less likely to benefit from competition. They will be more sensitive to program design details in eliciting investor response and regulatory oversight in assuring responsible behavior. To develop a market-responsive and credible second-generation PPI program, El Salvador needs to move away from a project-by-project approach toward a consistent and coordinated model. This mode should be defined by either a consolidated legal framework, or, at least, a highly placed coordinating body that retains responsibility for the design and implementation of the program.

SECTION I

Multi-sectoral Analysis of the Infrastructure in El Salvador:

- *Social Infrastructure and the Fight Against Poverty*
- *Productive Infrastructure and Logistics Services for Competitiveness*
- *Financing Infrastructure and the Institutional Framework for Development*

Table of Contents

List of Figures

List of Tables

List of Boxes

CHAPTER 1: SOCIAL INFRASTRUCTURE AND THE FIGHT AGAINST POVERTY

1.1 Access to basic infrastructure services—water, sanitation, electricity and roads—are defining elements in the fight against poverty. These services provide not only direct and intrinsic benefits, but also have important indirect effects on living conditions such as child mortality and maternal health.[1] In fact the percentage of poor children in El Salvador's rural areas, who suffer between 1 and 15 days per month from stomach diseases, is 53 percent.[2] This is directly related to the quality and availability of water and sanitation services.

1.2 Infrastructure services are also crucial to personal productivity and the opportunity for advancement. While this is intuitive for electricity and telecommunication services which carry with them the promise of study and connectivity, it is also true for water and roads. Families without household water connections use 9 percent of their time to collect water. Among the extreme poor this time expense rises to 14 percent—the equivalent of 3½ hours per day—that could otherwise be used to study or work. Furthermore, children help in water collection in over a third of all households without water connections and 12 percent interrupt school activities to do so.[3] As for access to markets, jobs, health care and education, the extreme poor in rural communities of El Salvador live on average 5 kilometers or more from the nearest paved road—almost twice as far as non-poor rural households.

> *"The truth is that nobody would move to this town, because there is not a single basic service here. Those who are here are really needy…we are on a boat with many problems, but if we abandon it, we will drown. If somebody would offer me money, I would take it and leave everything here. There is no light, no water, no basic service, and to top it off, when we finish paying, we will not hold any property title."*
>
> Resident of Villa Belén
> Source: From a Focus Group conducted for the REDI-SR to complement Household Survey data

1.3 These challenges and goals are relevant to El Salvadoran households throughout the country, not only because about one-third of Salvadorans live below the poverty line but because of the geographic spread of poverty. Approximately half of the nation's poor—47 percent—are in urban areas while 53 percent reside in rural areas.

1.4 Over the past 15 years, significant progress has been made in raising El Salvador's basic services to the standards of Latin America. However, much remains to be done to increase connectivity and service quality, and to bring the poor into the mainstream of El Salvador's economic activities. Indeed, growth in access to electricity has come to a standstill in the past

[1] Fay, et al (2005).
[2] FISDL (Social Investment Fund for the Local Development of El Salvador), 2004, *Línea Base Pronaes, Programa de Agua en Escuelas Rurales para el Salvador, Gerencia de Investigación y Desarrollo*.
[3] Ibid.

four years and there has been an actual decrease in access to water and sanitation over the same period.

1.5 The provision of infrastructure services must be financed through charges either to users or taxpayers. (See Chapter 3 for a detailed discussion of this topic.) Although the government may leverage private capital to finance investments, even schemes based on private sector participation in infrastructure (PPI) are inevitably backed by financing from these two sources. Since it is either tax payers or consumers who must pay for services, all subsidy schemes must be designed and analyzed to assure that they are successfully reaching the intended beneficiaries—namely, poor households. Otherwise, the economy is suffering from waste while poverty alleviation remains elusive. The efficiency of a subsidy is thus best analyzed according to its effectiveness in:

- Reaching the poor or the intended target (i.e. avoiding errors of exclusion);
- Avoiding the wealthy or unintended beneficiaries (i.e. avoiding errors of inclusion); and
- Encouraging responsible consumption (i.e. discouraging waste or extravagant consumption by the right tariffs signaling).

ACCESS TO SERVICES

1.6 Viewed as a policy objective in itself, access to infrastructure services remains a key challenge for El Salvador. A significant portion of El Salvador's citizens are underserved when El Salvador's infrastructure services are compared to those of neighboring countries, comparator countries and even a "frontier" of expectations for El Salvador based on its own demographic qualities and income levels. Rolling out additional connections and improving access—particularly to the poor—in a financially sustainable fashion thus remains one of the greatest challenges for El Salvador.

1.7 If the beginning of wisdom is the definition of terms,[4] so too is the beginning of policy dialogue on access of the poor to basic services. In this case, the term "access" is the one which requires definition. For electricity services, the term "access" in the El Salvadoran context generally refers to a household connection from a grid. Telephony access is also fairly self-explanatory although some attention must be paid to the substitution effects of mobile and fixed line services—that is, both services need to be considered. For access to, or distance from, roads, the quality of the road must be explained and the ability of the individual to reach that road must be considered. In water and sanitation, the term is most complicated.

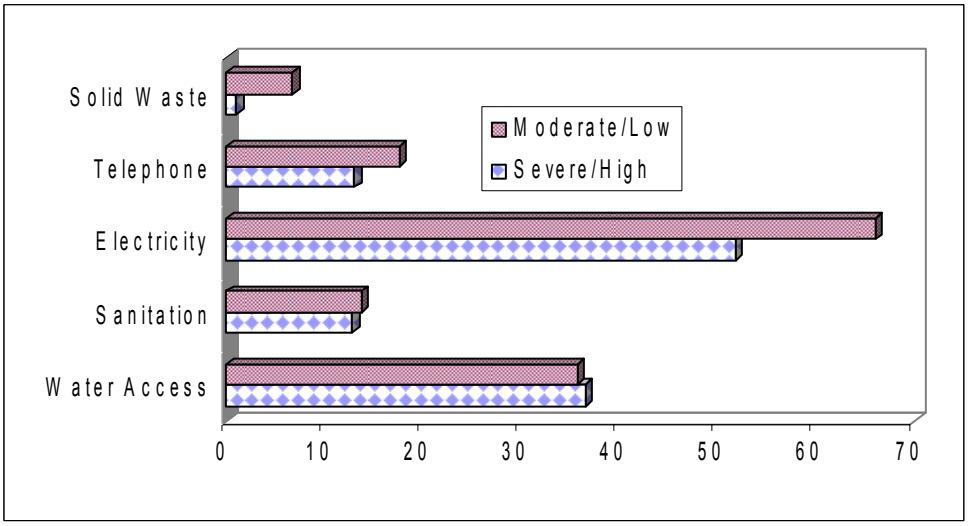
1.8 *Improved Water Service versus Household Connections*. Currently, a significant majority of Salvadoran households have *improved* access to water and sanitation services according to national data. However, in the case of water, "improved" includes everything from a poorly maintained community well to a household connection providing treated water 24 hours per day. In the case of sanitation, "improved" may be little more than a pit latrine or as much as a household sewerage line feeding into a long-distance disposal system with some treatment capacity at the other end.

[4] Attributed to Socrates by Plato.

1.9 In 2004, approximately 86 percent of Salvadoran households had access to improved water (either to their dwellings or in the vicinity) or obtained it from private or public wells. However, if the definition of access is restricted to piped water within a dwelling, only 58 percent of all households have water service. Similarly, more than 93 percent of all households have improved means of sanitation (sewer hookup, septic tank, or latrine). Using households connected to a sewer system only, the percentages go down to 40 percent of total. As can be seen from these data, household connections in water are woefully low in El Salvador even if the fact is obscured by a relatively high percentage of the population to "improved" access.

1.10 *Urban versus Rural*. The other point of caution related to national access figures revolves around urban and rural consumers. In some services, the national averages obscure the lack of connectivity suffered by rural residents. As far as electricity is concerned, almost 9 of every 10 Salvadoran households have electricity in their households; though in rural areas only 7 of every 10 have the service. More than half of households have either fixed or mobile telephones, though in rural areas only 30 percent of households have this service. In general, households in the Metropolitan Area of San Salvador (AMSS) have basic services in a greater proportion, followed by other main urban areas, with rural areas suffering from worse connectivity. (See Figure 1.1)

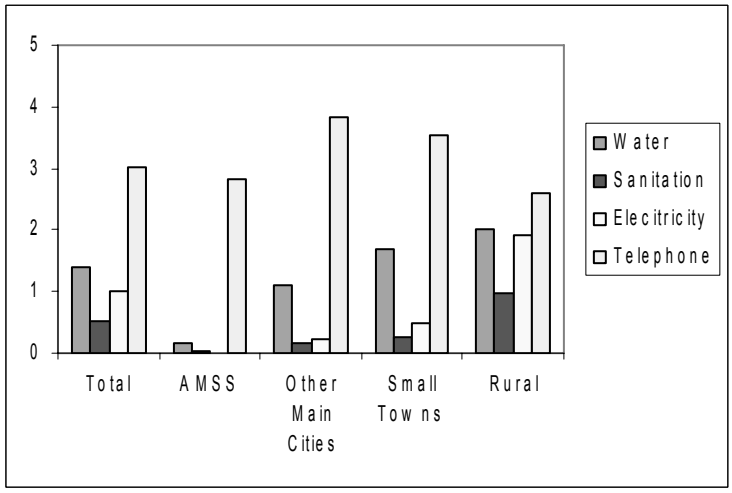
Figure 1.1: Coverage of basic services among poor households in rural areas



Source: Uribe, 2005; FISDL Poverty Map, 2004; Viceministry of Housing; MOP; PNOT, 2002; and own calculations based on Household Survey (EHPM), 2004.
Note: Water access includes piped water (either in the dwelling or otherwise) and well water; sanitation includes drainage connected to the sewer system, septic tank or common latrine; telephone includes both fixed and cellular.

1.11 Between 1995 and 2004, an important increase occurred in the availability of all basic services. Despite this improvement in access, the annual average growth during this period was higher in rural areas than urban zones—particularly the Metropolitan Area of San Salvador (AMSS) which has seen no significant growth in access outside of telephony. (See Figure 1.2.) In general, it is observed that the largest growth occurred in telephone services, followed by the availability to improved sources of water, and electricity. Sanitation experienced a lower growth rate, principally, due to lack of financing.

Figure 1.2: Anual average increase in access to improved infrastructure services 1995-2004. Average percentage rate.



Source: Own calculations based on Household Survey (EHPM), 2004.
Note: Water access includes piped water (either in the dwelling or otherwise) and well water; sanitation includes drainage connected to the sewer system, septic tank or common latrine; telephone includes both fixed and cellular.

1.12 Through the late-1990's Salvador was catching up to its peers through a relatively brisk expansion of social infrastructure services, until 2001 (Table 1.1). At that time, access to social infrastructure services grew at a faster rate in El Salvador than in most of its Latin American peers. Similarly, El Salvador ranked second in its peer group in expansion of electricity and telephony coverage. Unfortunately, growth in most of these categories stopped or turned negative after 2001.

Table 1.1: Average rate of expansion of social infrastructure between 1995 and 2000

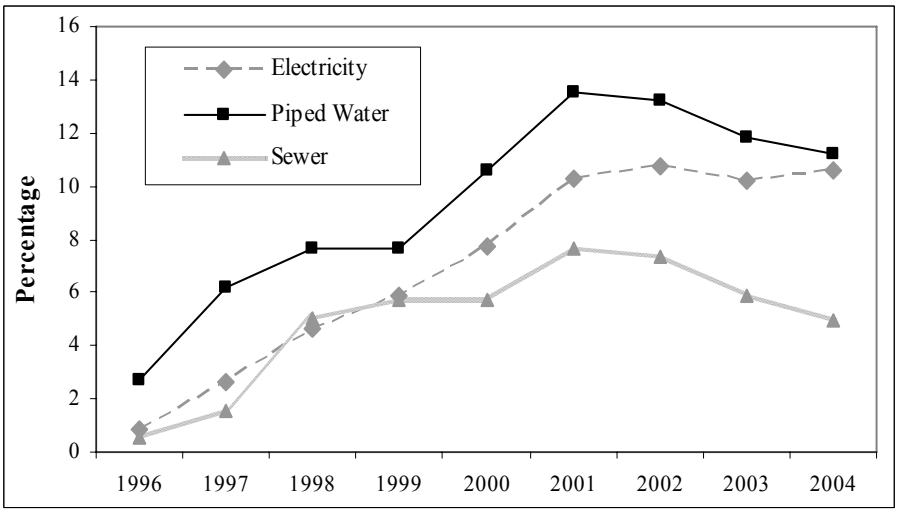
	Water	Sanitation	Electricity	Telephony
Argentina	0.2%	-0.8%	n/a	n/a
Brazil	n/a	1.2%	0.7%	6.2%
Chile	0.5%	1.3%	0.5%	n/a
Colombia	0.7%	0.7%	0.7%	1.7%
El Salvador	**2.1%**	**2.4%**	**1.8%**	**4.0%**
Honduras	1.8%	0.5%	2.0%	n/a
Mexico	-0.2%	2.0%	0.5%	2.8%

Source: Own elaboration based on household survey data in Inequality in Latin America and the Caribbean: Breaking with History?; Water data for El Salvador is from PAHO, Online Table Generator.
Note: Reports annual percentage of population that received new service each year for 3-5 year periods between 1995 and 2000. Calculations vary based on data availability.

1.13 Despite the earlier progress, the expansion in access to piped water, sewer connection, and electricity has stagnated, with zero or negative growth from 2001 to 2004. Connections to sewer increased to 43 percent from its original level of 25 percent in 1995, but decreased slightly to 40 percent in 2004 due to the formation of new households. Expansion of access to piped water and electricity was also slow during this time period. Access to piped water grew from 47

percent in 1995 to 60 percent in 2001 but fell to 58 percent in 2004 due, in part, to the chaotic situation in the population growth. Access to electricity reached 87 percent in 2001 and is still the same in 2004. Consistently, expansion of access to water, sewerage and electricity stopped or turned negative since 2001 corresponding with a sharp decline in infrastructure financing (see Chapter 3).

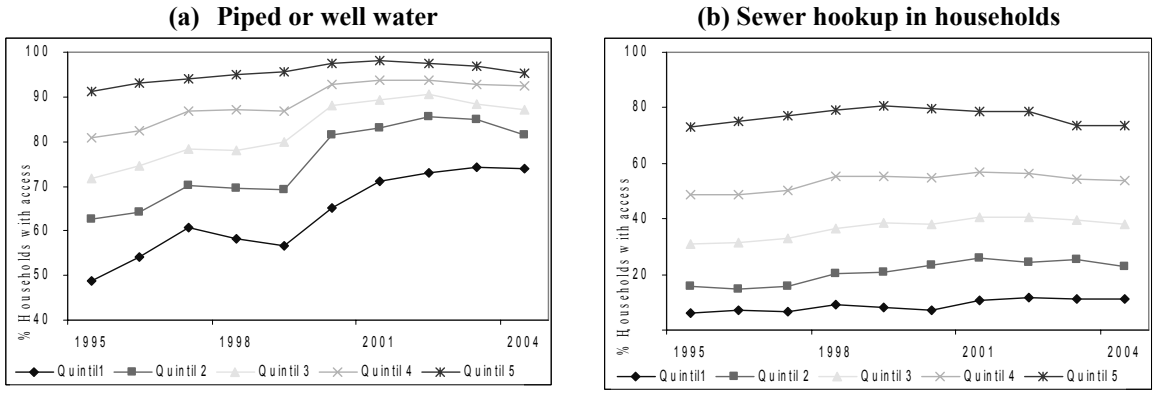
Figure 1.3: Accumulated percentages since 1995 of households serviced in El Salvador



Source: FUSADES elaboration based on EHPM

1.14 *Service According to Income.* Equity in the access to the services of water, electricity and telephone substantially improved during most of the nineties, even though it has deteriorated since 2002. Access to the sewer system, however, has been more uneven during the same period. Access to household piped drinking water has been over 80 percent during the entire period for 40 percent of higher income households. For the 20 percent of the poorest households, access went from 49 percent to 74 percent, which was the largest jump among income groups. However, in the middle income brackets - quintiles 2 and 3 - access rates have decreased by approximately 4 percent since 2002. In the access to the improved sanitation, there continued to be a high level of unevenness with a difference of 60 percent between the highest and lowest quintiles. See Figure 1.4.

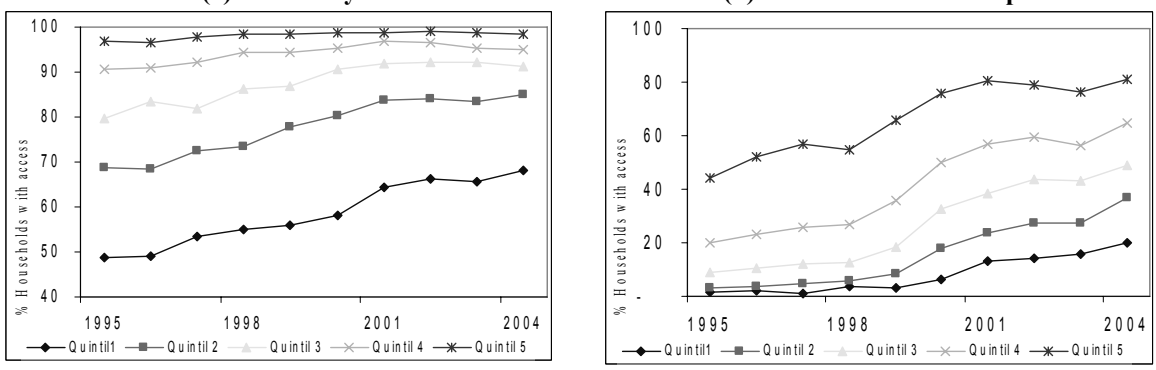
Figure 1.4: Households with access to improved services of water and sanitation – 1995 – 2004 Percentage of households



Source: Own calculations based on 1995 – 2004 Household Surveys

1.15 The reform of the electricity and telecommunications sectors made it possible to increase uniformly the access of households to these services. Since the mid-nineties, over 90 percent of the households in the two wealthiest quintiles have been able to obtain electricity. This percentage – which started at 45 percent and 70 percent, respectively for the 1st and 2nd quintile income households – went up to levels near 70 percent and 85 percent, respectively in 2004. In telecommunications, the effect of the reform is more dramatic. In 1998, fewer than 10 percent of the lowest income households income had access to fixed line or cellular phones. In 2004, 20 percent, 36 percent and 50 percent of the households in the 1st, 2nd and 3rd quintiles, respectively, had at least one of the two services. See Figure 1.5.

Figure 1.5: Households with access to electricity and telephones 1995–2004. Percentage of households



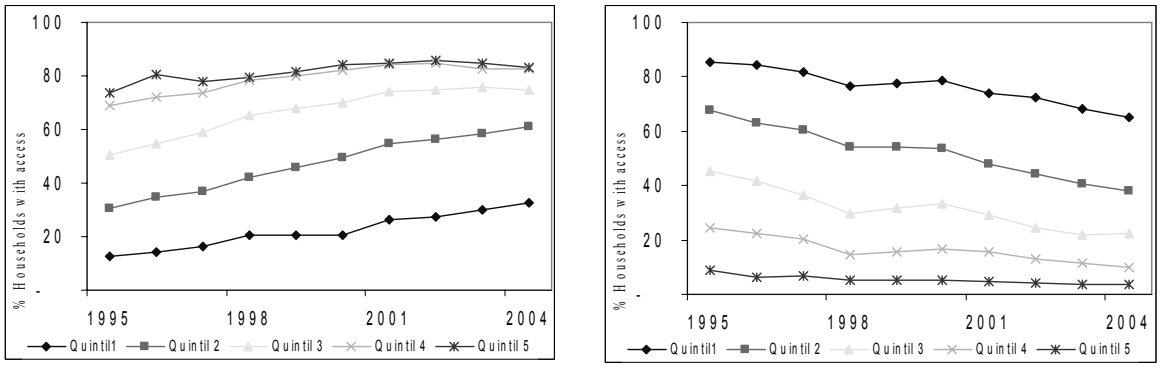
Source: Own calculations based on Household Survey – 1995 – 2004

1.16 Poor households, mostly in the rural area, continue to use firewood in greater proportion, as an alternative energy source for cooking food, while in the high and middle income households, gas is chiefly used. Even though the percentages of households that use firewood have gone down since 1995, the use rates have continued to be fairly high. The impacts to human

health and the preservation of sources of drinking water from using firewood are highly negative. The link between environmental pollution within housing and chronic respiratory diseases in adults and children has been widely demonstrated. Gas, that receives a high level of subsidies and that could be an alternative for poor households, is used principally for middle- and high-income households. The balance of the allocation of subsidies between different energy sources should be analyzed for the provision of electricity due to the effect of substitution in the consumption.

Figure 1.6: Households that use gas or firewood for cooking – 1995 – 2004 Percentage of households

(a) Use gas **(b) Use firewood**



Source: Own calculations based on Household Survey 1995 - 2004

1.17 In general, households that currently do not have access to infrastructure services are concentrated in the low income groups and for the most part in the rural area. Between 60 and 80 percent of households that do not have access are in income quintiles 1 and 2. Of these 82 percent do not have access to piped or well water, 87 percent do not have basic sanitation and 85 percent of those without electricity in their households are in the rural area.

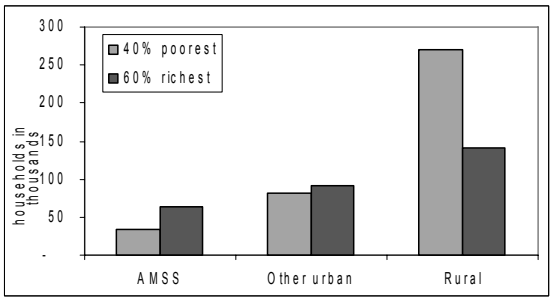
Table 1.2: How many households still do not have basic services and where are they located? – 2004

	Water		Sewage			
Area	No residential connection	No residentia connection and no well	No Sewer	No Sewer, no Septic tank	No Electricity	No Gas
AMSS						
40% Lower Income	34,450	11,387	29,506	1,306	5,119	11,023
60% Higher Income	64,091	24,197	56,012	2,747	4,723	45,818
Rural						
60% Higher Income	88,159	10,563	165,177	4,291	7,039	49,845
40% Lower Income	277,700	121,872	379,536	68,824	129,390	275,593
Total	683,947	227,249	963,684	105,918	199,472	530,818
40% Lower Income	397,314	148,088	542,982	79,205	152,998	344,678
60% Higher Income	286,633	79,161	420,702	26,713	46,474	186,140
No Access, 40% Lower Income	58.1%	65.2%	56.3%	74.8%	76.7%	64.9%
No Access, 40% Lower Income in Rural Areas	69.9%	82.3%	69.9%	86.9%	84.6%	80.0%

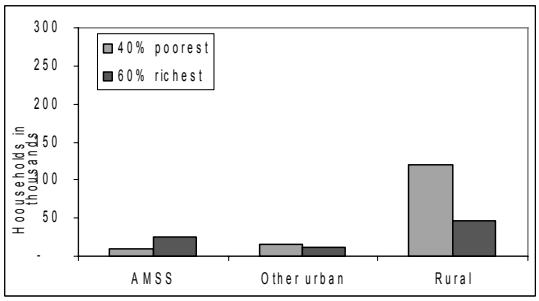
Source: Own calculations based on the EHPM - 2004

Figure 1.7: How many households still do not have basic services and where are they located?

(a) Without water connection in the dwelling

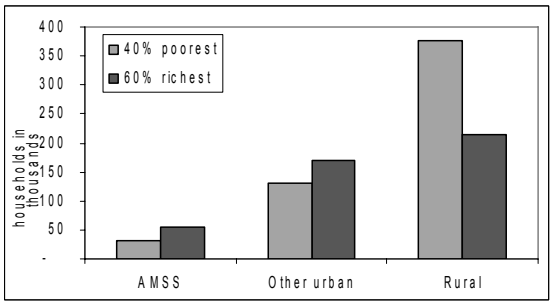


(b) Without alternative source of drinking water

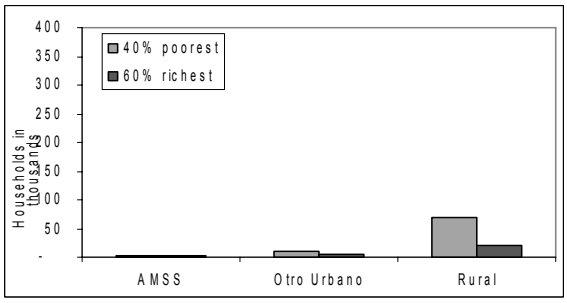


Note: Includes households with no access to piped drinking water, dwelling or not, or from well.

(c) Without sewer system in the dwelling

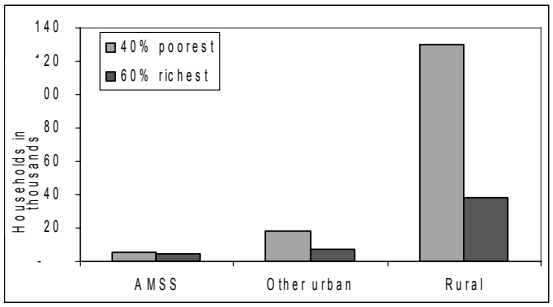


(d) Without alternative sanitation solution

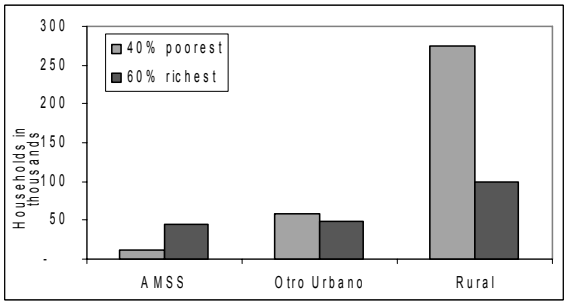


Note: Includes households that do not have drainage connected to sewer, septic ditch, or have latrine

(e) Without electricity



(f) Do not use gas for cooking



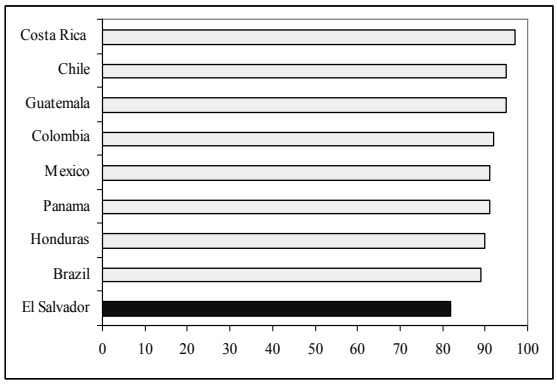
Source: Own calculations based on the Household Survey 2004

INTERNATIONAL COMPARISONS OF COVERAGE OF SOCIAL INFRASTRUCTURE

1.18 El Salvador lags behind its Latin American peers in most social infrastructure categories, with the exceptions of total and unpaved road density. El Salvador ranks last in its Latin American peer group in terms of water access and second to last in sanitation access. Similarly, El Salvador ranks above only Honduras and Guatemala in regards to access to electricity. The country's payphone density standing is among the top of the lower middle-income countries, but below its upper middle-income peers. In contrast, El Salvador ranks behind only Costa Rica in terms of its total and unpaved road densities.

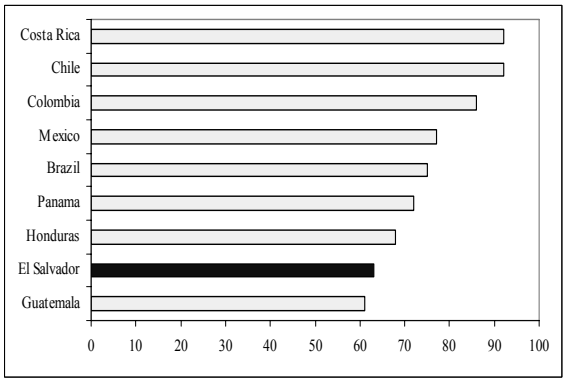
Figure 1.8: Coverage of social infrastructure

(a) Access to Improved Water Source (2002)



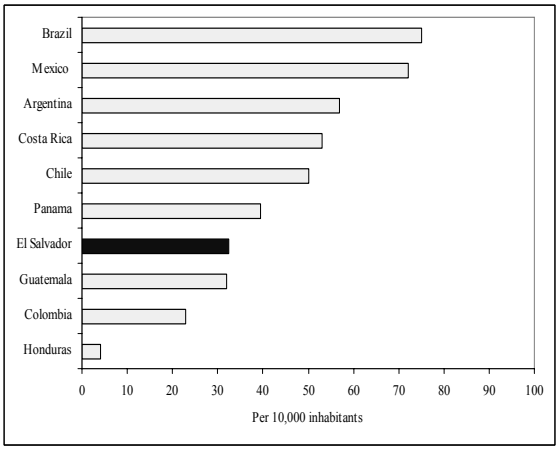
Source: World Bank, World Development Indicators

(b) Access to Improved Sanitation (2002)



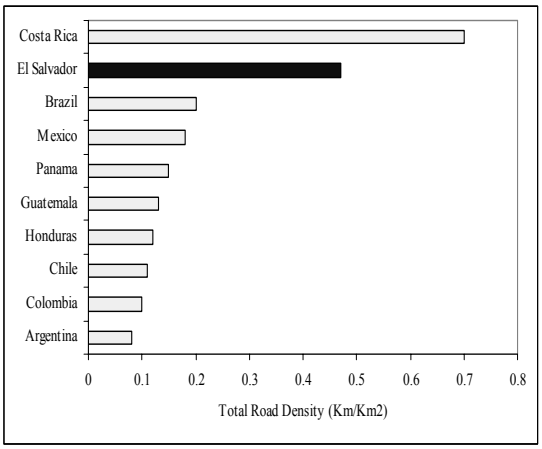
Source: World Bank, World Development Indicators

(c) Payphone Density (2003)



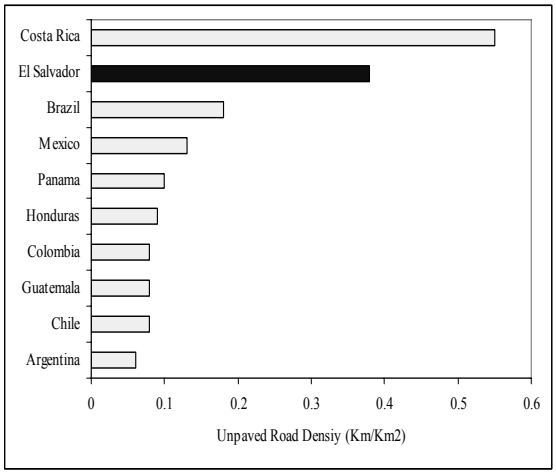
Source: ITU

(d) Total Road Density (2002)



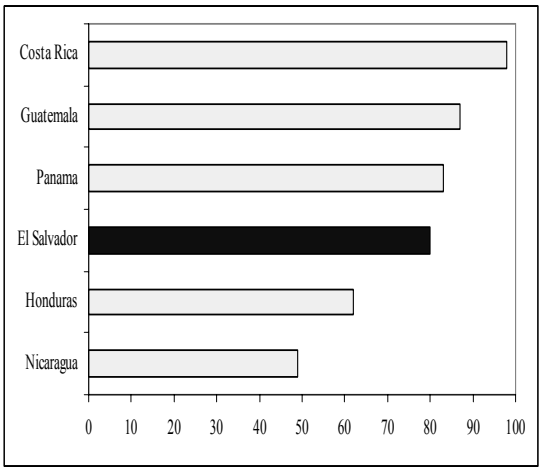
Source: El Salvador Ministry of Public Transport; LANAMME; Easterly and Serven (2003)
Note: Data for some countries is from 2001

(e) Unpaved Road Density (2002)



Source: El Salvador Ministry of Public Transport; LANAMME; Easterly and Serven (2003)

(f) Electricity Access (2003)

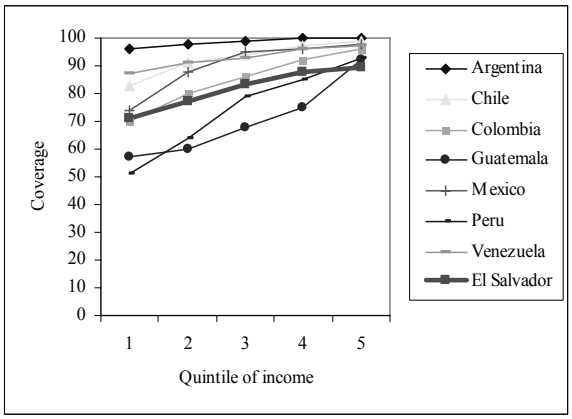


Source: ECLAC
Note: Data for some countries is from 2001

1.19 Beyond the numbers of those without service, coverage of water, sanitation, electricity and telephony services in El Salvador is highly inequitable. The figures below show coverage rates by income quintiles. As can be seen in these graphs, there are marked differences between coverage for the lowest and highest income groups. This inequality is the most pronounced in coverage of water and sanitation services. While El Salvador performs slightly better in equality of its electricity and telephony services, Figure 1.9 demonstrates that levels of coverage for these services still vary more greatly by income level then in other countries. These impressions are confirmed by the concentration coefficients for coverage of services reported in Figure 1.8. The coefficients in that table summarize the overall distribution of connections in a single statistic that takes a value of zero for universal access and increasing values of up to one as coverage becomes increasingly inequitable. As can be seen from Figure 1.9. El Salvador ranks not only at the bottom of the group but also has high concentration coefficients.

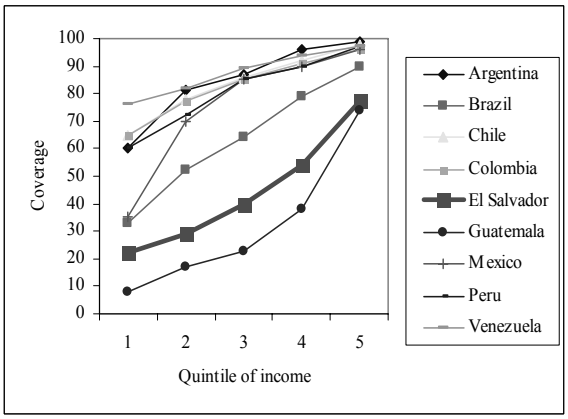
Figure 1.9: Equity in coverage of basic infrastructure services

(a) Water



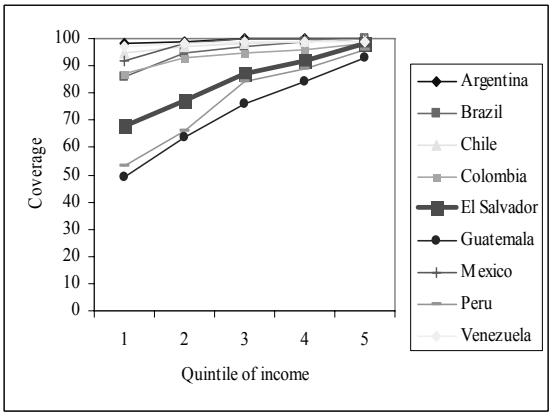
Source: World Bank, Inequality in Latin America and the Caribbean: Breaking with History?

(b) Sanitation



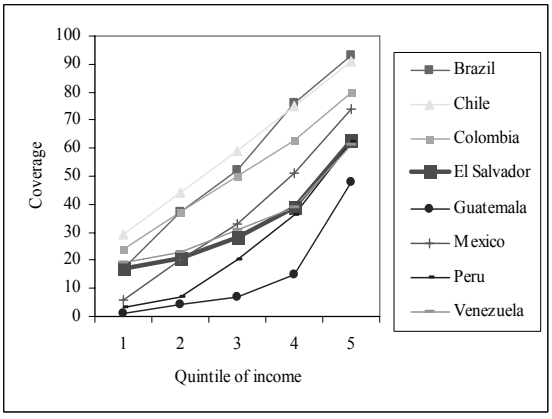
Source: World Bank, Inequality in Latin America and the Caribbean: Breaking with History?

(c) Electricity



Source: World Bank, Inequality in Latin America and the Caribbean: Breaking with History?

(d) Telephony (Fixed Plus Mobile)



Source: World Bank, Inequality in Latin America and the Caribbean: Breaking with History?

Table 1.3: Service coverage concentration coefficients

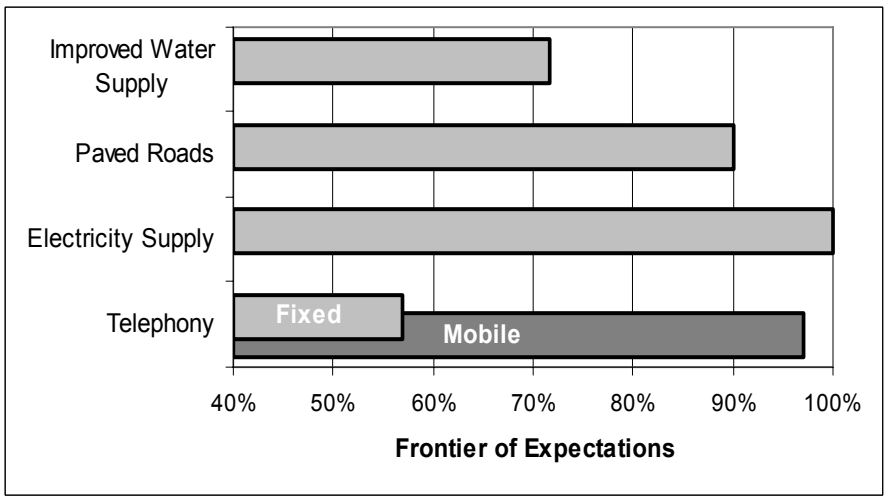
	Sanitation	Electricity	Telephony
Argentina	+0.09	+0.00	
Brazil	+0.18	+0.03	+0.28
Chile	+0.08	+0.01	+0.21
Colombia	+0.07	+0.02	+0.22
Guatemala	+0.38	+0.12	+0.56
El Salvador	**+0.24**	**+0.07**	**+0.26**

Source: The World Bank (2004) based on household survey data

1.20 *El Salvador versus El Salvador.* Performance in Social Infrastructure against the Country's Own Potential. After a review of the benchmarks and absolute numbers, the question remains how should El Salvador be performing in each area of social infrastructure? That is, given El Salvador's income levels, demographic features and geography, what levels of coverage and density would one expect in water supply, paved roads, electricity and telephony?

1.21 The Figure below presents the results of an analysis using data from all Latin American countries to derive El Salvador's "Frontier of Expectations." In this Data Envelope Analysis, achieving 100 percent of expected performance for a sector would mean that the country is doing as well as could be expected given its income (per capita GDP), demographics (population density, urbanization level and growth), and income distribution (GINI co-efficient). A performance of less than, say, 80 percent indicates a failure in achieving reasonable targets for reaching consumers at the sectoral level.

Figure 1.10: Performance of El Salvador's infrastructure against a Frontier of Expectations (Based on an analysis of demographic, geographic and economic indicators)



Source: Authors' calculations based on LAC regional data from World Bank Development Indicators, WHO, ITU.
Note: Indicators to determine Frontier of Expectations.

1.22 This analysis suggests that El Salvador is performing relatively well in electricity supply, paved roads and mobile telephony. Although it has very low levels of fixed telephony, the

penetration levels are increasing steadily and mobile service, for most of the country's needs, acts as a substitute to fixed-line telephones. In contrast, water supply is barely achieving 70 percent of its expected performance according to the standards set by the Latin America data set. This rating is, if anything, a generous interpretation of El Salvador's water sector performance given that: 1) Latin America as a whole, which serves as the standard-bearer for the analysis, is underperforming in water services and is highly unlikely to meet its Millennium Development Goals; and 2) the data are based on World Health Organisation (WHO) figures for "improved" water supply and so value community and household wells equally with household connections (regardless of the health and quality of life issues that plague El Salvador).

1.23 The benchmarking and frontier analysis of social services point to two conclusions:

- Access to all basic services remains elusive for the poor, particularly the rural poor; and
- The priority sector for immediate attention among all areas of social infrastructure is water and sanitation.

1.24 In order for specific policies to be derived from these conclusions, an analysis of the affordability of services and a review of the efficacy of current subsidy schemes are required. By calculating full cost recovery rates for each social infrastructure service and applying those rates to household hold incomes through El Salvador, it becomes clear that the poorest 20 percent would have trouble paying bills for basic services.[5]

1.25 A well-balanced tariff and subsidy regime should ensure that the poor can pay for a minimum level of consumption while the financial sustainability of the services providers is maintained, avoiding as much as possible the subsidization of households that do not need the subsidy to be able to access these services. The analysis presented in the following sections discusses how this balance is working in the various sectors and makes recommendations on how to rebalance or restructure the subsidy mechanisms for a more effective action of the Government.

1.26 As detailed in Chapter 3, spending on infrastructure must grow in El Salvador to keep up with social and competitiveness policy goals, with a decided trend toward cost recovery to reduce dependence on taxation. The below analysis evaluates consumption, affordability and the system used in El Salvador to grant and finance subsidies in electricity, liquefied gas, drinking water and sanitation; discusses affordability conditions. It analyzes the level of subsidies and their targeting results (errors of exclusion and inclusion). Lastly, some recommendations are made to improve the subsidy systems and strategies are proposed for securing universal access as the relevant goal for El Salvador.

USE TRENDS AND SUBSISTENCE CONSUMPTION

1.27 Consumption levels of household piped water, electricity, and gas for cooking has been estimated based on the Household Survey reported by the households that pay for them and the rates in effect. The piped water service is administered mainly by the National Water and Sewerage Administration (ANDA) that operates water system in 182 municipalities and the

[5] 15 percent of disposable income on these three services is generally considered a level of expenditures that begins to interfere with subsistence.

sanitation system in 82. In this analysis, each of the electricity distribution companies must have its rate schedule approved. Accordingly, the average obtained from the rates of each company weighted by the number of users it serves provided an estimate to the consumption of electricity. To estimate the consumption of gas for cooking, the following suppositions were used: the majority of households buy their gas in stores, as a result of which the store price was used, and the average cost per pound obtained from the various sizes was obtained. More details on the rates used in the calculations are provided below in this chapter.

1.28 *Water services*. In El Salvador, the average consumption of households that currently have household piped water service is 30 m^3 per month, a level that is considerably higher than what is considered subsistence consumption. The World Health Organization (WHO) estimates that an approximate consumption of 50 liters per capita per day for a household of 5 persons is the minimum that is needed for basic hygiene, which equals 8 m^3 per month. WHO also estimates that a consumption of 100 liters per capita (16 m^3/month) would correspond to a level of consumption of a modest urban household. The levels of subsistence consumption under consideration would have a lower limit of 8 m^3 and an upper limit of 16 m^3 per month.[6] Currently there are important differences in the consumption levels between urban and rural areas, as observed in Table 1.4. Nonetheless, even among the poorest households that have service, the average consumption is over 16 m^3 that is considered in this study as the upper limit for subsistence consumption.

Table 1.4: Estimated water consumption per household that has piped water (in m^3 per month) – 2004 (Only includes households that pay for the service from ANDA)

Quintile	Total	Total Urban	AMSS	Dpt. Seats	Other	Rural
1	21.1	25.6	28.4	31.0	22.9	17.5
2	24.8	26.7	31.3	27.1	24.2	19.5
3	27.3	28.2	31.6	29.8	24.9	19.8
4	30.9	31.0	34.3	32.0	27.3	22.5
5	37.2	34.9	41.0	36.6	31.0	25.5
Total	30.1	30.9	36.0	32.7	26.7	19.8

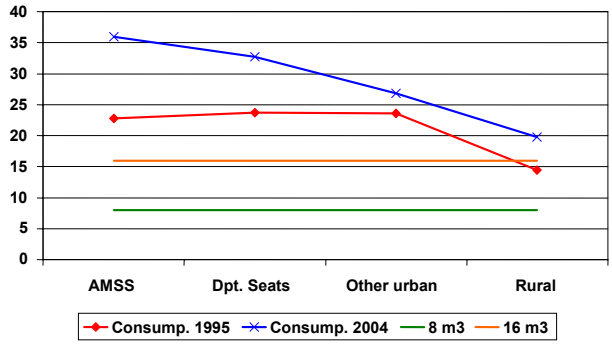
Source: Own calculations with information from the EHPM-2004

1.29 Between 1995 and 2004, average water consumption grew from 22.1 m^3 to 30.1 m^3. Consumption in all regions increased, with the increase highest in AMSS and in the seats of the *departamentos*. On the other hand, consumption also increased in all income levels, mainly among the upper quintiles. Figure 1.11 shows the consumption trend and its comparison with subsistence consumption.

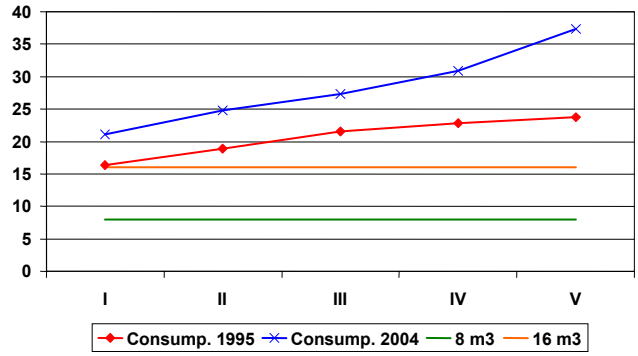
[6] See Foster and Yepes (2005).

Figure 1.11: Estimated level of water consumption of connected consumers – In m^3

(a) By geographical zone



(b) By quintile of income per capita



Source: Own calculations with information of the EHPM -1995 - 2004

1.30 Finally, it is worth noting that this relatively high level of consumption across geography and income level is the distorted results of the low connectivity rates for water. That is, as a higher share of the poor is connected, consumption variations will likely increase both geographically and according to income. The results of a similar analysis for the electricity sector support this hypothesis: a much higher share of the poor are consuming below subsistence levels of electricity than water, among those who are "connected" water users. For the majority of the extreme poor, who still must collect their water, it is unlikely that their consumption levels approach those above.

1.31 *Electricity:* In El Salvador, the average consumption of households that currently have electricity service, is 114 kWh. It is estimated that 40 kWh per month is sufficient to power a few lamps and a small radio; while it is estimated that 120 kWh is sufficient to power a few lamps, a modest refrigerator and a small TV. Subsistence consumption levels would have a lower limit of 40 kWh and an upper limit of 120 kWh per month.[7] In El Salvador, the average consumption of electrified households is 114 kWh. There are significant differences in consumption levels between urban and rural areas, as observed in Table 1.5. The average consumption of the three lowest income quintiles is between the limits of what would be considering subsistence consumption.

[7] Ibid.

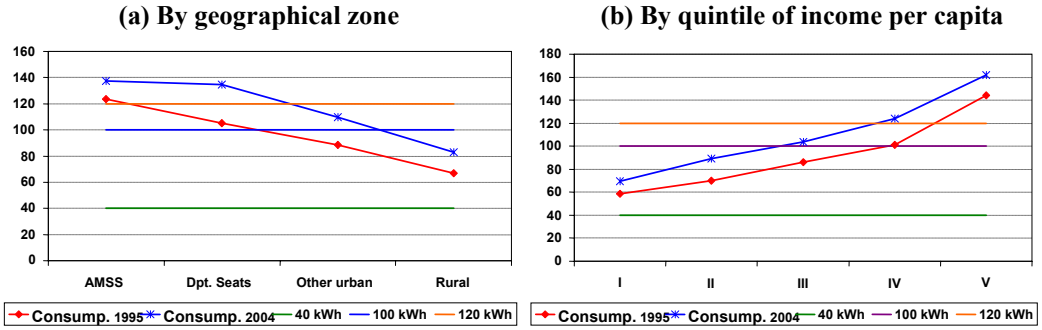
Table 1.5: Estimated consumption of electricity per household (in kWh per month) – 2004 (Only includes households that pay for the service)

Quintile	Total	Total Urban	AMSS	Dpt. Seats	Other	Rural
1	69.5	80.0	95.3	93.3	70.5	62.8
2	89.2	96.6	103.7	105.1	89.3	79.0
3	103.5	108.1	112.3	115.0	101.8	91.4
4	124.2	130.4	129.6	141.4	124.2	100.0
5	162.0	132.9	173.7	166.9	145.4	128.9
Total	113.8	118.6	137.3	134.5	109.6	82.9

Source: Own calculations with information from the EHPM-2004

1.32 Between 1995 and 2004, average consumption increased by more than 15 percent (from 99.2 kWh to 113.8 kWh); between 1998 and 2004, it increased by 8 percent (from 105 to 113.8). The increase in consumption was uniform in all regions and all income groups. Unlike water, the average levels of consumption of electricity show consumer response to price signals according to their ability to pay. Figure 1.12 shows that the increase in the consumption was uniform between 1995 and 2004: it occurred in all geographic zones and households of all quintiles. The charts also show a comparison among average consumption and the lines equivalent to 40 kWh and 120 kWh (lower and upper limit of what is considered as subsistence consumption) and to 100 kWh (maximum consumption currently subsidized, see Section 4 of this chapter). In El Salvador, the average consumption of the three lowest income quintiles is below the upper limit of what is considered as "subsistence." The current level of subsidized consumption is also the average consumption of the 3rd quintile.

Figure 1.12: Estimated level of electricity consumption based on the EHP – in kWh



Source: Own calculations with information from the EHPM-1995 - 2004

1.33 *Gas consumption*: The average consumption of gas for cooking is close to 30 lb per household, regardless of the geographic zone or income quintile, which would indicate that one bottle of gas is consumed per month on average (some households must buy 25-lb bottles and others 30-lb bottles, both sizes receive subsidy, as discussed in Section 4 of this chapter). See Table 1.6. For practical purposes, a 25-lb bottle will be taken as subsistence consumption.

Table 1.6: Estimated consumption of gas for cooking (in pounds per month) – 2004 (Only includes households that pay for the product)

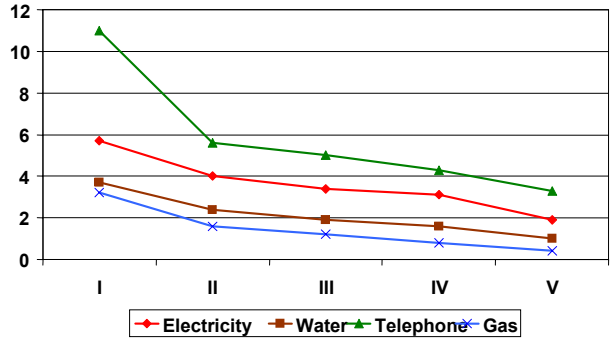
Quintile	Total	Total Urban	AMSS	Dpt. Seats	Other	Rural
1	29.5	29.3	29.2	29.6	29.2	29.8
2	30.1	29.4	29.5	30.2	28.9	31.6
3	29.8	29.9	29.0	30.1	30.5	30.3
4	30.3	30.5	29.6	31.6	30.5	30.8
5	30.7	29.3	30.4	33.7	30.3	29.5
Total	30.2	29.8	29.7	31.5	30.0	30.6

Source: Own calculations with information from the EHPM-2004

HOUSEHOLD EXPENDITURE AND AFFORDABILITY

1.34 In 2004, the average household spent US$8.44 for piped water and US$14.45 for electricity, which results in an average of US$22.89 for the two services. This represents 4 percent of the average family income. Household survey data reveal that monthly spending for households that need to buy water (in bottles or in other forms) is approximately 50 percent higher than those that have piped water; the difference is almost double for the poorest households. Similarly, households that buy firewood for cooking spend almost twice as much as those that use gas. In general, the monthly expenditure for basic services is equal to less than 5 percent of the family income for the wealthiest El Salvadorans. The poorest households on average spend more on telecommunications than the wealthiest spend on all services. (See Figure 1.13)

Figure 1.13: Spending as % of family income 2004. Per quintile of income per capita



Source: Own calculations with information from the EHPM-2004

1.35 By applying cost recovery rates, the lower limit of subsistence consumption would represent US$3.89 for piped water and US$5.42 for electricity, which would require a total of US$9.31 for the two services. The upper limit would have a cost of US$7.77 for water and US$16.27 for electricity, or US$24.04 for both. Table 1.7 shows the reference levels for the subsistence consumption of electricity and water, and 25 lb of gas for cooking. For water and electricity, services which are by law billed according to a fixed minimum, the levels of consumption are 10 m^3 and 30 kWh per month in addition to the lower and upper limits. For each consumption level, various rate levels are considered: the current rates for all services, the current rates without subsidy for electricity and gas and the recovery costs for electricity and water (for

water two values will be considered for the cost recovery rates: US$0.43 that is a value close to the actual levels of 2002 to 2003, and that of US$0.65 that is the actual cost for 2004, according to the Labor Report of ANDA).

Table 1.7: Reference level for the cost of subsistence consumption (US$ per month)

Description	Water				Electricity				Gas		
	Consumption	Current rates 2004	Cost recovery rates US$ 0.43	Cost recovery rates US$ 0.65	Consumption	Current rates 2004	Rates w/o subsidy	Cost recove-ry rates US$ 0.12	Consum-ption	Current rates 2004	Rates w/o subsidy
Without VAT											
Limit indicated in the law	10 m3/month	2.29	4.30	6.50	30KWh/month	2.32	5.25	3.60			
Lower limit	8m3/month	2.29	3.44	5.20	40KWh/month	3.09	6.43	4.80	25lb	3.25	6.73
Upper limit	16m3/month	4.49	6.88	10.4	120KWh/month	15.86	15.86	14.40			
With VAT											
Limit indicated in the law	10m3/month	2.59	4.86	7.35	30KWh/month	2.62	5.94	4.07			
Lower limit	8m3/month	2.59	3.89	5.88	40KWh/month	3.49	7.27	5.42	25lb	3.67	7.61
Upper limit	16m3/month	5.07	7.77	11.75	120KWh/month	17.92	17.92	16.27			

1.36 Although there is not an objective basis to determine the level of spending that would be "affordable" for a service, a 5 percent threshold of the family income is taken as a reasonable level for Latin America.[8] An analysis of the income distribution shows that, with the exception of some of the poorest countries, only a small segment of the population of Latin America (approximately 20 percent) has true problems regarding their ability to pay for public services at the recovery cost rates. Apparently, this is also the case for El Salvador.

1.37 In El Salvador approximately 20 percent of households would have difficulty in paying for the services at cost recovery levels. Table 1.8 shows the percentage of households that would spend more than 5 percent of their family income to pay for each service (electricity and water) or on a 25-lb bottle of gas for cooking; percentages have been estimated based on the entire population, though in 2004 they did not have the service. For water, with a recovery cost of US$0.43 per m^3, only 7 percent and 20 percent of the households would have difficulty in paying for the lower and upper limits subsistence consumption, respectively. For electricity, with a recovery cost of US$0.12 per kWh, 12 percent of households would have difficulty in paying for a lower limit consumption (40 kWh) but approximately 50 percent would have difficulty in paying for the upper limit (120 kWh). Almost 20 percent of the households could have difficulty in paying for a bottle of gas per month, paying the current rates, without subsidy.

[8] See Foster and Yepes (2005)

Table 1.8: Percentage of households that would spend more than 5% of their income in each service (By applying cost recovery rates)

		Water		Electricity		Gas
		$0.43 per m3		$0.12 per Kwh		w/o subsidy
		8m3	16m3	40 Kwh	120 Kwh	25lb
Geographical zone	Total country	6.91	20.03	11.61	50.39	19.39
	Total urban	2.84	10.70	5.19	37.75	10.20
	AMSS	1.16	5.62	2.44	29.16	5.27
	Dpt. Seats	2.52	10.42	5.20	38.27	10.23
	Other urban	5.09	17.33	8.71	48.61	16.51
	Rural	13.81	35.85	22.50	71.81	34.98
Quintile of income	I	29.42	67.38	45.07	97.75	66.13
per capita	II	4.00	17.27	6.93	75.00	16.48
	III	1.12	9.12	6.05	44.26	8.40
	IV	0.00	6.39	0.00	24.15	5.93
	V	0.00	0.00	0.00	10.77	0.00

Source: Own calculations with information from the EHPM, 2004.

1.38 Households that would have difficulty in paying are concentrated in the first two income quintiles, the large majority are among the 20 percent of households with the lowest incomes; in general terms, the large majority of these households are located in the rural area. Table 1.9 shows the location of the households that would spend more than 5 percent of their family income on each service.

Table 1.9: Location of households that would spend more than 5% of their income in each service (By applying cost recovery rates)

		Water		Electricity		Gas
		$0.43 per m3		$0.12 per Kwh		w/o subsidy
		8m3	16m3	40 Kwh	120 Kwh	25lb
Geographical zone	Total country	100.00	100.00	100.00	100.00	100.00
	Total urban	25.82	33.60	28.11	47.12	33.08
	AMSS	5.19	8.65	6.49	17.85	8.38
	Dpt. Seats	2.93	4.17	3.59	6.09	4.23
	Other urban	17.71	20.78	18.03	23.18	20.47
	Rural	74.18	66.40	71.89	52.88	66.92
Quintile of income	I	85.16	67.27	77.64	38.80	68.21
per capita	II	11.58	17.25	11.94	29.77	17.00
	III	3.25	9.11	10.42	17.57	8.67
	IV	0.00	6.38	0.00	9.59	6.12
	V	0.00	0.00	0.00	4.27	0.00

Source: Own calculations with information from the EHPM-2004

TARIFFS AND THE SUBSIDY SCHEME

1.39 Subsidies occur when the rates paid by users are less than the operations, maintenance, depreciation and capital costs required to provide the service. These subsidies may be paid from the Government budget or from other consumers. Throughout Latin America, cross-subsidies among segments of the residential market and from industry or vice versa, are used to close the financial balance of the providers.

1.40 The design of the rate schemes for utilities—which often utilizes such blunt mechanisms as minimum pricing blocks and increasing block tariffs—is generally inefficient. That is, it assigns subsidies to those who do not need them and does not subsidize those who do. For example, consider an increasing block tariff structure for water whereby higher rates of consumption are more expensive, per liter, than lower levels of consumption. The assumption in the creation of the structure is generally that poorer people consume less and so, will be paying less on a per liter basis. Often, however, wealthy families own more than one property resulting in low volume bills for each residence while poorer households may have extended families or several families using one metered connection. In such a case, the wealthy household is being charged less per unit and overall than the poorer family.

Electricity

1.41 Before privatization of the electricity company, all users received some level of subsidy. All users - regardless of their level of consumption - received the benefit of the lower rates. Only when consumption was over 500 kWh were consumers forced to pay the full rate. There were sliding rates according to the level of consumption: the first 40 kWh had the lowest price, followed by 160 kWh, and then 300 kWh. In all, the first 500 kWh had the lowest rates.

1.42 After privatization, maximum prices were established for users who consumed under 400 kWh per month, though over six months these rates were eliminated for users who consumed 200 kWh or more. The subsidized amount would equal the difference between the maximum prices and the rates charged by the distribution companies, an amount that would be transferred to the distribution companies so the user only had to pay the maximum price established. When a user consumed 200 kWh, the subsidy was automatically cut off (the first kWh consumed were also not subsidized). Starting in 2001, the subsidy was eliminated for users who consumer 100 kWh or more. In 2003, it was established that the subsidy would only cover 87 percent of the difference between the maximum prices and the normal rate; and finally, the subsidized percentage was modified to 87 percent, which is currently in effect. Table 1.10 summarizes the subsidized user groups and the maximum rates applied to them (note: the maximum rates per group have not changed since 1998).

Table 1.10: Groups of users who receive subsidy

	Maximum rate per Kwh (Colones)	CE			SIGET						
		1995	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Ranges of consumption											
The first 40 Kwh	0.3921	X	X	X							
Subsequent 160 Kwh	0.6861	X	X	X							
Subsequent 300 Kwh	1.2371	X	X	X							
Classification of users											
1 Kwh and up to 50 Kwh	0.5560				X	X	X	X	X	X	X
50 Kwh and up to 100Kwh	0.5870				X	X	X	X	X	X	X
100 Kwh and up to 200 Kwh	0.6683				X	X	X				
200 Kwh and up to 300 Kwh	0.7516				X						
300 Kwh and up to 400 Kwh	0.8996				X						
Percentage subsidized of the difference between normal and maximum rates					100%	100%	100%	100%	100%	85%	85%

Source: Own calculations with information from CEL and SIGET.

1.43 In July 1998, the National Electricity and Telephone Investment Fund (FINET) was created, which is administered by FISDL. The Fund was created to subsidize the construction and improvement of infrastructure for the supply of electricity and telephone service in low-income rural areas, to subsidize electricity and telephone services in low income rural areas, provided they benefit the community. The beneficiaries qualify for their activities and also evaluate and approve the requests received for the granting of subsidies. Table 1.11 shows the amounts that FINET has granted as subsidies to residential consumers between 1999 and 2004. As demonstrated, the percentage of subsidized users, and the amount of subsidies, went down in 2001 as a result of eliminating the subsidy for consumptions over 100 kWh. Table 1.11 also shows the subsidies granted for the consumption of electricity used by community water pumping systems.

Table 1.11: Number of subsidized users and total amount of the subsidy (in dollars) 1999 – 2004

Subsidies for residential consumers	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Consumption of 1 to 49 KWh		264,468	313,684	322,938	347,122	354,963
Consumption of 50 to 99 KWh		233,353	308,636	320,744	359,736	347,022
Consumption of 100 to 200 KWh		282,402				
Total subsidized users		780,223	622,320	643,682	706,858	701,985
Total residential users	940,000	971,966	1,041,004	1,070,261	1,121,423	1,142,081
% of subsidized users		80%	60%	60%	63%	61%
Amount of the subsidy ($)	49,664,859	58,916,153	26,221,729	28,297,959	31,149,216	31,132,520
Subsidy to community water pumping systems		1,592,045	1,022,577	958,187	1,218,017	1,289,735
Total subsidy		60,508,198	27,244,306	29,256,146	32,367,233	32,422,255

Source: FINET

1.44 From the databases of the 1995 to 2004 Household Surveys (EHPM) of the Ministry of the Economy, and the history of subsidies, the subsidy actually applied to each household was estimated. The consumption of electricity of each household was estimated in kWh, based on the monthly payment for the service. For this calculation, only those households that reported having made some payment were included. Based on the consumption, it was estimated the payment that would correspond from having no subsidy (applying the rates for consumption over 500 kWh for 1995 to 1997, and the averages according to the rate tables of 1998 to 2004, see Table 1.12). Then the amount of subsidy received per household was calculated as the difference between the amount without subsidy and the amount actually paid.

Table 1.12: Rates used to calculate consumption (Average weighted rates according to the number of residential users of each company)

	CEL			SIGET *						
Description	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Applied above 500Kwh	1.483	1.483	1.483							
Consumption up to 200Kwh										
Customer care										
Fixed charge colones/ user				9.81	9.98	11.45	14.02	14.32	9.35	5.95
Energy Variable										
Variable charge colones/Kwh				0.71	0.64	0.72	0.67	0.67	0.71	0.68
Network use charge										
Fixed charge colones/month				7.75	8.18	8.25	8.32	8.37	8.58	9.07
Variable charge colones/Kwh				0.29	0.32	0.33	0.32	0.33	0.33	0.35
Summary										
Fixed charges				17.56	18.16	19.70	22.34	22.69	17.93	15.02
Variable charges/ Kwh				1.00	0.96	1.05	0.99	1.00	1.04	1.03
Higher consumption 200Kwh										
Customer care										
Fixed charge colones/ user				9.81	9.98	11.45	14.02	14.73	9.35	5.95
Energy Variable										
Variable charge colones/Kwh				0.70	0.63	0.72	0.70	0.66	0.72	0.70
Network use charge										
Fixed charge colones/month				11.03	11.75	11.84	8.76	11.98	12.29	12.98
Variable charge colones/Kwh				0.29	0.31	0.31	0.32	0.32	0.32	0.35
Summary										
Fixed charges				20.84	21.73	23.29	22.78	26.71	21.64	18.93
Variable charges/ Kwh				0.99	0.94	1.03	1.02	0.98	1.04	1.04

Note: * Average from rate schedules. Each of the distribution companies has its own rate table approved; in this table an average is obtained by weighting the value of each company times the number of users that it services. Source: Own calculations with information from CEL and SIGET.

Propane gas

1.45 The Ministry of the Economy sets the maximum sales prices for liquefied gas. On various occasions, sales prices have increased among the various channels, maintaining fixed the price to the end consumer. On the market, various formats of liquefied gas are available, with the most common being 10-, 20-, 25-, 35- and 100-lb bottles. Up until 1995, the price for all formats was set, but starting in 1996, the prices were freed up for 100-lb bottles, keeping the maximum prices for formats up to 35 pounds. Table 1.13 shows the evolution of the maximum prices.

Table 1.13: Maximum sales prices to the public of liquefied gas (Colones)

	Distributor	to	public			Store	to	public		
Year	100 lbs.	35 lbs.	25 lbs.	20 lbs.	10 lbs.	100 lbs.	35 lbs.	25 lbs.	20 lbs.	10 lbs.
1993	177.80	34.15	25.75	19.50	9.95	Free	36.00	26.75	20.50	10.55
1994	160.00	34.15	25.75	19.50	9.95	Free	36.00	26.75	20.50	10.55
1995	160.00	34.15	25.75	19.50	9.95	Free	36.00	26.75	20.50	10.55
1996	Free	38.43	27.45	21.96	10.86	Free	40.89	29.20	23.36	11.68
1997	Free	42.30	30.20	24.17	11.97	Free	45.00	32.12	25.71	12.88
1998	Free	42.16	30.10	24.09	11.93	Free	45.00	32.12	25.71	12.88
1999	Free	42.16	30.10	24.09	11.93	Free	45.00	32.12	25.71	12.88
2000	Free	42.16	30.10	24.09	11.93	Free	45.00	32.12	25.71	12.88
2001	Free	42.16	30.10	24.09	11.93	Free	45.00	32.12	25.71	12.88
2002	Free	42.16	30.10	24.09	11.93	Free	45.00	32.12	25.71	12.88
2003	Free	42.16	30.10	24.09	11.93	Free	45.00	32.12	25.71	12.88
2004	Free	42.16	30.10	24.09	11.93	Free	45.00	32.12	25.71	12.88

Source: Executive Decree
Note: Prices do not include VAT

1.46 The difference between the market price that the distributors would charge and the maximum price to the public is subsidized by the State, with funds from a special *Fondo de Estabilización y Fomento Económico* (FEFE) [Stabilization and Economic Development Fund] gasoline tax of US$0.16/gallon. Table 1.14 shows the history of gas consumption and an estimate of the amount collected by this tax (multiplying the total of gallons by US$0.16). The evolution in the total amount that has been necessary to subsidize the consumption of liquefied gas is also shown. Based on the subsidized amount and the number of gallons subsidized, the amount of subsidy per gallon was obtained; then using the specific weight of the propane gas in liquid state (0.585 g/ml) the subsidy equivalent per pound was calculated.

1.47 Using the databases from the 1995 to 2004 Household Surveys (EHPM) of the Ministry of the Economy, the number of pounds of gas consumption was estimated, based on the monthly payment to acquire the product. Only those households that reported using gas for cooking were included for this calculation. The following suppositions were used: most households buy their gas at stores, as a result of which the store price was used, which provided the average cost per pound. Based on the consumption, the payment was estimated if there had been no subsidy (with the current price per pound, the estimated subsidy per pound as shown in Table 1.14). Then the amount of subsidy received per household was calculated, as the difference between the amount without subsidy and the amount actually paid.

Table 1.14: Estimated revenue from the gas tax and amount of subsidies granted

Year	Special Gasoline (million/ gallons)	Regular Gasoline (million/ gallons)	Total Gasoline (million/ gallons)	Total ($) Gasoline collected (million $)	Liquid Gas Subsidized (million/ pound)	Total ($) Liquid Gas Subsidy (million $)	Subsidy per Gallon	Subsidy per Pound
1994	32.3	58.3	90.6	$14.5	28.9	$9.2	$0.32	$0.066
1995	42.3	57.1	99.4	$15.9	34.7	$12.1	$0.35	$0.073
1996	42.3	62.2	104.5	$16.7	37.9	$14.7	$0.39	$0.080
1997	40.0	68.4	108.5	$17.3	42.8	$13.7	$0.32	$0.067
1998	53.5	66.4	119.9	$19.2	48.1	$8.7	$0.18	$0.038
1999	63.2	65.3	128.5	$20.5	51.6	$13.4	$0.26	$0.054
2000	48.0	76.8	124.8	$20.0	55.0	$31.2	$0.57	$0.118
2001	35.4	92.3	127.7	$20.4	57.8	$24.6	$0.43	$0.088
2002	46.9	91.1	138.0	$22.1	60.2	$20.6	$0.34	$0.071
2003	53.8	89.9	143.7	$23.0	65.4	$35.2	$0.54	$0.112
2004	59.3	87.7	147.0	$23.5	69.4	$52.6	$0.76	$0.157

Source: Own calculations with information from the Office of Hydrocarbons and Mines, Ministry of the Economy

Water

1.48 Piped water service is administered mainly by ANDA which operates water systems in 182 municipalities and sewers in 82. There are also systems administered by municipalities and by some communities. For the purposes of this analysis, the rates and standards of ANDA are used to calculate water consumption since the rates and costs for systems that are not under ANDA are highly variable.

1.49 In 1995, 1.83 colones (US$0.21) was set as the base rate per m^3. It was also established that the minimum consumption that would be charged would be 10 m^3 which would result in 20.00 colones as the amount to be paid in AMSS and 18.30 colones in other zones. These values are currently in effect. That same year, rate percentages would be established, according to the level of consumption: for the first 20 m^3 consumed, only 50 percent of the base rate would be paid, but for consumption over this level, a surcharge would be applied, with 110 percent and 275 percent being paid for consumption between 21 m^3 and 40 m^3, and more than 40 m^3, respectively. An additional 20 percent subsidy was established for the first 20 m^3 consumed by households located outside of AMSS, i.e., they would only pay 40 percent of the base rate. In 2002, the percentages over the base rate were changed as applied to the first 20 m^3. They remained 100 percent in Sal Salvador but the rest of the country would pay 80 percent. This rate structure is summarized in Table 1.15.

Table 1.15: Percentage of the base rate of US$0.21 (1.83 colones), applied by level of consumption

Consumption	1995-2001 AMSS	1995-2001 Other	2002-2004 AMSS	2002-2004 Other
Between 1 and 20m3	0.50	0.40	1.00	0.80
Between 21 and 40m3	1.10	1.10	1.10	1.10
Over 40m3	2.75	2.75	2.75	2.75

Source: Own calculations with information from ANDA and respective decrees

1.50 It was probably thought that the scheme would work as a type of cross-subsidy from households that consume more to those that consume less. Between 1995 and 2001, the consumption level that resulted in a household paying exactly the amount that corresponded to it was calculated by multiplying the base rate (1.83 colones) times the amount of square [*sic*] meters (44.57 m^3 in AMSS and 45.77 in other zones); any consumption above this was surcharged. Starting in 2002, the threshold level is 40 m^3 in AMSS and 31 m^3 in other zones.

1.51 Using the databases from the 1995 to 2004 Household Surveys (EHPM) of the Ministry of the Economy, water consumption of each household that has household water service - either Own calculations or on the property - was estimated in square [*sic*] meters starting from the monthly payment for the service. Only households that reported having made some payment were included for this calculation. Based on consumption, their payment was estimated by using ANDA's actual costs per m^3 (per the Labor Report – 2004). Then, the subsidy that the households received was estimated, as the difference between the amount that they were supposed to pay at the cost recovery rate and the amount they actually paid.

TARGETING

1.52 Some subsidy schemes are more efficient than others in targeting the poorest community members. Komives *et al.* (2005) analyze three different cross-subsidy schemes through blocks of growing rates; cross-subsidies through differential rates among geographic zones; and subsidies paid directly to users who meet certain requirements - for example, a definition of poverty as used by the new Red Solidaria of El Salvador. The study finds that the most used subsidies such as those of rates by blocks of consumption--in the case of El Salvador--are regressive, particularly in the cases where the coverage is low and the rates are poorly designed. The resources applied to these subsidies generally benefit the non-poor more than the poor. On the other hand, subsidies focused geographically are fairly progressive, while the least used – such as those where the users are directly identified - are decidedly progressive. However, the latter can be expensive to administer if they are only developed to provide subsidies in infrastructure. Komives also points out that subsidizing the connection can be more effective to benefit the poor.

1.53 Providing subsidies for basic infrastructure services (electricity, water and gas) has cost over US$100 million per year over the past five years. Of the total subsidies, 43 percent are for water, 21 percent for electricity and 36 percent for gas for cooking. Table 1.16 breaks these down.

Table 1.16: Annual amount of subsidies for electricity, water and gas in million US Dollars

Year	Electricity 1/	Water 2/	Gas for Cooking 3/
2000	58.9	41.8	31.2
2001	26.2	62.6	24.6
2002	28.3	51.1	20.6
2003	31.1	39.6	35.2
2004	31.0	63.0 *	52.6

Source: 1/ FINET; 2/ Subsidies for drinking water were estimated from the information of the EHPM and costs of bringing one m^3 to users, as published in the Labor Report of ANDA 2004. The significant increase in 2004 occurred due to the large increase in costs of ANDA, that went from US$0.40 per m^3 in 2003 to US$0.36 per m^3 in 2004; and 3/ Office of Hydrocarbons and Mines

* This figure is an estimate value of indirect and hidden subsidies, as opposed to direct budgetary transfers for gas and electricity subsidies. Some of these subsidies accrue to ANDA and some to other service providers, but a breakdown is not possible in the absence of better information.

1.54 In El Salvador, the redistributive impact of the subsidies is fairly inefficient, mainly in the case of water and gas. The redistributive impact of the current subsidies is measured by using a focus indicator that expresses the portion of the subsidies that reaches the poor, divided between the percentage of poor in the population. A value of 1 for the indicator is equal to randomly distribution the money to the population, while a value greater than 1 means that the subsidy is progressive as a result of which the benefit reaches the poor more than the non-poor proportionally. Table 1.17 shows the evolution of the focus indicator, for the basic services. As observed, the subsidies for electricity have experienced improvements in their redistributive impact, but not water or gas. Moreover, on average, the focus indicator for electricity is only 1.05, as a result of which it could be affirmed that the distribution of the subsidy is basically random. For water and gas, the distribution of the subsidies is clearly regressive.

Table 1.17: Redistributive impact of the subsidies to the basic services, 2004

Geographical area	Poor Households in the area (Quintiles 1& 2)	Proportion of subsidy that poor households receive			Focus Indicator		
		Electricity	Water	Gas for cooking	Electricity	Water	Gas for cooking
Total country	40.0	42.06	22.10	26.65	1.05	0.55	0.67
Total urban	25.7	31.12	17.39	21.31	1.21	0.68	0.83
AMSS	17.6	21.87	11.75	15.88	1.24	0.67	0.90
Dpt. Seats	22.9	28.21	14.80	20.05	1.23	0.65	0.88
Other urban	37.0	39.62	25.69	28.74	1.07	0.69	0.78
Rural	64.6	62.59	54.93	48.27	0.97	0.85	0.75

Source: These figures have been calculated by the WB REDI team and FUSADES and they have not been separately corroborated with any of the relevant lines agencies.

1.55 Errors of exclusion and inclusion in the distribution of subsidies also illustrate the inefficiency in the focus of the subsidies. The mistakes of exclusion represent the percentage of households in quintiles 1 and 2 (40 percent poorest of the population) that do not receive subsidies. In the case of electricity, 26 percent of the poorest households do not receive any subsidy because they consume over 100 kWh, or because they don't have service. In the case of piped water, 65 percent of the poorest households do not receive the benefit of the low rates - i.e. a subsidy - basically because they do not have the service, since taking the current cost recovery rates, all users receive some subsidy. The case of propane gas is similar. Inclusion errors represent the percentage of households that receive subsidies and whose income places them in quintiles 3, 4 or 5 (60 percent richest). Of all households that receive subsidies for electricity, more than half are among the households with the highest income. Again, the inefficiency in the distribution of the subsidy is more evident for the case of water and gas, since 74 percent of the households with piped water service and 73 percent of those that use gas for cooking and that accordingly receive subsidies, are in the highest income quintiles. See Table 1.18.

Table 1.18: Errors of exclusion and inclusion

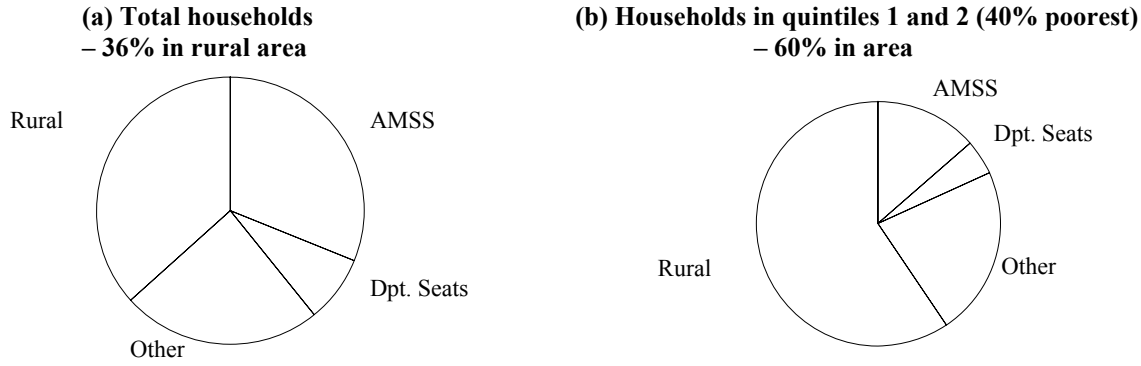
Geographical area	Errors of exclusion (% of total households in quintiles 1 & 2 with no subsidy)			Errors of inclusion (% of households that receive subsidies in quentiles 3,4 or 5)		
	Electricity	Water	Gas for cooking	Electricity	Water	Gas for cooking
Total country	49.01	63.99	65.95	55.34	73.88	73.09
Total urban	45.54	48.75	46.82	68.08	81.48	78.52
AMSS	49.74	40.52	38.17	77.25	86.70	83.94
Dpt. Seats	44.98	51.93	42.21	70.69	84.12	78.92
Other urban	43.08	53.12	53.06	58.23	71.95	70.31
Rural	51.38	74.24	79.02	35.73	41.99	52.16

Source: Source: These figures have been calculated by the WB REDI team and FUSADES and they have not been separately corroborated with any of the relevant lines agencies.

BALANCE OF THE PROVISION OF BASIC SERVICES TO THE POOR

1.56 In the section a balance of the four layers of the access conditions, previously presented, are analyzed jointly. The poorest households are mainly located in the rural area. Fewer than 40 percent of all Salvadoran households are in that region; 70 percent of all in quintile 1 and 50 percent of households in the quintile 2 are located there; in general, 6 of every 10 households of the 40 percent lowest income households are in the rural area. See Figure 1.14.

Figure 1.14: Geographical distribution of households - Percentage of households



Source: Own calculations based on the 2004 Household Survey

1.57 Moreover, the majority of households that do not have access to basic services and those that would have problems in paying a basic consumption at cost recovery rates are also in the rural area; of these, the large majority are in the first two income quintiles. The proportion of households without access to services is higher in the rural area than in the urban areas, above all in AMSS. Moreover, the households in the lower income quintiles have the highest deficits. This is also the case of the percentage of the households for which the basic consumption cost of the services would represent more than 5 percent of their family income. See Figure 1.15.

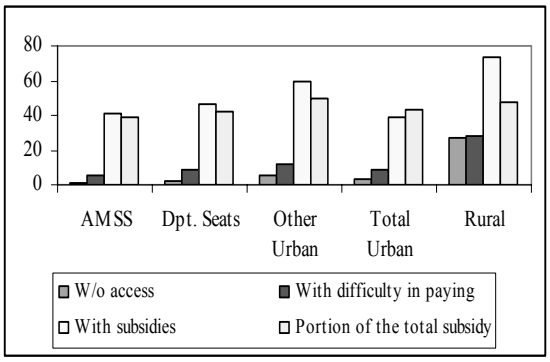
1.58 As far as access to electricity is concerned, the problem is more of demand, while in the case of access to piped water, the problem is more of supply. There is a higher number of poorer households - above all those in the quintile 1 - for which the cost of a basic consumption of

electricity would represent more than 5 percent of their family income, than households that currently do not have the service, which indicates that in this sector, the problem is more of an inability to pay. On the other hand, for the case of piped water, there is a higher number of poorer households that do not have access to the service, than those that would have difficulty in paying for it. This indicates that the problem is mainly that of supply. The latter is confirmed since the average spending of households that do not have piped water and that must buy it from other sources is much higher than those that pay for the service.

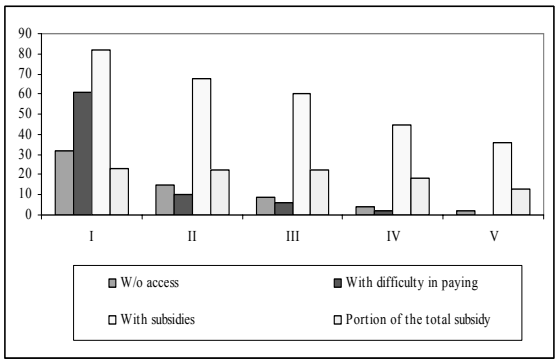
Figure 1.15: Indicators of access to basic services (% of households)

(a) Indicators of access to electricity

By geographical zone

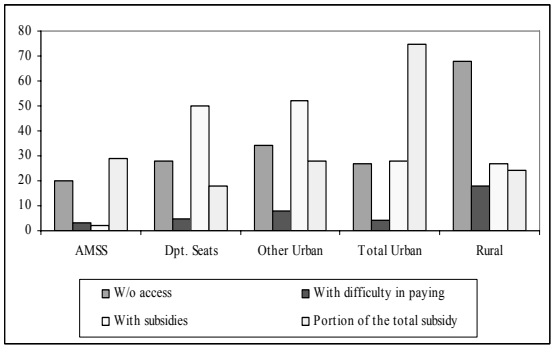


By quintile of income

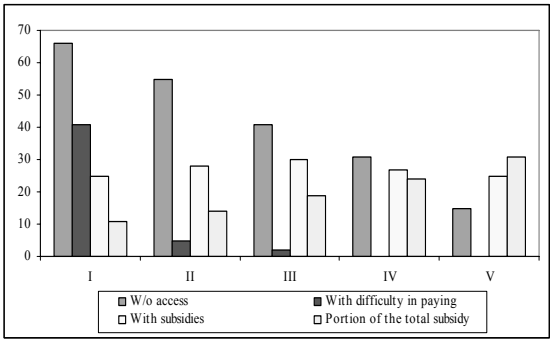


(b) Indicators of access to piped water

By geographical zone

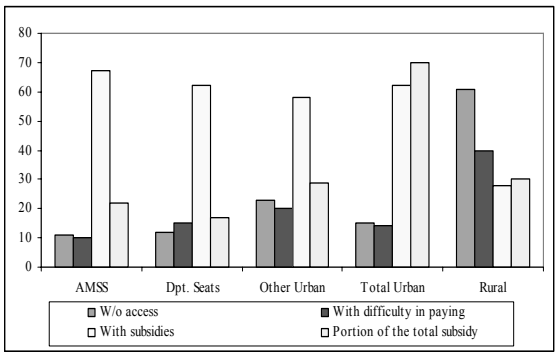


By quintile of income

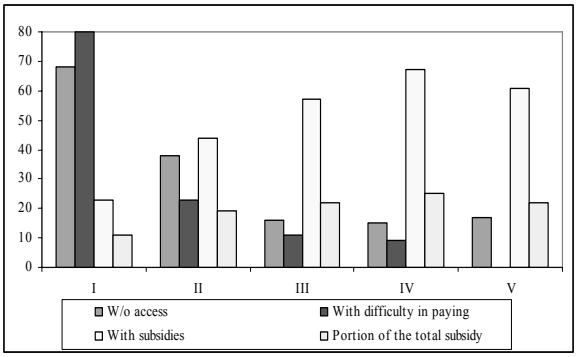


(c) Indicators of use of gas for cooking

By geographical zone



By quintile of income



Source: Own calculations based on the 2004 Household Survey

KEY ELEMENTS OF A UNIVERSAL ACCESS POLICY

1.59 El Salvador has what is needed to undertake a more ambitious policy than the Millennium Development Goals, in terms of access to basic infrastructure services: (i) investments do not represent an unmanageable tax burden; (ii) there are important tax resources that are already being invested in subsidies that can be redirected; (iii) El Salvador has started the most effective route to deliver subsidies to the poorest with the *Red Solidaria* program; and (iv) the mechanisms to ensure availability are already working.

The necessary investments

1.60 As with the majority of countries in Latin America, the investments to achieve universal access in water and sanitation in El Salvador do not present an unmanageable tax burden. According to Fay and Yepes (2003) the amount required for the region would be approximately 0.5 percent of the GDP per year, including access and maintenance of the systems. In El Salvador, as discussed in the Chapter Financing the investment required to achieve this goal in 2015 is around 0.4 percent of the GDP.

1.61 An estimate of the investment requirements to ensure universal access of the poor to the basic services and of the recurring costs to ensure the minimum consumption of households connected, suggests that US$25 million are needed per year, an amount that equals half of the annual subsidy currently paid out for the consumption of gas. The World Bank's international standards establish an estimate US$1,000 to connect one household to electricity service. Above this cutoff, the provision must necessarily consider alternative technologies such as run-of-river, small diesel or photovoltaic systems. With this supposition, and considering that currently approximately 120 thousand poor rural households do not have electricity, the resources required for connection would be US$120 million. Moreover, the basic consumption subsidy of the newly connected households that should be paid to distribution companies would be US$5.4 million per year. This indicates that at 2005 prices, if the goal of universal access of the rural poor is spread over 5 years, the annual spending including investment plus recurrent expenditures would be US$25 million per year.

A medium-term plan for redirecting subsidies to the poor

a. Electricity

1.62 A plan to improve efficiency in the delivery of subsidies to electricity would make it possible to add between US$17 and US$24 million per year to the budget to ensure universal access. This clawback of resources is possible given how inefficient the current subsidy system is. If the objective of the social policy is to focus on the poor, there is an opportunity to balance the delivery of subsidies by reducing subsidies in AMSS.

1.63 Currently, the average monthly spending on electricity of one household in AMSS is US$17. If the subsidy is eliminated, i.e., if the user pays the regulated supply costs, their monthly spending would be increased US$3. This would mean an increase in monthly spending as the percentage of family income from 2.1 percent to 2.5 percent. However, it should be taken into account that there would be undesirable effects. The poorest connected households in AMSS could have difficulty in paying for the higher electricity costs. That is, 5.2 percent of households

in AMSS that are among the 20 percent poorest of the country would go from spending 6.3 percent of their income on electricity to spending 9.2 percent. On the other hand, 12.4 percent of the population in AMSS that are in income quintile 2, in spite of increasing their spending, would still be spending less than 5 percent of their family income. Taking the subsidy away from all users in AMSS that currently receive it would result in these approximately 25 thousand of the poorest households having difficulty in paying, but it would be providing greater access to approximately 120 thousand rural households that currently do not have service. The challenge consists of finding a way to keep a subsidy focused on these 25 thousand households in AMSS without creating wider-spread perverse effects on the electricity market.

1.64 It is a worthwhile evaluating different alternatives to redirect the subsidies to the poorest, and generate additional resources to facilitate the connection of more households to the service considering:

- the focus of the subsidies is currently inefficient, since only 42 percent of the total amount paid as subsidies for electricity rates reaches the poorest households (those in the first two quintiles of the population); and

- there are approximately 200,000 households without access to the service, 82 percent of which are among the poorest households

1.65 To evaluate the effect that different policies would have on reducing the total amount of subsidies to electricity, or to obtain additional resources within the same sector to cover a part of the subsidies, a simulation was carried out, based on the data from the 2004 EHPM. Using the per-household consumption calculation that was described earlier in this chapter as a point of departure, the invoice that would correspond under the following scenarios was estimated for each household:

- Reduction of the subsidized percentage, from 86 percent currently to 50 percent.

- Elimination of the subsidy to users in AMSS, keeping 86 percent of subsidy to the rest.

1.66 To modify the subsidy policy could result in significant savings that could be used to extend coverage or to subsidize new users, who almost certainly would be among the poorest in the country. On one hand, reducing the overall percentage subsidized would create an estimated savings of 31 percent, though its effect on the redistribution of the total amount subsidized is not insignificant; on the other hand, the number of households that would have difficulty in paying the invoice would be increased, above all in the rural area. However, eliminating the subsidy to users in AMSS completely, in addition to generating savings of approximately 50 percent, would make it possible for the majority of the subsidy to be extended to the rural area and the smaller urban areas; similarly, it would also improve the distribution among quintiles, with the two poorest quintiles receiving half of the subsidy. In this latter case, the percentage of households that would have difficulty in paying in AMSS is increased a little though not significantly. See Table 1.19.

Table 1.19: Results from simulating the effect of different alternatives for reducing the amount of subsidies

Concept	Current tariffs	Subsidy reduction From 86% to 50%	Subsidy reduction 0% to AMSS
Subsidy amount ($/year)	36,359,862	24,926,705	17,653,872
Savings (%)		31.4%	51.4%
Households that would pay more than 5% of family income	18.0	21.6	20.0
AMSS	17.5	19.1	23.8
Dept. seats	22.6	25.7	22.6
Other urban	19.4	23.3	19.4
Rural	16.6	21.6	16.6
Quentil 1	27.3	36.6	18.9
Quentil 2	21.8	25.7	24.9
Quentil 3	18.0	21.1	20.7
Quentil 4	14.3	15.5	15.5
Quentil 5	8.7	9.0	9.8
Portion of subsidy that households will receive in the area			
AMSS	28.6	29.2	--
Dept. seats	7.9	7.9	11.2
Other urban	26.4	26.4	37.3
Rural	37.1	36.5	51.6
Quentil 1	20.1	19.7	24.9
Quentil 2	21.9	21.7	24.7
Quentil 3	22.7	22.7	21.8
Quentil 4	18.5	18.8	16.6
Quentil 5	16.8	17.1	12.0

Source: Own calculations based on the 2004 Household Survey

1.67 Modifying the rate scheme for users with higher consumption, by applying surcharges, could generate resources that could then be used to cover part of the subsidy to users who consume less. To evaluate the effect that the application of surcharges would have on higher consumption users, to obtain additional resources within the same sector to cover a part of the subsidies, the invoices were also simulated that would result if, maintaining the current subsidies, surcharges of 5 percent, 10 percent, 15 percent, 20 percent and 25 percent were applied to the variable portion per kWh of the current rates (the same fixed components are maintained). Table 1.20 summarizes the main results. As observed, by applying surcharges to the households with consumption over 100 kWh, additional resources can be generated; taking a 5 percent increase as a basis, resources of approximately one third of the total amount of the subsidies would be obtained. On the other hand, this scheme could also have undesirable effects, since the increase in the rates would result in a higher proportion of households that could have difficulty in paying.

Table 1.20: Results of simulate the effect of implementing surcharges to consumptions of 100 kWh or higher, maintaining the rates and the subsidy to lower consumptions.

	Surcharges applied to the variable component of the current tariffs				
Concept	5%	10%	15%	20%	25%
Amount collected per year	10,484,262	18,749,608	27,014,957	35,280,305	43,545,649
Subsidy percent	28.8%	51.6%	74.3%	97.0%	119.8%
Households that would pay More than 5% of family income	19.3	20.2	20.9	21.5	22.5
AMSS	19.5	21.2	22.0	22.9	24.3
Dept. seats	24.1	25.2	26.6	27.3	28.4
Other urban	20.5	21.4	21.9	22.6	23.8
Rural	17.4	17.7	18.2	18.5	18.8
Quintile 1	27.6	27.6	27.6	27.7	27.7
Quintile 2	22.9	23.5	24.0	24.7	24.9
Quintile 3	20.1	21.9	23.2	23.7	24.9
Quintile 4	16.4	17.8	18.6	19.7	21.8
Quintile 5	9.5	10.3	11.1	11.9	13.1
Portion of surcharges paid by households in the highest-consumption areas					
AMSS	49.6	48.9	48.6	48.5	48.4
Dept. seats	11.2	11.5	11.6	11.7	11.8
Other urban	23.0	23.4	23.5	23.6	23.6
Rural	16.2	16.2	16.2	16.2	16.2
Quintile 1	5.5	5.3	5.2	5.1	5.1
Quintile 2	12.7	12.3	12.1	12.1	12.0
Quintile 3	18.8	18.3	18.0	17.9	17.8
Quintile 4	26.5	26.3	26.1	26.1	26.0
Quintile 5	36.4	37.9	38.5	38.8	39.0

Source: Own calculations based on the 2004 Household Survey

b. Piped water

1.68 The case of piped water is more complicated, since in order for a modification to the rate system to have the desired redistributive effects, it would necessarily require carrying out a thorough reform of the sector. However, there is room to generate some additional revenue for the company in charge of providing the service that could be invested in extending the coverage. To do this, the basic rate that has been in effect since 1995 could be modified. A scheme similar to the current scheme for electricity could also be considered: apply lower rates to users with consumption lower than 15 m^3 (upper limit of the subsistence consumption), a right that they would lose when exceeding this limit, and must pay the normal rate for their full consumption. Since average consumption is currently close to 30 m^3, with the exception of the poorest rural households, it could have the additional positive effect of promoting water conservation.

c. Gas

1.69 In simple words, there is no social or economic justification to keep the current gas subsidy, which costs taxpayers more than $50 million per year. Only 26 percent of the subsidy reaches the poorest households while 75 percent of households that receive it are among the households with the highest income. A gradual scheme could be initiated to eliminate the subsidy,

by raising the price to the public of the subsidized gas that has not been changed since 1997, first to a level that equals the total amount of the subsidy to the amount that is collected under the FEFE, which represents an approximate savings of $20 million. Then, it could be completely eliminated.

1.70 In parallel to the correction of inefficient subsidies and the expansion of basic services public institutions must be able to assure continued service and responsive provision on the part of both public and private providers. This is particularly important in utility services with near-monopolistic characteristics. The following section looks at service delivery from the perspective of the individual consumer and addresses an oft-overlooked challenge to sustainable service: access to regulation.

ACCESS TO REGULATION IN THE PROVISION OF BASIC INFRASTRUCTURE SERVICES

1.71 Access to regulation and the protection of consumer rights is a central issue in the provision of public services. The monopolistic or limited structures of most public services put consumers—particularly individual domestic consumers—at a disadvantage when negotiating the conditions under which services are provided. Accordingly, most countries have legal frameworks and public organizations that protect the rights of public service consumers.

1.72 In addition to the regulation of rates and quality and the defense of competition—two key elements of consumer protection—there are the adequate and timely processing of their claims and their participation in the drafting of performance standards. This is to ensure that the complaints and claims of consumers are properly taken care of and their interests are considered when drafting regulations. In most countries in the region, the protection of consumer rights is gaining more importance as consumers demand more and better services and governments recognize the value of heightened participation and transparency in the regulatory processes.

1.73 Both topics have made significant progress in El Salvador over the past decade. Consumer rights are set down in the Consumer Protection Law and in the sector-specific laws of electricity and telecommunications. The functions of the Consumer Advocacy Agency, previously the Office of Consumer Protection (DGPC) and the Office of Electricity and Telecommunications (SIGET) include the safeguarding of consumers rights. Finally, SIGET has a standard that requires that the new regulatory bills must go through participatory open-hearing processes with provider companies and consumers before they are enacted in order to ensure that their rights and interests are duly protected.

1.74 Though there have been important advances in consumer protection in El Salvador, the legal and institutional framework requires substantial improvements, since there is a duplication of functions and there are ambiguities in the legal and institutional framework due to a lack of consistency between the Consumer Protection Law and the sector-specific laws of electricity and telecommunications. The main problems with the current legal and institutional framework are: (a) an unclear definition of the roles and institutional responsibilities of the Consumer Advocacy Agency and SIGET in protecting the consumer; (b) parallel systems for processing electricity-related claims in both institutions; (c) separate systems in processing claims for the various public services (electricity energy, telecommunications and drinking water); and (d) the coexistence of various schemes of violations and sanctions.

1.75 This section is divided into five parts. The first presents the claims of public service consumers in El Salvador. The second summarizes the legal and institutional framework for the

protection of consumer rights. The third describes the mechanisms for resolving consumer claims and their limitations. The fourth presents the progress made in the creation of mechanisms for participating in the drafting of standards. Lastly, the fifth summarizes the principal recommendations with regard to the protection of consumer rights.

Consumers Claims

1.76 The statistics from user claims are a key source of information on problems that consumers have in the provision of public services. In El Salvador, the Consumer Advocacy Agency - previously known as the DGPC - and SIGET are public organizations in charge of admitting and resolving user claims that have not been resolved satisfactorily by companies providing public services. Despite the fact that both institutions began operating in the mid nineties, El Salvador still does not have reliable and detailed claim statistics of users that would make it possible to identify the most important user claims or their trends.

1.77 The statistics on claims of public service consumers in El Salvador are not very reliable and are stored in various institutions. The Consumer Advocacy Agency is reviewing the statistics of claims of public service users because it considers them unreliable. The statistics of the Consumer Advocacy Agency basically report the total number of claims per sector without breaking them down according to the reason for the claim. SIGET, on the other hand, has statistics according to type of claim, [but] this information is not published. The relationship between the statistics of claims regarding the services of electricity and telecommunications reported by both institutions is also unclear. In other words, there are statistics on claims by sector independently of the public entity that processes them and reports on them. This situation makes the work of identifying the main causes of consumer claims difficult and also makes it difficult to prepare adequate policies for filing claims and to draft corrective regulatory measures, if necessary.

1.78 The government of El Salvador is aware of the problems in gathering detailed and reliable information regarding consumer claims. In order to resolve these problems, the new Consumer Protection Law, that was enacted in October 2005, is creating the National Consumer Protection System whose functions include making a record and classifying the reports filed by consumers and the sanctions imposed. The National System is still in process of being designed and accordingly it is too soon to evaluate its ability to gather and provide the information for which it is responsible.

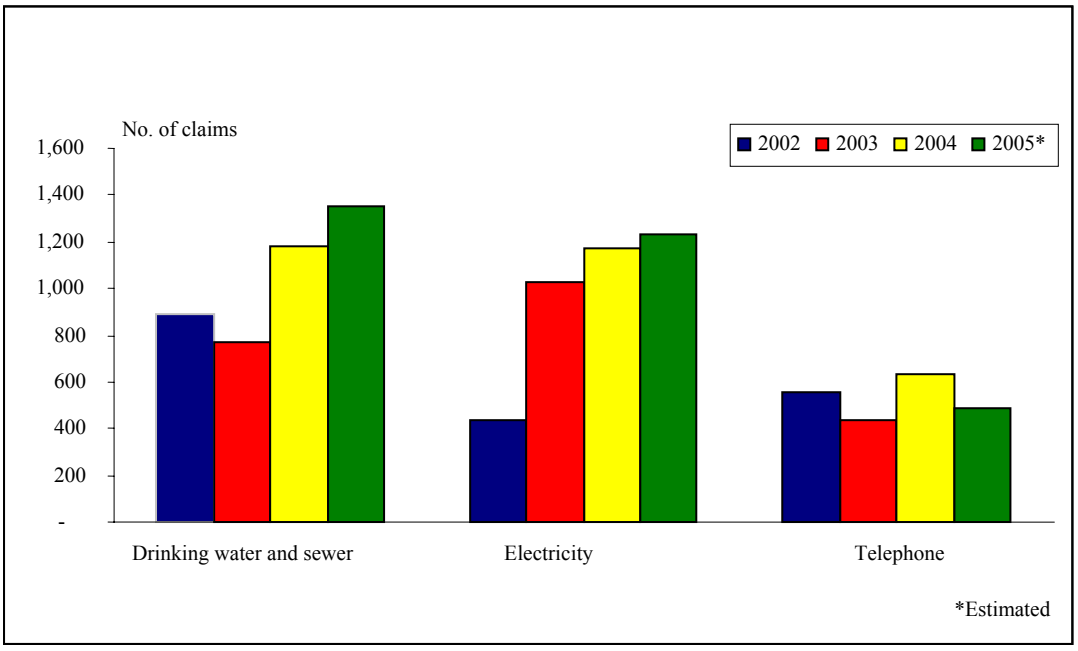
1.79 In spite of the aforementioned statistical limitations, the information available regarding claims makes it possible to come to some important conclusions. First, the public services are the sectors with the highest number of claims and the public service companies are among those against which the highest number of reports is filed in El Salvador. According to the Consumer Advocacy Agency, the claims resulting from the provision of public services represented almost half of the total claims filed with the Consumer Advocacy Agency in the first half of 2004. Moreover, out of a total of 35 companies reported to the Consumer Advocacy Agency in this period, the nine most reported companies were the providers of drinking water and electricity. The 115,000 complaints that have been received represent to a 1.5% of the 7,680,000 bills that ANDA issues per year

1.80 In El Salvador, as in most countries in Latin America, claims against public service providers have increased over the past few years. According to the Consumer Advocacy Agency, the total number of claims filed against public services went from 1,883 claims in 2002 to 3,072

claims in 2005, an increase of 63 percent.[9] Most claims come from the sectors of water and electricity (see Figure 1.16).

1.81 Though claims filed against public services have increased in absolute terms, they have gone down as a percentage of the total users. Claims filed against the electricity service as percentage of the total users went down from 20 percent in 2000 to 13 percent in 2005, while in the telephone service sector, this percentage went from 14 percent to 3 percent between 2001 and 2005.[10]

Figure 1.16: Claims of users to the office of consumer protection per sector



Source: Office of Consumer Protection, El Salvador

1.82 The fewest number of claims—in telecommunications both with regard to the total number of claims and the percentage of total consumers—is the result of various factors. First, competition in mobile telephony enables users to seek alternative operators if they are not satisfied with the services they receive. Second, SIGET has had a more active policy in the issuance of standards and guidelines for consumers with regard to the provision of services and electricity rates than in telecommunications. Accordingly, it would appear that consumers are more familiar with the reasons and procedures of claims for electricity service than for telecommunications.

1.83 The main reason of claims filed against electricity companies corresponds to problems of over billing. This represents more than half of the claims in the sector, according to SIGET. Other

[9] Statistics for 2005 are estimated on the basis of claims received by the DGPC between January and August 2005.

[10] These statistics of electricity were obtained from the CDC web page, which prepares its information using the information published by SIGET on "Service quality indicators of distributing companies" in the Bulletin of Electrical Statistics No. 1 (1999) through No 4 (2002). Telephone service statistics were obtained from SIGET.

common claims involve problems with the connection, complaints of poor customer care and a lack of electricity energy. The reasons and distribution of claims are corroborated by the statistics of the Consumer Defense Center (CDC), a non-governmental organization created during the nineties aimed at promoting consumer protection in El Salvador. According to the CDC, the unjustified charging for consumption is the main reason for claims filed in the electricity sector, representing more than half of the claims, followed by problems of double charging, poor application of rates, and defective meters.

1.84 In telecommunications, SIGET indicates that the main reasons for claims are international calls and calls from fixed telephone lines to cellular phones, followed by mistakes in billing and problems with contracts. According to the CDC, the most common claims involve billing problems (more than 40 percent of the total), followed by the mistaken application of rates or mistakes with contracts. In telecommunications, claims chiefly focus on fixed telephone services. According to SIGET, more than 70 percent of the claims were filed against fixed telephony companies in 2004.

1.85 In short, claims such as billing errors and rates are the most frequent in public services in El Salvador. The predominance of this type of claim is common in Latin America. For example, in Peru, approximately 90 percent of telecommunications claims in 2004 were from fixed telephony consumers and of these, 85 percent involved billing. In some countries, the predominance of this type of claim led to the drafting of standards that establish the minimum information to be contained on bills in order to facilitate understanding by consumers. Moreover, special procedures have been established for the resolution of bill-related claims in order to make them more flexible and predictable. In Peru, for example, the telecommunications regulator, Osiptel, has a specific procedure to deal with billing claims.[11] In El Salvador important progress has been made with regard to providing detailed information on the telecommunications and electricity bills. However, the information on these bills can still be improved (box 1.1). In El Salvador, there are still no clear, transparent and flexible procedures for resolving consumer claims as indicated in the section of conflict resolution mechanisms.

Box 1.1: Public service bills in El Salvador

SIGET has made significant progress in the content and breakdown of the information on electricity bills over the past few years. This is evidenced by the set of standards and publications that include SIGET's Agreement 125-E-2003 that establishes the contents of the electricity bill and instructions for reaching the electricity meter. In telecommunications, private companies have sought to clarify the information on the bills by using an explanatory text "understanding your telecommunications bill" on the back.

In spite of this progress, electricity and telecommunications bills still do not provide clear and sufficient information to consumers. Information that should be included on the bills includes the expiration date, payments past due and late charges, frequency of the bill (monthly or every other month), consumption of previous periods, rate parameters (for water), explanation of the client's ID number, the term and places where claims can be filed in the first and second instance and the regulation of the user

[11] Detailed information on the procedures of user claims in Osiptel is found at www.osiptel.gob.pe

Legal and institutional framework for consumer protection

1.86 Consumer protection has been a central focus for the Salvadoran government since the beginning of the nineteen nineties. In the 1992 Peace Agreements, the Salvadoran government agreed to adopt policies and create effective mechanisms to defend consumers in accordance with their constitutional mandate[12]. In addition to the Constitution, the legal framework for the protection of public service users has provided a general consumer protection law and the sector-specific laws of electricity, telecommunications, drinking water and sanitation.

1.87 To be effective, this legal and institutional framework needs for the laws to be complementary and to provide a clear definition of each institution's functions. Institutions need to have sufficient technical capacity and sanctioning power to do their job. However, as described in this section, the legal and institutional framework for consumer protection in El Salvador is confusing and does not have a clear definition of responsibilities. Moreover, the responsibilities of the institutions involved vary according to the sector.

1.88 The general framework of consumer protection was established by the consumer protection law (LPC) adopted in 1992[13]. This underwent substantial changes in 1996 and in 2005 with the approval of new consumer protection laws.[14] The new law establishes basic consumer rights which include the right to be duly informed of the conditions in which goods and services are acquired, the claim process and receiving compensation when the goods or services have not been provided as offered, and the administrative procedures for the resolution of claims.[15] The new law introduces substantial improvements with respect to previous laws such as:

- A new vision of consumer defense which seeks equilibrium, certainty and legal security of consumers in their dealings with providers;

- The Creation of the Consumer Advocacy Agency (DC) as an independent and decentralized organization in charge of applying the LPC and which reports directly to the President of the Republic. The predecessor of the DC - the Office of Consumer Protection (DPC) - was a department of the Ministry of the Economy;

- Creation of the National Consumer Protection System (SNPC), coordinated by the DC, that is comprised of representatives from all offices of the Executive branch with authority to monitor consumer rights in their sectors or monitor the companies that do business with the public. The recently-created DC is responsible for coordinating activities for the preparation of standards, monitoring and applying laws and regulations, training officers, maintaining a database on the consumer reports and solutions to the reports, preparing information and education for consumers and conducting studies;

- A greater scope in the rights protected, and in the institutions or topics covered by law;

- Introduction of class action lawsuits and for wide-spread interests;

- Reversal of the burden of proof in cases of conflicts in the provision of public services; and,

[12] Article 101 of the Constitution of the Republic of El Salvador of 1992.
[13] Legislative Decree 267 of 1992.
[14] Legislative Decrees 666 of 1996 and 776 of 2005.
[15] Article 4 of the Consumer Protection Law, Legislative Decree 776 of 2005.

- Express recognition of consumer groups.

1.89 In addition to the general framework of consumer protection, sector-specific laws of public services include legal and institutional frameworks of consumer protection. However, the treatment of consumer rights in the sector-specific laws varies considerably. In the drinking water and sanitation sector, there is no sector-specific framework that regulates the relations between providers and users. Consequently, these relations are governed by what is established in the general consumer protection law. In the electricity and telecommunications sectors, the sector-specific laws specify user rights in each public service. Consumer rights in the two sectors that have established sector-specific laws are similar though they have a few variations that reflect differences between the sectors. For example the regulation of electricity rates is much more complex that that of the fixed telephone service in El Salvador. This is due to the fact that the standards applied by SIGET that define the rights of electricity users are much more detailed than those of telecommunications users; for example, the rate schedules specify how to determine the charges and compensations for users of electricity.

1.90 The protection of consumer rights in El Salvador is the responsibility of two types of institutions: one general and one that is sector-specific. As previously observed, the recently-created Consumer Advocacy Agency that started to operate in October 2005 is responsible for conducting inspections and audits necessary for the fulfillment of its functions. It is also responsible for checking that contracts and services do not violate consumer rights.

1.91 The regulator SIGET for its part is responsible for monitoring compliance with the sector -wide electricity and telecommunications laws, which establish the minimum conditions governing contract relations between operators and consumers. SIGET is also responsible for regulating contract relations. Accordingly, the functions of the Consumer Advocacy Agency - conducting inspections and audits and ensuring that contracts do not violate consumer rights - would be the same as the functions of SIGET with regard to electricity and telecommunications. Thus the legal framework in effect does not clearly determine the division of responsibilities between the Consumer Advocacy Agency and SIGET. This contrasts with the clear definition on topics such as defense of competition where the responsibility falls solely to the Office for the Defense of Competition that will become operative in January 2006, and the sector regulators have no legal authority.

1.92 There is also a lack of clarify with regard to the type of violations and sanctions used in the protection of user rights, since both the general law and the sector-specific laws have their own violations and sanctions. The Consumer Protection Law establishes the violations and sanctions (title II) to which the providers that violate the consumer rights are subject. For its part, the electricity law stipulates violations (Article 104) and establishes sanctions (Article 106) for the violation of consumer rights contemplated in the law. The telecommunications law also specifies violations (Article 32) and sanctions (Article 36) imposed on violations of consumer rights contemplated in the law. The violations and corresponding sanctions depend on the institution in charge of resolving conflicts between operators and users. With the new Consumer Protection Law, the Consumer Advocacy Agency has the authority to impose greater sanctions than SIGET for violation to consumer rights since its list of sanctions is similar to the Office for the Defense of Competition.

1.93 In practice, the existing legal framework does not establish a clear division of powers between the Consumer Advocacy Agency and SIGET but allows parallel systems of consumer protection. This situation has resulted in consumers being confused and not having a clear idea of which institution to contact or which public entity is responsible for what. A situation of

overlapping responsibilities and duplicating efforts has been created in the public sector with the consequent loss of time and public resources.

1.94 As shown by the experience of the region, the division of responsibilities in the protection of consumers between general and sector-specific entities varies significantly between countries. However, most countries clearly establish the responsibilities of the institutions involved and have similar systems for all the sectors of public services (box 1.2). These two characteristics were absent in the legal and institutional framework of consumer protection of El Salvador.

Box 1.2: The institutional framework for the protection of users

There is no single "Best Practice" legal and institutional framework for the protection of users. These frameworks vary from country to country. Some countries, such as Argentina, Ecuador, Guatemala and Venezuela have chosen to incorporate the protection of public service consumers in the general consumer protection laws in order to unify criteria among sectors. However, these laws co-exist with sector-specific laws. The characteristics that most of the legal and institutional frameworks of consumer protection share is that they establish a clear division of functions and attributes among the institutions involved and that are consistent or similar for all public services. For example, in Colombia, the Office of Public Services is responsible for resolving user claims, while regulators such as the Commission of Telecommunications Regulation is responsible for issuing standards for protecting user such as model contracts for the provision of basic services of telecommunications. In Mexico, the protection of consumer rights is regulated by the federal Consumer Protection Law (Article 24) and the Consumer Advocacy Agency (Profeco) is responsible for resolving all user claims in the upper level. For its part, sector regulators such as the Federal Commission of Telecommunications (Cofetel) are basically responsible for informing users of the characteristics of the public services that they regulate and issue standards for the provision of services. In Argentina, Chile and Peru, the sector-specific regulating entities are those in charge of issuing standards for protecting user and resolving claims in the upper administrative levels, after they have been reviewed by the operating companies. General consumer protection entities such as Indecopi in Peru does not have the authority to resolve conflicts between consumers and public service operators. In Chile and Argentina, however, the offices of consumer protection may only intervene on topics not provided by the sector-specific laws.

1.95 Through the National Consumer Protection System, an attempt is made to coordinate the efforts of the various government entities with regard to consumer protection. The coordination effort is planned with regard to drafting standards and determining mechanisms for resolving claims. Accordingly, it is hoped that ambiguities can be resolved in the legal framework and a single system can be created to address consumer claims. However, it is still is very soon to determine if the coordination and procedures resulting from the National System will make it possible to create a scheme that clearly defines the responsibilities of each institution involved and that is efficient in processing public service consumer claims. In any case, the creation of a single and consistent system of public service consumer rights will require legal modifications that clearly delineate the responsibilities of SIGET and the Consumer Advocacy Agency in the processing of claims, the drafting of standards, supervision and how a single scheme of violations and sanctions per sector are established.

Mechanisms for resolving conflicts between consumers and operators

1.96 The mechanisms for resolving conflicts between users and operators of public services vary significantly among sectors. Though initially consumers must submit their claims to operators in all services, the second level and the governing set of standards differ among sectors. In drinking water, there are no sector-specific standards that regulate the resolution of user conflicts as the upper administrative level is the Consumer Advocacy Agency. In electricity, the sector regulating organization, SIGET, like the Consumer Advocacy Agency, resolves conflicts between operators and users. The standard of SIGET 183-E-2003 provides two options without indicating a criterion other than the preference of the consumer to choose one institution or the other. This ambiguity also exists in the framework laws since the law of electricity establishes that SIGET can resolve conflicts between consumers and operators at the request of the consumer[16], while the Consumer Protection Law indicates that the Consumer Advocacy Agency is responsible for resolving conflicts between consumers and providers.[17] In practice, consumers are directed indiscriminately to both institutions. This notwithstanding, it is unclear that both institutions have developed uniform criteria for the resolution of consumer claims.

1.97 In telecommunications, on the other hand, the Consumer Advocacy Agency is the entity in charge of resolving user claims if no settlement is reached by a user and the operator directly. SIGET only routes user claims. However, in this sector, the resolution of consumer claims also is divided between SIGET and the Consumer Advocacy Agency. With regard to the telecommunications claims, the administration may not issue an opinion on a claim within 30 days after it is filed initially filed with the operator. In these cases, SIGET is in charge of notifying the operator and the consumer of the resolution of the claim in favor of the consumer. Though this involvement of SIGET came about in order to fill a gap in the telecommunications law, in practice, it divided the processing of claims between the Consumer Advocacy Agency and SIGET. This situation generates a situation that is confusing to consumers with respect to the entity to which they can file an appeal regarding their claims.

1.98 Given the division of responsibilities in processing user claims, mainly in the electricity sector, SIGET and the former DGPC - now the Consumer Advocacy Agency - signed a collaboration agreement in October 2003, whereby SIGET contributed resources to contract engineers who could analyze the claims in the DPC and issue technical opinions on the claims that the DGPC received. This agreement culminated in May 2005 and currently both institutions are negotiating a new institutional collaboration agreement within the framework of the National Consumer Protection System.

Participation of consumers in the preparation of Standards and Policies

1.99 Another central topic in the protection of consumer rights is the access of consumers to regulatory processes. Consumer access takes place at two levels. One level is its representation in the public organizations (regulators and of protection of consumers). The other level is participation in the preparation of standards and regulations.

1.100 With respect to the representation of consumers in public entities, the new LPC represents significant progress by granting the Consumer Advocacy Agency the responsibility of representing and defending consumer interests before sector regulators. This mandate represents a

[16] Article 84 of the Electricity Law, Legislative Decree 843 of 1996 and its subsequent amendments.
[17] Article 57 of the Consumer Protection Law, Legislative Decree 776 of 2005.

crucial step since the mission of the regulators is not to defend consumer rights but to make decisions in seeking a balance of the interests of the State, consumers and operators aimed at achieving the adequate development of the sector in the long term. The LPC also states that the president of the Consumer Advocacy Agency will be technically assisted by a Consulting Council on which consumers will have a representative.

1.101 The participation of consumers in the preparation of standards and regulations is just beginning in El Salvador. The sector regulators have strict obligations of issuing standards by means of transparent and participatory processes. The new LPC or the sector-specific laws impose obligations in this respect. The only standard in El Salvador that establishes participatory processes for the preparation of standards is the internal procedure of SIGET (Agreement no. 1/04) which establishes a formal and complete process of consultation of standards.[18] To date, three standards of SIGET have been prepared by means of these participatory processes.[19]

1.102 Though this participatory procedure represents an important step in the access of consumers to the regulatory process, the procedure has important limitations that are easy to overcome. First, Agreement no. 1/04 of SIGET establishes two mechanisms for the issuance of standards: one basic and the other with public participation and a consultation hearing (box 1.3). The procedures do not establish the criteria to determine which mechanism are used and it is left at the discretion of SIGET to determine the mechanism to follow in each standard. In order to provide more transparency in its decision-making process, SIGET may establish criteria to be used for consulting the standard and what consulting mechanisms should be used. In other countries of the region, regulators have stronger requirements with regard to the transparency in the issuance of standards. For example, in Peru, the telecommunications regulator must publish and justify all its decisions, particularly with regard to the fees and connection charges. Osiptel publishes its regulations as soon as they are in draft form with all the studies supporting them.[20] In Argentina, they have similar legal requirements for the case of the regulation of natural gas and the public services in the city of Buenos Aires.

1.103 Another limitation of the standard is that it does not require that documents and files prepared by SIGET be made available to the public, accordingly limiting the participatory capacity of consumers or consumer groups to determine the technical and legal basis of the proposed standards. The documents used as a basis for SIGET proposals could be published on its webpage. In the participatory processes of issuing standards, the webpages of the regulators have been crucial, since they facilitate the dissemination of information and the acceptance of comments. This is an instrument that SIGET could use more appropriately.

1.104 Though the participatory procedures require resources from the regulators, they make it possible for the standards designed under these procedures to incorporate comments from the various parties interested, to be more transparent and finally, to have legitimacy with regard to consumers and operators. The Peruvian experience is an example of this. Osiptel estimates that the participatory and transparent regulation processes have given standards a level of legitimacy as a result of which they enormously facilitate the work of issuing standards on topics as complicated as determining connection charges.

[18] "Hearing Procedure and Participatory Preparation of Standards for the sectors of Electricity and Telecommunications".
[19] These standards are (i) Instructions for the granting of concessions of public telephone, (ii) instructions for the notification of agreements and resolutions issued by the office, and (iii) procedure for the resolution of end user claims of electrical services to SIGET that do not require the intervention of outside experts.
[20] See www.osiptel.gob.pe

Box 1.3: Participatory procedures in the issuance of standards at SIGET

Agreement no. 1/04 of SIGET establishes two mechanisms for issuing standards: one basic and the other with public participation and a public hearing. In the basic procedure, the notice of the opening of the process is published on the web with the deadline for receiving observations in the form of sworn declarations. Then, SIGET at its discretion can either respond or not to the comments and the preliminary draft is prepared. The final draft is sent to the Office for its approval and then it is published on the webpage and in the official newspaper.

In the procedure with public participation, the notice is also published in a leading newspaper; the parties interested can ask to participate in the hearing and SIGET determines the number of participants. In the preparation phase an instructor issues a report with the certified parties and the questions asked. The hearing is presided over by the chief officer and the arguments are presented, after which is the drafting of the minutes and the preliminary draft is prepared and the final draft as well as in the Basic Procedure

Recommendations

1.105 The adoption of the new consumer protection law and the participatory procedure for issuing standards of SIGET are clear samples of the interest of the government of El Salvador in improving consumer rights protection. However, the current legal and institutional framework needs to be improved.

1.106 Though the new law is an important improvement in the protection of consumer rights, it has not corrected the overlaps and ambiguities of the legal and institutional framework caused by the lack of consistency between the consumer protection law and the sector-specific laws of electricity and telecommunications. The main problems with the current legal and institutional framework are:

- Lack of a clear definition of the roles and institutional responsibilities of the Consumer Advocacy Agency and SIGET with regard to consumer protection;
- Parallel systems for processing claims of electricity energy in both institutions;
- Separate systems for processing claims of the various public services (electricity energy, telecommunications and drinking water); and
- Co-existence of various regimes of violations and sanctions.

1.107 The recently-created National Consumer Protection System seeks to resolve many of these problems through the coordination of the institutions involved in the protection of consumers. To this end, it will be necessary to define a single consumer care policy and shall establish clearly the responsibilities of each of the institutions involved by avoiding or eliminating a duplication of functions. Though it is too soon to evaluate the effectiveness of the new National System, some initial steps taken in the framework of the new consumer protection law indicate that there may be confusion with regard to the mechanisms of consumer care. The Consumer Advocacy Agency and SIGET have jointly established centers for receiving consumer claims that have still not been processed by the operating companies which distorts the initial claim process that takes place directly between the consumer and the operator.

1.108 Though substantial improvements can be made through the national system, the ambiguities and duplication of functions established in the laws will need to be eliminated by means of amendments.

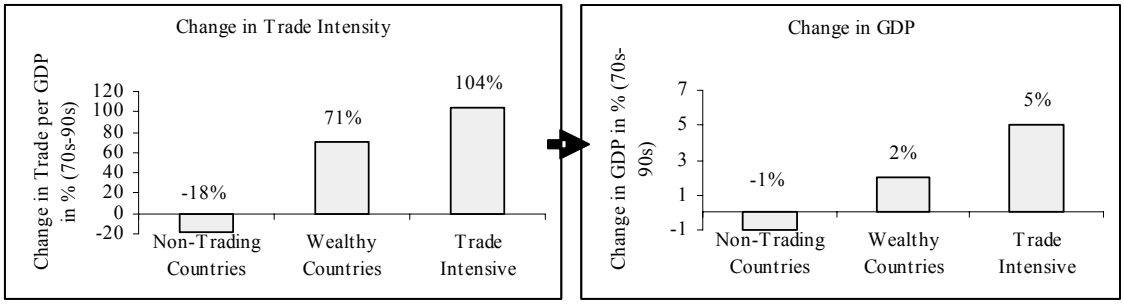
1.109 Another important challenge in this topic in El Salvador is the gathering, dissemination and publication of information on claims to enable the Consumer Advocacy Agency, SIGET, operators, NGOs and consumers to know and monitor the volume and nature of basic service consumer claims, in order to define or propose improvements in the claim processing service.

1.110 Lastly, SIGET also can substantially contribute to the protection of consumer rights by improving the dissemination of information to the public on processes and regulatory projects and reduce its arbitrariness in topics of public hearings and the preparation of regulations

CHAPTER 2: PRODUCTIVE INFRASTRUCTURE AND LOGISTICS SERVICES FOR COMPETITIVENESS

2.1 Trade has been a driving force behind economic growth for countries as varied as Bangladesh, China, Costa Rica and Chile. In fact, a division of the world's countries into three groups—non-trading countries, wealthy countries and trade-intensive countries—and an analysis of their growth rates from the 1970s to the 1990s illustrate the importance of trade intensiveness[21] for long-term economic growth.

Figure 2.1: Relationship between trade "intensiveness" and economic growth



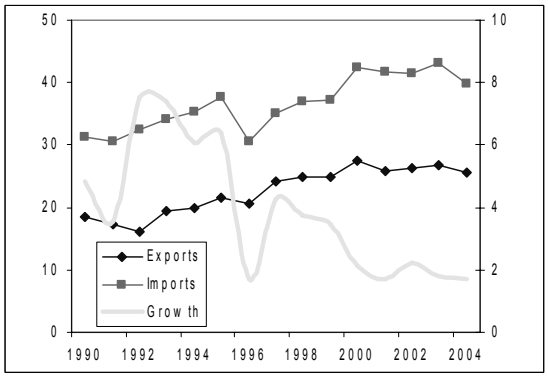
Source: D. Dollar, The World Bank (2002)

2.2 For El Salvador to resume growth, this lesson is of critical importance. Through the 1990s, El Salvador took advantage of its return to stability, trade preferences from the US and favorable investment policies to diversify its trading patterns and grow its export levels. Throughout that period of reconstruction, El Salvador showed a growth rate of exports similar to that of East Asian countries, with exports as a share of GDP growing by 10 percent. By the end of the decade, El Salvador's export intensiveness was higher than the Latin America average by 9 percent. Since 2000, however, El Salvador has suffered from stagnation, a situation that has been accompanied by—and contributed to—reduced growth in foreign trade (see Figure 2.2) while the rest of Latin America and East Asia have pulled ahead.

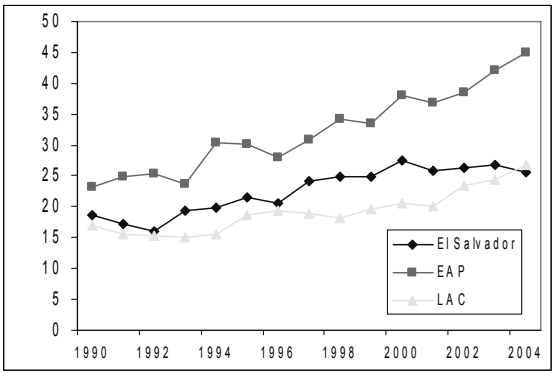
[21] Trade intensivity is defined here as the ratio of trade (exports + imports) to Gross Domestic Product. Growth in that ratio would therefore suggest that trade levels are growing faster than the GDP overall. David Dollar's hypothesis, as illustrated above is that growth in trade intensivity is closely related to growth in GDP.

Figure 2.2: El Salvador - Growth and trade 1990-2004

(a) Growth of GDP, exports and imports as % of GDP in El Salvador (% of GDP)



(b) Exports as % of GDP in El Salvador, East Asia and Latin America (Exports as % of GDP)



Source: Global Development Indicators, World Bank

2.3 The decline in El Salvador's exports have slowed in recent years is due to a number of factors: Increased competition from Asia--particularly in garments and apparels; the growing cost disadvantages of a dollar-based economy; and a slowdown in infrastructure investments. In addition, a survey of firms conducted for this analysis suggests that logistics prices are high and rising and that these bottlenecks alone might be hindering product competitiveness and export levels.

2.4 The business mindset of El Salvadoran producers appears to favor trade, even when confronted with lower profits overseas. El Salvador's domestic market is more profitable than foreign markets for the products of the firms that were surveyed—on average by 2.5 percent. However, as the size of El Salvador's domestic market is limited, the business owners interviewed demonstrated their commitment to seek sales opportunities overseas. In fact, the main export product in each sector represents on average 60 percent of total sales.[22]

2.5 Exports—however elusive for the Salvadoran economy as a whole—remain a key source of growth and the country's producers continue to seek overseas markets regardless of the obstacles to trade. In this environment, what can the Government do to help companies compete for capital, resources and, inevitably, a greater share of sales in the global economy? A recent series of investment climate surveys conducted by the World Bank of private companies throughout the developing world has revealed some consistent answers to this question, including:

- Avoid excessive business regulation, interference and taxation;
- Provide a safe and stable environment for business activity and investment;
- Allow easy entry and exit of companies to markets; and
- Reduce costs and improve the availability and quality of inputs for production and delivery.

[22] Of these sales, approximately 81 percent are destined for the United States and nearby countries (Honduras, Nicaragua, Guatemala, and Costa Rica).

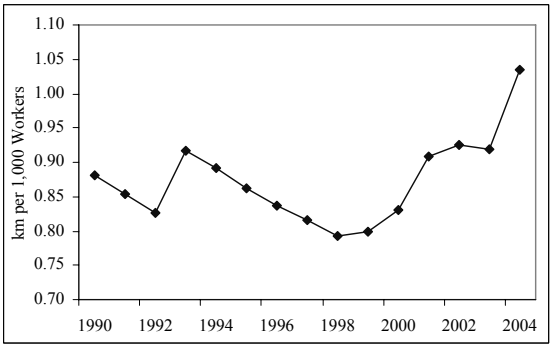
2.6 This last point–cost, availability and quality of the inputs for production and delivery—is the focus of this chapter. The aim is to evaluate the performance of the physical infrastructure and logistics services as integral parts of the production chains of El Salvador. By focusing on the bottlenecks to trade that are revealed through this process, policy makers can address the country's competitiveness and potential to achieve higher growth rates.

TRENDS IN THE PROVISION OF PRODUCTIVE INFRASTRUCTURE

2.7 The endowment of productive infrastructure in El Salvador has expanded briskly over the past fifteen years (Figure 2.3), particularly for network utilities. The availability of telecommunications services in El Salvador has increased dramatically, with rapid growth in mainline teledensity and an explosion in the use of mobile phones. The length of paved roads per worker increased by 18 percent from 1990 to 2004, with strong growth since 1998. During that period of time, however, road usage more than doubled and congestion has increased significantly. Growth in electricity generation has also been modest.[23]

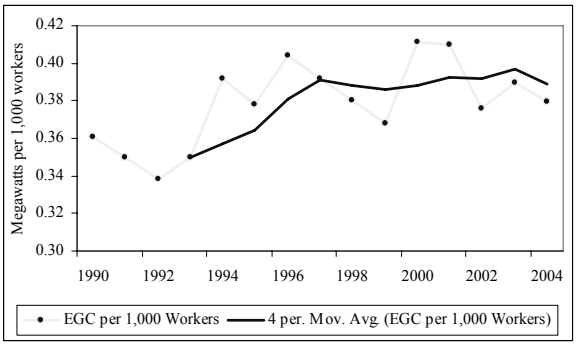
Figure 2.3: Trends in productive infrastructure in El Salvador

(a) Paved Road



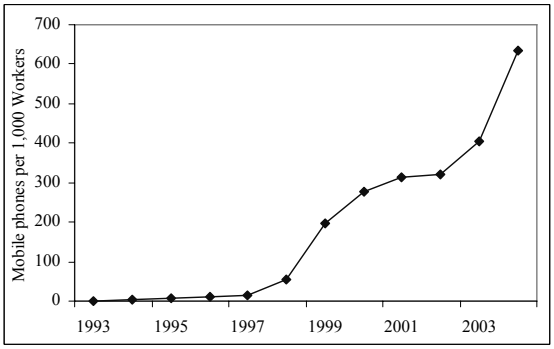
Source: WDI-The World Bank; MOPT for Roads in 2003 and 2004

(b) Electricity Generation Capacity



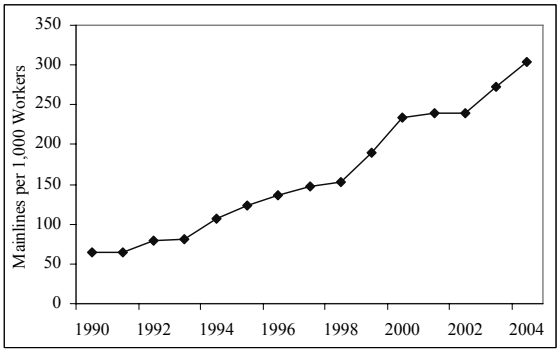
Source: WDI-The World Bank; MOPT for Roads in 2003 and 2004

(c) Mobile Telephone



Source: International Telecommunications Union

(d) Mainline Telephone



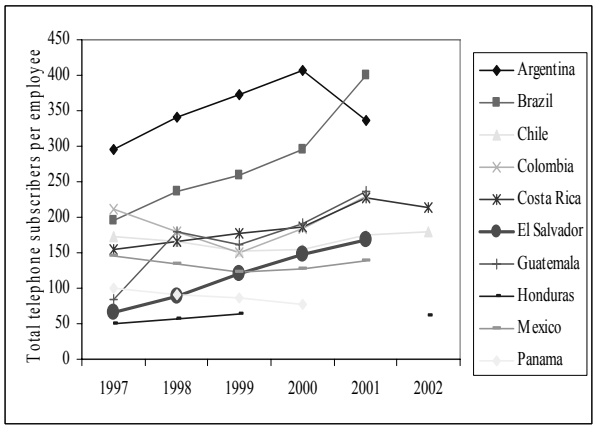
Source: International Telecommunications Union

[23] The wholesale market which, to date is characterized by a dominance of spot pricing and very little use of long-term contracting, has not encouraged large investments in new generation assets. However, El Salvador imports about 7 percent of its supply needs from the regional grid and has been able to maintain a relatively stable load margin as a result.

2.8 In addition to the increase in availability of telecommunications and electricity infrastructure, the efficiency and quality of network *services* has also increased. El Salvador's electricity distribution utilities sustain lower distribution losses than the regional average. (see Figure 2.4 (a)) Moreover, prices for industrial and business users are among the lowest in the region.

Figure 2.4: Efficiency of telecommunication and electricity distribution utilities

(a) Telephone Subscribers per Employee



Source: World Bank, World Development Indicators

	Distribution losses, 2001 (% of total output)
Argentina	14
Brazil	17
Chile	7
Colombia	22
Costa Rica	7
Guatemala	23
Honduras	21
Mexico	14
Panama	22
Avg (9 countries)	16
El Salvador	13

(b) Performance of Electricity Distribution

Source: ITU in World Development Indicators

2.9 To the degree that El Salvador's businesses have found bottlenecks to trade in infrastructure, transport and logistics services have been the primary culprit. Despite its relatively extensive and well-maintained primary highway network, El Salvador's logistics system suffers from inefficiencies and high costs. A sector-wide survey of key trading industries (processed foods, textiles and chemical products) as well as a cost analysis of service providers suggest that both logistics services (trucking and cargo handling) as well as ocean shipping costs continue to hinder El Salvador's competitiveness.

2.10 The analysis of this chapter addresses three important contributors to firms' cost and competitiveness:

- Transparent or direct costs to firms for the provision of logistics services;
- Hidden or indirect costs absorbed by firms as a result of losses, damage and delay during transport;
- Other infrastructure inputs to production—namely, electricity and telecommunications.

2.11 An understanding of the indirect costs as well as part of the direct costs incurred by Salvadoran firms is derived from a survey of business owners conducted in three sectors: fibers and textiles; manufactured food products; and chemical, pharmaceutical, and cleaning products. These sectors were selected based upon their characteristics as core products underpinning current export levels, important users of imported materials and sectors with the greatest potential

for growth.[24] Analyses of the sub-sectors of infrastructure—roads, ports, airports—as well as the services conducted over those transport networks provides most of the information on the direct cost component of logistics. Finally, a review of the sectoral diagnostics for electricity and telecommunications along with some survey results on the cost impact of those services at the firm level completes the competitiveness analysis.

THE LINK BETWEEN LOGISTICS, TRANSPORT AND COMPETITIVENESS

2.12 A growing literature in economics emphasizes the relationships between infrastructure, logistics and greater competitiveness for business owners. Logistics cost, particularly in developing countries, often reflect "incomplete chains" that make it impossible for firms to exploit the technological or resource advantages available to them. Logistics barriers also drive levels of inventories of inputs and products that could be reduced if there were more efficient options for the movement and delivery of goods. This refers to delays that could be shortened and costs avoided if business owners were provided with appropriate infrastructure and logistics services.

2.13 Pressure on factor prices (capital and labor) is even greater for countries, such as El Salvador, whose exports have a high import content.[25] Since logistics impact business costs both "coming and going," they play a decisive role in the viability of exports generated by these firms. Conversely, higher logistics costs imply a lower degree of specialization and, consequently, a lower likelihood of benefiting from increasing profits in a given industry.[26]

2.14 Despite the attention generated and angst created by recent free trade agreements, logistics costs throughout Latin America are generally higher than tariff barriers imposed on imports by the United States and other primary markets.[27] At the global level, transport costs alone are estimated to represent approximately one-third of the delivered costs of goods although the relative weight of the components varies depending on the type of product, its destination, and the mode of transport used. In more developed countries, the impact of transport costs is less, due to the greater participation of products with a higher unit value as well as higher degrees of competitive logistics services and better infrastructure networks to aid the movement of goods.

2.15 *Applying the Theory to El Salvador*: The surveys conducted for this study confirm that improvements in physical infrastructure and in logistics services will generate increases in the competitiveness of the companies of El Salvador: A reduction of 10 percent in the costs due to delays in the shipment of the products analyzed would result in a reduction of 6.3 percent in the ratio of foreign to domestic prices. That is, as costs due to delays are reduced in the shipping of products, the prices for accessing the foreign market are reduced and the products become more competitive. Improvements in the physical infrastructure and logistics services will have greater impact on the competitiveness of some sectors than others, but in general will benefit the

[24] For a full explanation of how these sectors were chosen, see Annex 2 to this Section.
[25] See Guasch (2005). Imports drive consumer goods prices (directly or indirectly) and the prices of exports, when imported goods are used as inputs by companies that export. In addition, the organization of the supply chains frequently contains multiple internal flows of intermediate materials.
[26] See FKV (1999); Ottaviano and Puga (2004) and Fujita and Krugman *et al.* (2004).
[27] See Micco and Pérez (2001); and Bagai and Fink (2003). In the case of trade between Argentina and Brazil, some analyses show that variations in the transport tariffs (a component of the logistics cost) are much greater than variations in customs duties (Hummels, 1999).

competitiveness of the country's products and will help the economy to reach higher growth rates. To achieve these benefits, El Salvador will have to address its constraints in infrastructure and logistics, particularly in transportation services.

2.16 How then, can logistics costs be reduced and what should be the priority areas of focus? Can the Government really influence these costs when so many of the services are outside of its direct control?

2.17 Even though the efficiency in the administration of the supply chains is in the hands of private companies, many of the cost elements are based on factors that are the responsibility of the public sector, such as infrastructure and the regulatory and institutional framework that governs transport, power and telecommunications. If the travel speeds along the Litoral, the Pan-American Highway or the main roads to Acajutla drop because of poor road maintenance, lack of bypasses or excessive land use alongside of the roads, the logistics costs increase for producers. If roads are damaged from unregulated trucks moving excessive tonnage, then transport insurance, the cost of damaged goods and vehicle operating costs rise as well.

2.18 Even when private companies are responsible for their own distribution processes, their efficiency in managing their supply chains will depend on the services offered by the various logistics operators. These operators, in turn, perform their services over infrastructure assets that are provided directly or indirectly by the public sector. In turn, transport services are subject to technical and economic regulations established by public authority, which also provides auditing and control functions that impact the physical movement of goods, particularly those of foreign trade. The performance of the logistics services will then be the result of a combination of different factors, all of which are impacted by government policies, expenditures, regulations and/or enforcement capacity:

(i) Infrastructure, including large-scale networks such as highways, ports, airports, railroads, navigable routes and centers of intermodal transfer, as well as others of a smaller scale, such as shops and warehouses that are typically owned at the firm level. If these are deficient, or if there is insufficient coverage, capacity, service standards or if prices are too high, they can severely affect the logistics costs.

(ii) Regulations and public institutions that impact the efficiency and efficacy with which the operators can organize their activities, involving – for example – modal and intermodal regulations, the quality of management control of customs and other agencies, as well as port and airport investment incentives and tariff regulations.

(iii) The organization of the private sector—particularly trucking companies, consolidators, freight forwarders and Non-Vessel Operator/Common Carriers (NVOCC's)—in its roles as provider of logistics services.

2.19 To address these infrastructure assets, regulations, institutions and private service providers from the perspective of the firms' cost structure, the chapter is divided into three sections:

- The first considers the direct (i.e, contracted) costs of transport and logistics services through trucking services, port tariffs, airport tariffs, air transport freight rates and ocean shipping freight rates etc.;

- The second section describes the importance of hidden or indirect costs incurred as a result of losses, damages, theft, interruptions, ureliability of service and delays; and

- The third section considers the non-transport cost inputs of electricity and telecommunications.

DIRECT COSTS OF LOGISTICS SERVICES IN EL SALVADOR

2.20 According to two of the indicative sectors selected for analysis, infrastructure costs, including logistics, represent the third largest category of costs after labor and raw materials. In the case of chemical products, it is the second high cost category for the firms surveyed—about 25 percent more costly than labor. These percentages are significantly higher than they are for the high value-added product spreads of OECD countries (between 10 and 12 percent).[28] More importantly, they represent an opportunity for Salvadoran policy makers to help the competitiveness of Salvadoran firms by addressing transport, logistics and other infrastructure inefficiencies.

Table 2.1: Salvadoran business cost structure by sector as of 2005

Cost	Food	Chemical Products	Textiles
Labor	32%	18%	43%
Capital	6%	10%	5%
Raw materials, materials, packaging	41%	42%	32%
Others	5%	8%	4%
Infrastructure	15%	22%	17%
Breakdown of Infrastructure Costs			
Transport & Logistics	55%	33%	55%
Electricity, gas, and other energy sources	32%	58%	36%
Telecommunications	13%	9%	8%
Breakdown of Transport & Logistics Costs			
External transport services (shipping of inputs)	24%	22%	21%
External transport services (for final product delivery)	45%	35%	37%
Warehousing services	2%	20%	32%
Compliance with national or local regulations	28%	23%	11%

2.21 The cost components analyzed in this section are the most obvious ones—those that are contracted with trucking companies, port service and shipping companies as part of the logistics chain.

[28] According to the INCAE (Latin American Center of Competitiveness and Sustainable Development), 2004, Costa Rica and Panama are the main competitor countries of El Salvador in the region.

2.22 El Salvador's geography and foreign trade structure result in a significant use of the ports of Guatemala and Honduras, making the land/sea combination predominant in the movement of cargo for foreign trade.

Table 2.2: Foreign trade of goods by mode of transportation (%) 1999-2004

	2004	1999	2001	2004	2004 -1999
Foreign Trade (Metric Tons) a/		6,440,132	7,733,239	8,114,035	26.0
Sea b/		62.6	59.4	57.7	-4.8
Land		36.9	40.3	41.9	5.0
Air c/		0.6	0.3	0.4	-0.2

Source: Own calculations based on Information from BCR and CEPA.
Notes: a/ excludes Assembly, b/ includes Oil in barrels, c/ excludes mail

2.23 The growth in international trade over the past fifteen years in El Salvador has relied upon a greater use of the infrastructure available for transporting goods, while public investments intended to strengthen the highway infrastructure have understandably been focused on rehabilitation rather than increasing capacity. In parallel to the reconstruction effort, trade has boomed, automobile ownership has grown and roads have become much more congested. Vehicle traffic on the highway network (vehicles/km) grew by more than 9 percent per year between 1990 and 2001 while growth rates in the movement of goods was double the growth of GDP from 1994 to 2004.

2.24 Constraints on highway infrastructure are starting to manifest themselves in increasing logistics service costs. Between 2002 and 2004 alone, just the *increase* in the share of logistics services to the cost of delivered goods was 1.2 percent in the three sectors studied. This increase is mainly due to transport and storage service costs. In fact, the proportion of costs derived from complying shipping regulations went down during the same period.

2.25 *Port Tariffs:* Acajutla's rates are high by regional standards. Container handling rates at concessioned ports such as Cartagena or Buenos Aires range from US$95 to $103 per container with the average Chilean rate at Valparaiso of less than US$80 per container. By contrast, Acajutla charges about US$150 per container. That said, port tariffs constitute a very small portion of international logistics costs in and of themselves—particularly for higher value added goods such as those shipped in containers. Ports are not irrelevant however. From the perspective of the logistics burden over-all, the Port's impact is much more significant on indirect costs incurred as a result of container lifting and cargo turnaround times. This is addressed in the subsequent section.

2.26 *Trucking and Land Carrier Services*: For the total of the sectors surveyed, exports are managed by the producer in 84 percent of the cases compared to 16 percent of the cases where the exports are managed by a third party. The sector that least delegates the export of its products is that of chemical products which exports its own products in 91 percent of the cases. The food sector and the textile sector export 87 percent and 82 percent respectively.

Table 2.3: Use of firms' own logistics services versus contracting of logistics services

Destination of the main product of the company			
Sector	Exported directly	Exported through a third party	Sold on the local market
Food	15%	2%	83%
Textiles	64%	23%	20%
Medical products	40%	3%	57%
Total three Sectors	49%	9%	41%
Destination of the main export product			
Sector	Exported directly	Exported through a third party	Sold on the local market
Food	26%	4%	70%
Textiles	64%	14%	19%
Medical products	37%	4%	59%
Total three Sectors	53%	10%	35%

2.27 Neighboring Central American countries (Honduras, Guatemala and Nicaragua) are the main export markets for the Salvadoran products surveyed for this study (51 percent of food exports, 63 percent of exports of chemical products, and 35 percent of textile exports). The United States, chief trading partner of El Salvador, is the single largest buyer of these produces (28 percent, 33 percent, and 6 percent respectively).

2.28 While the majority of El Salvador's exports eventually move by sea (about 60 percent by volume), most of that cargo will continue to seek ports on the Caribbean Coast of Central America, further emphasizing the importance of the primary road network and related trucking services. There is, of course, an iterative aspect of logistics development: improved maritime and aviation services can alter the share of existing exports toward distant markets and entice new players into the export market. Until a new level of maritime services is available, however, and until new supply chains can be established to serve distant markets from a Pacific Coast port, road and trucking services will remain a central feature of the logistics backbone of El Salvador.

2.29 Improvements in land carrier services are crucial for the strengthening of production chains and for the export process of El Salvador. In spite of the fact that the highway network has improved significantly, there are still challenges in the operating services of infrastructure:

- The central region is where production and export activity is concentrated (San Salvador, Nueva San Salvador, and Cuscatlán are the locations of 79 percent of the production and 45 percent of the exports of the three sectors studied), as a result of which it generates the greatest use of the highway infrastructure of the country.

- The major highways are being transformed into urban areas creating bottlenecks which are reflected in the costs of logistics services.

- Access to border crossings, ports or the international airport generally requires that cargo move through heavily congested urban areas. A significant example is the Pan American Highway that goes through the metropolitan area of San Salvador[29]. In these areas, there are low average speeds in spite of it being a good quality highway network.

[29] This refers to the Pan-American Highway (CA-1) that is part of the priority highway network of El Salvador. Its northern end is in Puebla (Mexico) and its lower end is in Panama City (Panama). It travels

- There are connection problems with the northern region, which results in detours in most trips whose destination or origin is in this region.

- There are significant deficiencies in the border passes with Honduras.

- The trucking fleet dedicated to transporting goods is antiquated and there are deficiencies in the operations with a high degree of informality, cargo loss and damage and abuse of the road network from overweighing. This is a result of regulatory shortcomings.

2.30 The direct cost of contracting land transport freight movements is relatively low, and even more so if compared to the rest of the direct costs of the whole transport chain. In fact, the oversupply and informality of the trucking sector has resulted in very cheap services offered in one segment with high unreliability, and low quality. Of the 53,000 vehicles registered as cargo carriers, only 4,600 are protected by their professional association. Because of the fragmentation of the market, backhaulage is rarely used and 45 percent of the trucks dedicated to transporting goods are empty while on the road. These costly inefficiencies are borne by users through indirect costs as will be shown in the following chapter, but also by third parties through congestion, pollution, through accidents and destruction of roads through overloading.

2.31 Direct costs are higher if the trucking companies that have exclusive contracts with shipping lines are used. These companies (12) have an assured market, and have had regulations imposed on them by the shipping lines that have tended to improve their quality of service reducing unreliability and indirect costs and externalities. As a result, the direct cost for contracting these services is higher.

Table 2.4: Cost of land transport from port to San Salvador

Rates of land transport per container to San Salvador (ES)				
Origen	**Price ($)**	**Distance Km**	**$/ Km**	**Customs (Hr*)**
Port of Acajutla (El Salvador)	150	80	1.88	2.5
Port of Quetzal (Guatemala)	380	260	1.46	6.0
Port of Cortez (Honduras)	650	427	1.52	5.0

Note: * This refers to time spent in Customs (including border formalities)
Source: Own calculations – Transebastián

2.32 It should not be surprising that the cost per km is higher from the Port of Acajutla than from the ports of neighboring countries used by the companies of El Salvador as short-haul trips are often more expensive on a per kilometer basis and backhauling of cargo to the Atlantic ports is more likely than to the Pacific Port of Acajutla.

353 km through El Salvador, from San Cristóbal (border with Guatemala) and El Amatillo (border with Honduras). Currently, it crosses through three of the main urban and production centers of the country: Santa Ana, San Salvador and San Miguel without bi-passes. The Pacific Coastal Highway, or the "Litoral," also connects Mexico and Panama. It travels 292 km through El Salvador, from La Hachadura (border with Guatemala) and El Amatillo (border with Honduras). Though it shares segments with the Pan-American Highway, it is not interrupted by the urban areas of El Salvador, as a result of which it is preferred by heavy long-distance traffic. It connects the International Airport, Port of Acajutla, and the region of La Unión with the rest of the country.

Table 2.5: International 45/48' trailer freight from San Salvador to the main cities of Central America

Destination	Price ($)
Guatemala City	675.00
San Pedro Sula (Honduras)	725.00
Tegucigalpa (Honduras)	700.00
Managua (Nicaragua)	900.00
San Jose (Costa Rica)	1200.00
The Canal Zone (Panama)	2100.00
Tecun Uman (Mexican/ Guatemalan border)	750.00

Source: Own calculations – Transebastian

2.33 As far as land transportation is concerned, 80 percent of the companies surveyed hire services for shipping their finished goods. Among the three sectors in question, the best client of land transport services of finished goods is the chemical products sector, with 93 percent; the textile sector runs a close second that contracts carrier services for 89 percent of its goods, while only half of the food sector contracts these services.

Table 2.6: Uses land services for transporting products

Sector	Uses	Doesn't Use
Food	46%	54%
Textiles	89%	11%
Chemical Products	93%	7%
Total Sectors	81%	19%

2.34 *Air transport services*: In air transport, almost half (47 percent) of the companies surveyed contracts services for shipping their finished goods. Among the three sectors studied, the chemical products sector led the other two in its demand for shipping its finished goods by air (64 percent). 44 percent of the textile sector contracts these services, while only 36 percent of the food sector uses them.

Table 2.7: Uses air carrier services for transporting goods

Sector	Uses	Doesn't Use
Food	36%	54%
Textiles	44%	56%
Chemical Products	64%	36%
Total Sectors	47%	53%

2.35 Air transport freight is used for high-value cargo that needs to be delivered quickly. Historically, there have been complaints in El Salvador for the high cost of this mode of transport. The direct costs related to this mode have to be divided into the airport fees related and the air freight transport fees collected by the air cargo lines.

Table 2.8: Central American airport fees (in U$S)

Category	Unit	Periodicity	Costa Rica	El Salvador	Nicaragua	Honduras	Guatemala	Panama
Landing fee								
Commercial vessels	1000Kg	Per landing	0.3825	0.3	0.324	0.254	0.257(+$12.85)	0.245
Cargo vessels	1000Kg	Per landing	0.3825	0.3	0.299	0.254	0.257(+$12.85)	0.245
Parking								
Less than 90 min.	1000Kg	Per parking	Free	Free	Free	Free	0.42p/hr	Free
Between 91 and 180 min.	1000Kg	Per parking	0.3843	Free	0.19p/h	Free	0.42p/hr	Free
Between 181 and 360 min.	1000Kg	Per parking	0.759	0.38p/4h	0.19p/h	Free	0.71 p/hr	Free
Between 361 and 480 min.	1000Kg	Per parking	1.9022	0.38p/4h	0.19p/h	0.42p/hr	0.71 p/hr	0.25 p/hr
More than 481 min.	1000Kg	Per parking	4.8031	0.38p/4h	0.19p/h	0.42p/hr	0.71 p/hr	0.25 p/hr

Source: CEPA

2.36 The International Airport El Salvador (AIES for its acronym in Spanish) is the main hub for TACA airlines, and as such has maintained good quality of service and is considered one of the best airports in Central America, along with Juan Santamaria of Costa Rica. The airport costs that are paid by airlines and cargo movers are difficult to compare, as an indicative measure landing and parking fees are given in the above table. It shows that Juan Santamaria airport has the highest fees throughout in all categories, and that Panama airport has the lowest fees throughout. IES has average landing fees and below average parking fees.

2.37 The levels of air freight transport fees of air cargo carriers serving El Salvador for various destinations are shown in Table 2.9. Comparisons of these fees are difficult, however, the relatively low airport fees give an indication that the main component of the direct transport costs of this mode are the air freight fees rather than the airport fees.

2.38 This is analogous with maritime transport, where the higher proportion of direct costs are a result of maritime freight transport fees of shipping lines rather than port associated fees.

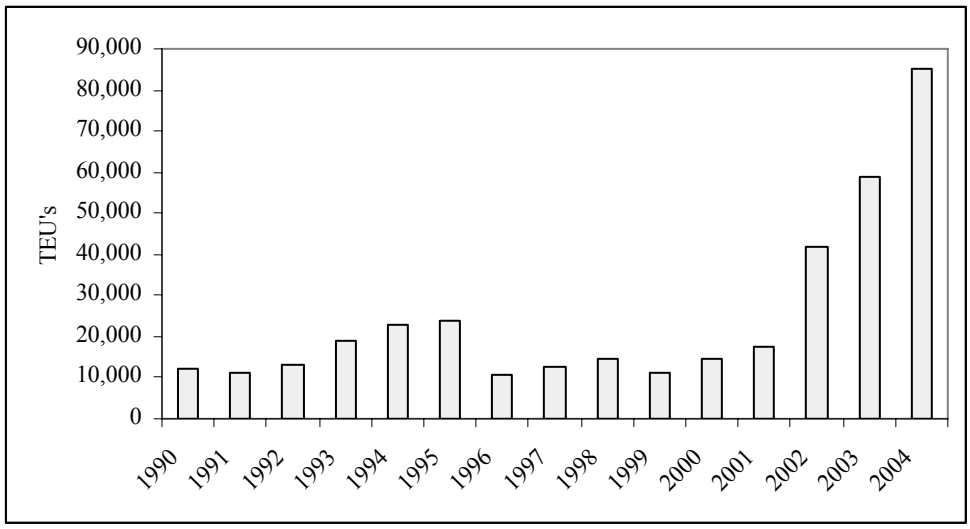
Table 2.9: Prices of cargo freight to most frequent destinations

Place Heading	Miami	Houston	Atlanta	Los Angeles
Freight (U$S/Kg)	0.50	0.80	0.70	0.95
Fuel* (U$S/Kg)	0.46	0.46	0.46	0.46
Safety (U$S/Kg)	0.20	0.20	0.20	0.20
Collect fee (% on freight	2	2	2	2
AWB (Air way bill) (U$S)	20.00	20.00	20.00	20.00
PBA (Paid by agent) (% on freight)	2	2	2	2

Note: * Cost as of August 31, 2005 (variable)
Source: Arrow Air

2.39 *Oceanborne Shipping*: Via the seaports of Central America, El Salvador exports and imports between 500,000 and 600,000 TEU's (Twenty foot Equivalency Units) of containerized cargo each year.[30] Of this total, El Salvador's only domestic general cargo port, Acajutla, has recently been able to capture 90,000 TEU's—perhaps 15 to 18 percent of the total. As recently as four years ago, Acajutla only moved 15,000 TEU's—2 or 3 percent of the national totals. The reasons behind this increase in cargo movement are the port reform and change in operational organization which resulted in greater efficiency and which CEPA translated into a decrease in port fees--from $174 per/TEU to $150 per/TEU for container movement. Port fees are difficult to compare, due to the significant number of activities involved, but in general Acajutla is considered one of the cheapest ports in bulk and general cargo in Central America and one of the less competitive in containerized cargo.

Figure 2.5: TEUs moved through the Port of Acajutla 1990-2004



Source: CEPA

2.40 Despite this reduction in port fees, increased efficiency, and this jump in container trade through Acajutla, the vessels that continue to call require their own gear (i.e, cranes) and can be characterized as "early generation" or inefficient container carriers by global standards. The maritime freight transport rates for shipping from Acajutla have thus not fallen with the increase in number of boxes being handled. The size and type of vessel has a significant impact on the maritime freight transport fees that shipping lines request. As a result, the maritime freight transport fees to and from El Salvador have not decreased, despite the improvements in Acajutla, they have on the contrary increased.

2.41 As can be seen from the table below, the cost of transporting a 40 foot container to El Salvador from Miami, Hong-Kong or China has evolved in a similar manner: decreasing constantly from 2000 to2003 and then increasing in 2004 and 2005. At the same time, Acajutla Port decrease its fees in 2004 and 2005, and the volume of traffic increased in Acajutla in 2004 and all indications show that it will also have increased by the end of 2005.

[30] Own calculations based upon Central American averages weighted for trade levels and GDP.

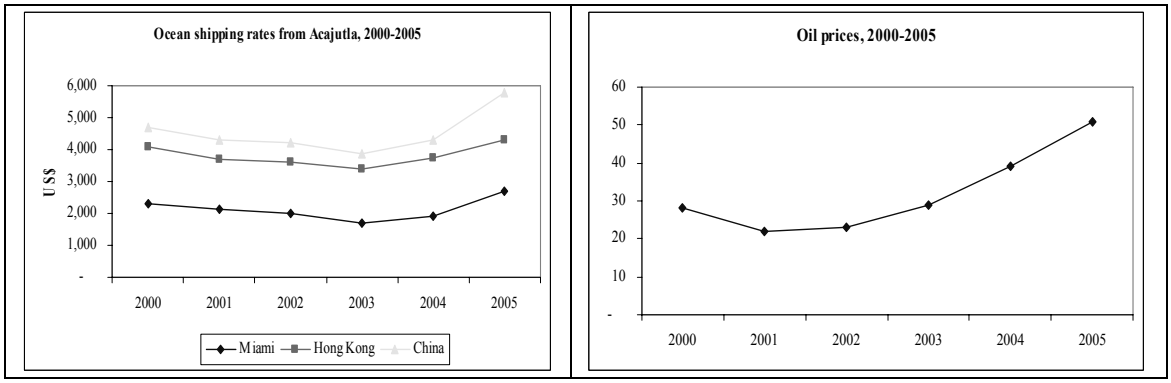
Table 2.10: Maritime freight transport price history (Includes in-land freight cost)

To San Salvador, El Salvador 40' Std container US$

From Port	2000	2001	2002	2003	2004	2005
Miami	2250	2100	1950	1700	1950	2700
Hong-Kong	4080	3700	3575	3450	3820	4250
China	4750	4360	4185	3970	4320	5666

Source: Maersk Sealand and Transebastian

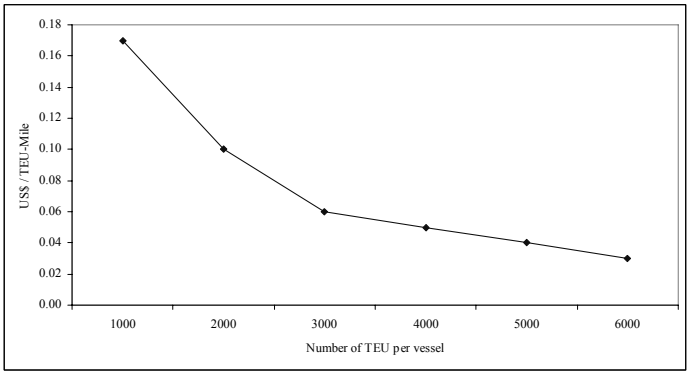
Figure 2.6: History of maritime freight transport prices to El Salvador and oil prices, 2000 – 2005



2.42 In fact, the evolution of maritime freight transport prices s follows a worldwide maritime economy logic rather than a local one. The evolution of maritime freight transport prices is more closely linked to the evolution of the price of petrol, and the repositioning of the world maritime transport fleet to China in response booming demand and supply from that country.

2.43 The improvement of port efficiency will have little impact on direct maritime freight transport fees requested by shipping lines, unless it is accompanied with the increase of cargo volumes that can justify the use of larger vessels. The graph below shows the unit price of maritime freight transport per size of vessel, and with increasing vessel size the prices reduces considerably

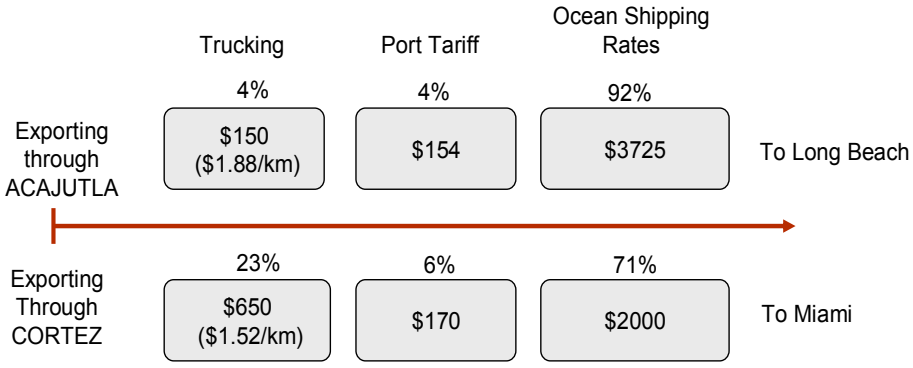
Figure 2.7: Freight transport cost per vessel size



2.44 With the United States still being the main trading partner of El Salvador (it buys 48 percent of Salvadoran exports) and sea transport being the mode generally preferred to establish

trade with this country, the commercial oceanborne shipping services and infrastructure available to El Salvador's exporters are expensive, particularly for high valued goods shipped in containers. In El Salvador, an analysis of the direct costs of the cargo handling services reveals that the costs for shipping by sea are high and that the numerous carriers who offer services from Acajutla do not vary significantly in their fees.

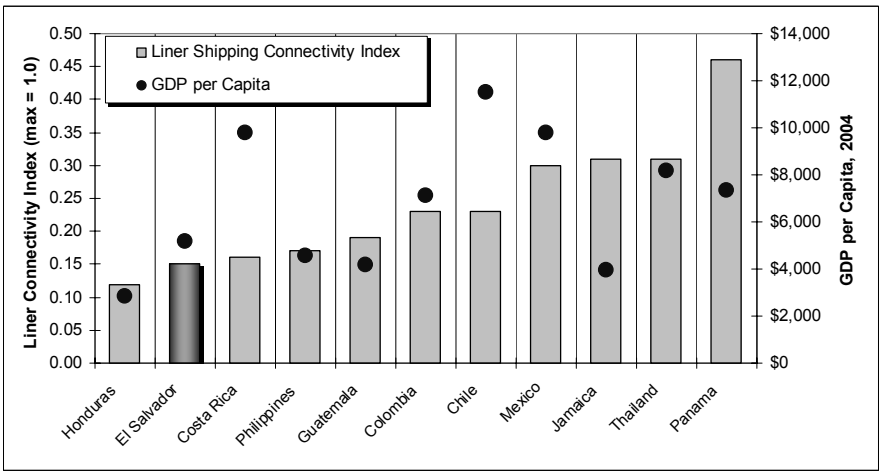
Figure 2.8: Proportion of direct transport costs for 45' trailer/40' container by mode of transport



2.45 In fact, much as in air transport, the significant cost of the maritime freight transport chain is the maritime freight transport fee paid to shipping lines. The type of vessel and the limited cargo to and from El Salvador determine the high prices of these services together with worldwide criteria such as: petrol prices, and competing demands on the fleet in other places of the world.

2.46 Port fees and airport fees, by contrast, are low with respect to the overall direct costs of the logistics chain. Increasing efficiency in port and airport handling will not necessarily impact on the port or airport fee or need to, but will and should impact on hidden costs such as delays, interruptions, breakages etc. that will be discussed below. The United Nations Council on Trade and Development (UNCTAD) publishes a Liner Shipping Connectivity Index for the world's countries which weighs the throughput of containers, container vessel sizes and frequencies as well as ship registries.

Figure 2.9: Liner connectivity index, 2005



Source: UNCTAD, 2005

2.47 As El Salvador moves forward with its port development and concessioning program and builds out its logistics network in the years to come, it should be able to consolidate a much larger share of its own trade and, perhaps, a significant share of the region's Pacific-bound traffic. This will increase its Liner Connectivity Index and maritime shipping costs will become more competitive in parallel. Given the disproportionate burden of ocean shipping fees on the cost of delivered goods from El Salvador, this confluence of events may be one of the greatest contributors to product competitiveness that the Government can affect.

THE HIDDEN, INDIRECT COSTS OF LOGISTICS SERVICES

2.48 Beyond port tariffs, shipping fees and trucking contracts, the logistics network can impose hidden or indirect costs on firms that can reduce profits, inhibit competitiveness, and even reduce market access. These costs, which may in many cases be greater than the direct costs, are incurred by firms through theft, losses and damage to goods as well as delays to the delivery of inputs and finished products. These hidden costs may be derived from unregulated and poorly managed trucking services, road and highway bottlenecks, congestion, inefficient port services (at home and in ports of disembarkation) and customs clearance constraints. Addressing these costs would make it possible for firms to internalize inefficiencies that must be translated in part into direct costs. It should also promote the optimization of the existing infrastructure in order to reduce indirect costs. For example:

- Improvements in the regulation of roads could increase the reliability and safety of cargo handling companies;

- Investments in urban bypasses and highway accesses to maintain higher speeds in the primary highway network will keep traffic moving more quickly;

- Regulation of the use of land and the rights-of-way will allow for the safe and free-flowing movement of goods thus protecting the massive investment made to date in rebuilding El Salvador's primary road network; and

- Improved port efficiency will reduce demurrage costs and, eventually, allow El Salvador to attract more competitive ocean shipping service offering greater scale economies.

2.49 The costs associated with delays - as a percentage of total sales, when importing inputs - are higher than the costs associated to the exporting of goods. Even so, the higher cost for imports does not appear to cause significant problems probably because the business owners index prices of their end products to the costs.

2.50 Among the three modes, the delays in the delivery incurred in the maritime transport service represent the highest costs (14.5 percent), followed by delays in the delivery in the air transport service (11.3 percent).

2.51 The sector that suffered from the highest costs resulting from delays in deliveries is that of chemicals (18.4 percent). Textiles was second (17.7 percent), with the food sector incurring the lowest costs compared with the other two sectors (2.6 percent)

Table 2.11: Costs of delays in the transport services (% total sales)

Sector	3 Sectors	Land	Sea	Air
Food	3%	2%	4%	0%
Textiles	18%	15%	22%	15%
Chemical Products	8%	5%	10%	6%

2.52 Delays of deliveries are different if they refer to inputs or finished products, Tables 2.12 and 2.13, respectively. In both cases, however, the impact is significant—particularly for Textiles and Chemical Products which are generally sold to large buyers with Just in Time delivery requirements. In those two sectors, delays can cost nearly 10 percent of sales for inputs and 9 percent for final delivery. The chemical industry's sensitivity to input delays is a feature of the production processes that often require constant contribution of basic compounds and materials.

Table 2.12: Costs of delays in the delivery of inputs (% total sales)

Sector	3 Sectors	Land	Sea	Air
Food	1.4%	0.9%	2.3%	0.0%
Textiles	9.2%	8.1%	11.4%	7.6%
Chemical Products	9.7%	3.1%	5.0%	3.0%

Table 2.13: Costs of delays in the delivery of goods (% total sales)

Sector	3 Sectors	Land	Sea	Air
Food	1.2%	0.8%	2.0%	0.0%
Textiles	8.5%	7.3%	10.6%	7.0%
Chemical Products	8.6%	2.71%	5.0%	2.7%

2.53 For the three sectors, the main consequences of the delays are losses of clients and damage to the goods. Delays in input orders varied between 4 and 24 hours, with the longest delays being incurred in the textiles sector and least for the food sector.

2.54 On average, the time spent by inputs in Customs varies between 2 and 24 hours and is more than the time spent by exports (between 2 and 17 hours). For the case of maritime customs, the sector that has the fewest delays in customs is that of chemical products (4 hours) followed by food (7 hours) and textiles (13 hours). With regard to the import of inputs, the greatest delay incurred is that of the textile sector receiving its inputs by sea (24 hours delay) while the least delay is that of the food sector that receives its inputs by land (2 hours delay).

2.55 The structure of food inputs is reviewed below as well as the delivery of products in the three production chains based on the Survey to Business owners. See Annex 2 for the methodology.

2.56 Delays and unreliability of services as perceived by users results from a combination of the services provided, the infrastructure that supports the service and the interface between them, when there is a combination of modes. The following paragraphs describe the quality and reliability of transport services and their corresponding infrastructure.

Description and quality of freight transport services

2.57 Sea transport services are contracted by 42 percent of the companies surveyed to ship their finished goods. Among the three sectors studied, the textile products sector led the other two in its demand for shipping its finished goods by sea (54 percent). A third of the food sector contracts these services, while only 15 percent of the chemical products sector uses them.

Table 2.14: Uses sea carrier services for transporting goods

Sector	Uses	Doesn't Use
Food	33%	67%
Textiles	54%	46%
Chemical Products	15%	85%
Total Sectors	42%	58%

2.58 Companies that provide land carrier services are divided into two segments: (i) companies with more than 20 vehicles that have exclusive contracts with ocean shipping lines. Twelve of these companies provide 70 percent of the trucking services. Moreover, through the shipping company, the transport company or an intermediary (consolidator), these trucking companies offer the land/maritime service together with the shipping company. (ii) Land transport companies that provide only the land transport service, whether it is international (within Central America) or domestic.

2.59 Within the second segment, there are medium-sized, small and micro companies although 85 percent are individually owned micro-businesses,. Most are informal businesses that have their own vehicle and provide cheaper shipping carrier service but of poor quality. These are generally not very reliable, and are subject to high levels of cargo loss and a lack of safety.

2.60 The sea transport sector is provided by international shipping companies regulated by institutions and international agreements in terms of quality and safety of services. In El Salvador, approximately 25 shipping lines currently operate, which for the most part have a local representative, authorized to do business in El Salvador. Generally, there are two types of maritime lines: Global lines and regional lines. In the majority of the cases, importers and exporters access the ocean carrier services through brokers called consolidators, Freight

Forwarders or NVOCC (non-vessel operator common carrier), since they offer a greater variety of services and can sell space on all or most shipping lines in exchange for a commission.

2.61 The shipping lines, by contrast, contract the services of specialized trucking companies to move their cargo from the debarkation port to the final shipping agent. The quality of this contracted service is considered much better than the smaller, domestically driven, contracts, but the limited supply and high price for the service significantly the users' choices as well as their negotiating leverage.

2.62 Air cargo services are provided by companies specializing in the service of air cargo and passenger transportation companies that use the remaining space for the transport of cargo. The air transport services - like the maritime - are regulated by institutions and international agreements in which the quality and safety are indicated. There are 13 airlines that provide air cargo services in El Salvador, which are grouped in the *Asociación Salvadoreña de representantes de líneas aéreas* (ASLA – Salvadoran Association of Air line representatives) Only three airlines are dedicated exclusively to the movement of cargo, which move 76 percent of import cargo and 62 percent of exports. The rest use their available luggage space to transport cargo; TACA and COPA together are responsible for moving 22 percent of imports and 38 percent of exports.

2.63 These services are considered as being good quality in general, but the limitation of routes, companies and the dependence on the hub in Miami that has to concentrate more than 60 percent of the routes through it, reduces alternatives for users of this service.

Table 2.15: Airline companies

Air line		Import cargo (Kg)		Export cargo (Kg)	
		Quantity	%	Quantity	%
Arrow Air	APW	4,760,167	27.0	5,153,763	38.4
Other Comm.	OC.	4,870,082	27.6	2,226,812	16.6
TACA	TAI	2,381,045	13.5	2,020,208	15.0
UPS	UPS	3,784,352	21.4	1,010,523	7.5
Continental	COA	12,660	0.1	979,552	7.3
American	AAL	83,976	0.5	628,343	4.7
Delta	DAL	23,451	0.1	589,536	4.4
COPA	CMP	1,682,968	9.50.0	523,648	3.9
United Air	UAL	5,436	0.0	103,931	0.8
Aviateca	GUG	--	0.0	99,300	0.7
LACSA	LRC	--	0.0	84,428	0.6
Mexicana	MXA	28,933	0.2	9,544	0.1
Iberia	IBE	17,830	0.1	2,349	0.0
Total		17,650,900	100.0	13,431,937	100.0

Description and quality of infrastructure and its operation

2.64 Cargo transport services are supported by corresponding infrastructure to provide the required service. Land freight transport services is supported by the corresponding highway network, customs infrastructure and warehousing. The coverage, capacity and quality of the infrastructure as well as the efficiency of operations (customs operations, loading and unloading in warehouses for example) will impact the quality and efficiency of the land freight transport service provided to the user.

2.65 Equally, in services that involve a land transport leg and a maritime leg or a maritime leg only, the quality and efficiency of operations in the port will affect the efficiency and quality of the maritime service of land-maritime service provided through hidden costs.

2.66 The same logic applies to air transport, where the capacity and qualities of the air cargo Terminal and operations of loading, unloading, control and handling will have an effect on the quality of the air transport service or land-air combination through hidden costs.

2.67 The impact of the efficiency with which this infrastructure is operated may be reflected in the direct costs of the services offered. In other words, a trucking company may internalize delays suffered in a port due to port handling inefficiencies and make the final user pay as part of the land transport fee. In the case of El Salvador, given the relatively low direct costs for port fees, airport fees, and trucking, indirect or hidden costs are being transferred to users as delays, unreliability, breakages, spoilage and theft.

2.68 Road infrastructure network in El Salvador has greatly improved its condition and coverage in the las few years but congestion problems remain and are foreseen to increase in the future due to inadequate management and design of right-of-way, planning, institutional coordination of settlements, and insufficient accompanying infrastructure. Together with the high population density and increasing car ownership the reduction of the functionality of highways due to increased congestion will negatively affect the circulation conditions and safety of land freight vehicles and increase the unreliability of services and ultimately the hidden costs.

Figure 2.10: Congestion bottlenecks on the Salvadoran road network

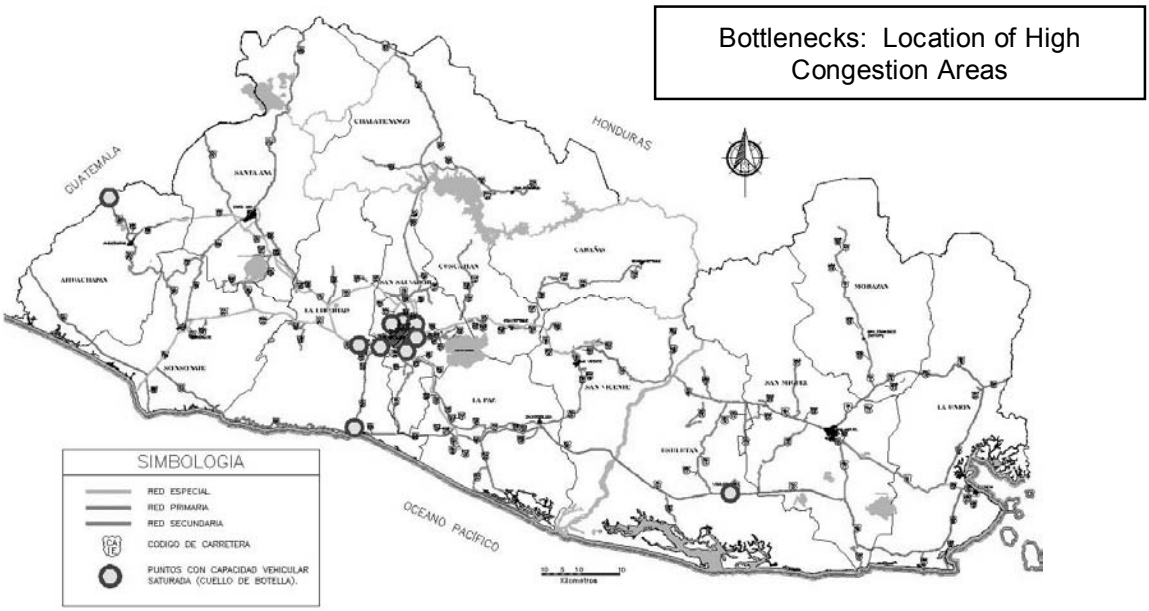
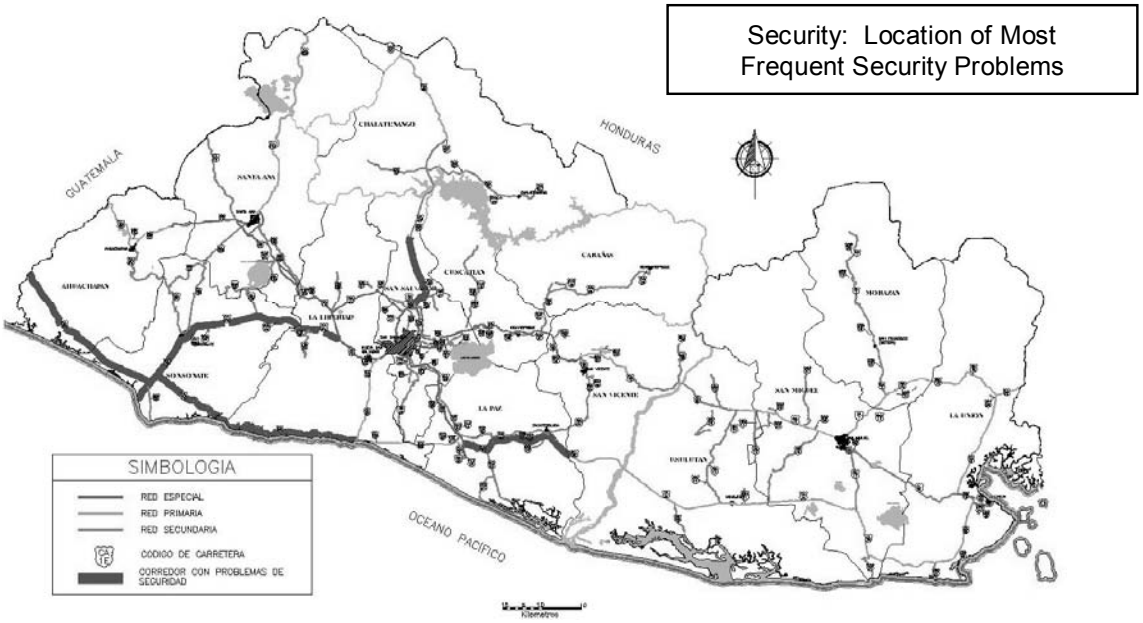


Figure 2.11: Location of most frequent security problems



2.69 The trucking services are highly inefficient, are unreliable, and 70% of the fleet is more than 15 years old. The lack of professionalism in the operation and a distorted market results in a high amount of negative externalities that are suffered by the users and third parties. These involve congestion, the degradation of road due to overloading, accidents, deterioration of merchandise, delays, interruption of service etc.

2.70 In contrast, efforts have been made to improve the operations of the port of Acajutla through the port reform. As a result the port has notably imporves its efficiency by reducing delays and improving productivity.

Figure 2.12: Improvement in bulk cargo handling years 2000– 2004

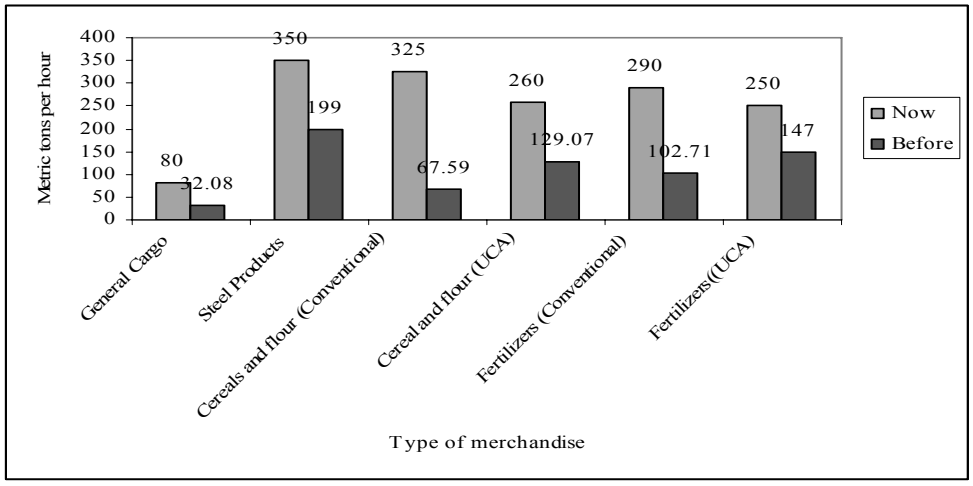
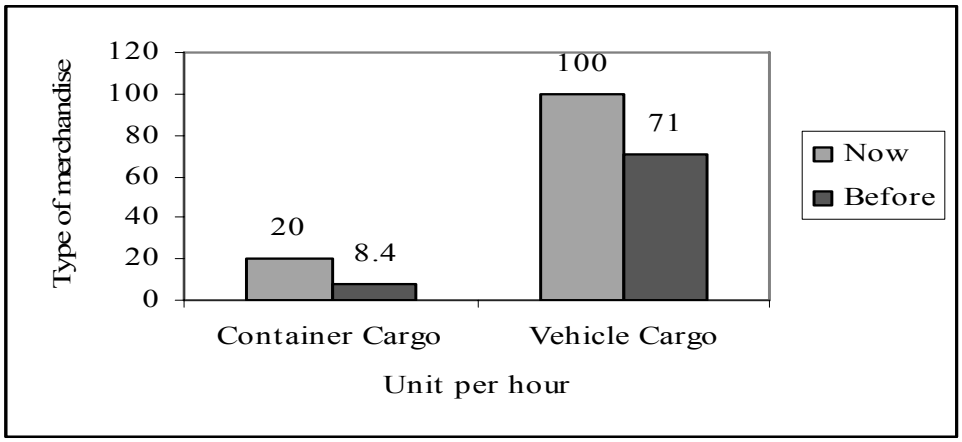
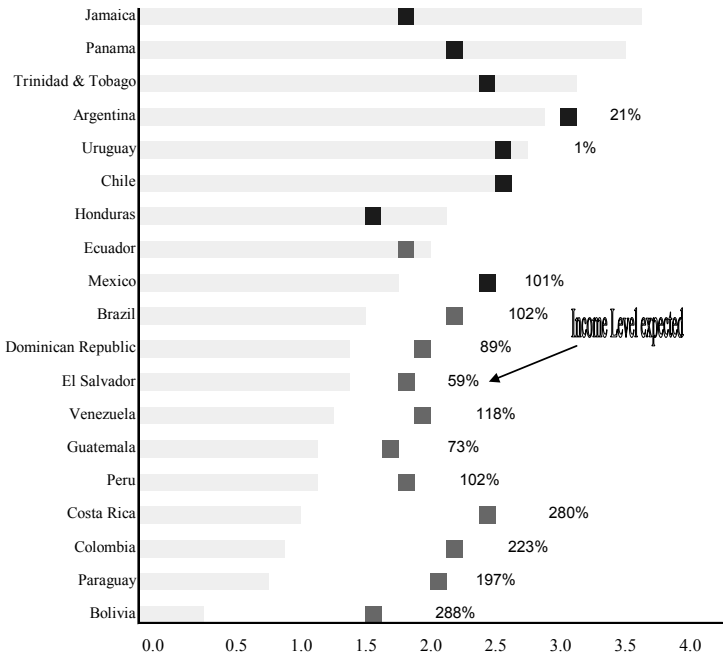


Figure 2.13: Improvement in container cargo and vehicle cargo handling years 2000– 2004



2.71 Despite recent reform successes, CEPA considers that more improvements are still possible when Acajutla's performance indicators are compared with international standards. If the efficiency indicators are compared with the level of income of the country there is still a significant improvement margin as can be seen from the figure below.

Figure 2.14: Port efficiency (and income level expected percentages for each country)



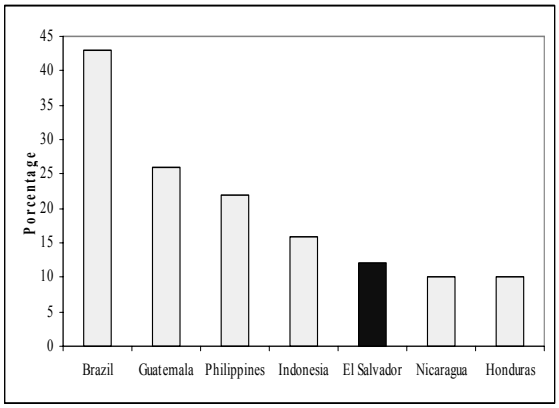
Source: Inter-American Development Bank. Economic and Social Progress Report in Latin America

2.72 *Cost of customs delays*: El Salvador ranks in the middle of its peer group in terms of the efficiency of its Customs Service. According to the 2003 Investment Climate Surveys, 11 percent of Salvadoran firms view customs regulations as a major obstacle to the operation and growth of

their business. While these time delays can be further reduced, the figure compares favorably to most countries in El Salvador's peer group (Figure 2.15 (a)). Similarly, the average time for imports to clear customs in El Salvador was just over six days, which was significantly better than in the Philippines, Guatemala and Brazil (Figure 2.15 (b)).

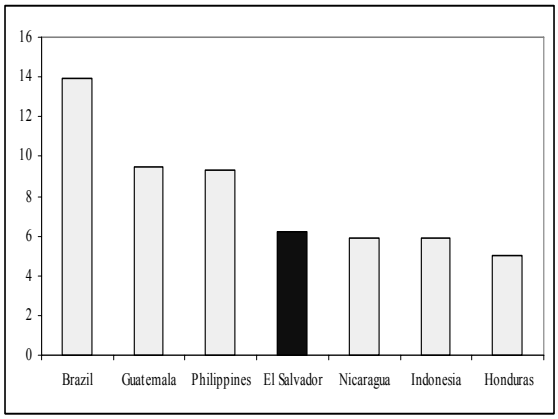
Figure 2.15: Customs efficiency

(a) Percentage of firms that view Customs regulations as a major obstacle to the operation and growth of their business



Source: World Bank, Investment Climate Surveys

(b) Average time to claim imports from customs (days)



Source: World Bank, Investment Climate Surveys

2.73 *Airport Infrastructure*: With respect to airport infrastructure and its operations, the passenger terminal is operating at 75 percent capacity, and analyzing each area separately; the checking area and commercial areas these are over capacity and have become bottlenecks. A critical point is also the cargo terminal which is operating at 120 percent its capacity, making everyday operations difficult, unreliable and inefficient. Its expansion and improvement are necessary in the very short term and are under discussion. The landing strip is only utilized to 30 percent of its capacity so does not constitute a problem.

2.74 The main bottleneck is the capacity and operations of the cargo terminal which is beginning to affect the efficiency of operations. The table below summarizes the capacity of airport infrastructure.

Table 2.16: Capacity indicators of AIES (Aeropuerto Internacional de El Salvador), 2004

Detail	Capacity Description	Percent Use
Passenger Terminal		
Passenger Movement	39,470m2 capacity area to assist 2 million passengers (arrival and departure)	45%
Commercial Area	5,200m2 capacity for commercial area, equivalent to 13% of the terminal total area	100%
Offices and Counters	2,898 m2 to offices and counters to the airlines companies	100%
Departing Gates	17 departing gates and 14 waiting areas for passengers	23%
Air Cargo Terminal	10,945m2 deposit area with capacity to get 1.8 million kg a month	120%
Runway Area	3,200m2 area with capacity to assist 350 to 400 daily flights operations. It needs an extension of 200m to be able to assist transatlantic flights.	30%
Emergency Unit	5 fire trucks with a total of 6,000 gallons of water (750lb per minute) and 1,800lb of quimics; with capacity to respond an emergency of airplanes Airbus-320 and Boing 757-200 (Category 10)	100%

Source: CEPA

Priorities in transport infrastructure and services for competitiveness

2.75 The direct costs of trucking services, port fees and airport fees are low in El Salvador and are so considered by users. On the other hand, maritime freight transport costs, and air cargo transport costs are high.

2.76 The above results from the limited number of companies that serve El Salvador, both for maritime and air cargo transport and the negotiation capability that cargo owners have in El Salvador is thus limited. Consequently, all policies and actions that tend to increase the number of companies and competition in maritime and air cargo transport as well as the negotiation position of cargo owners should be pursued.

2.77 The hidden or indirect costs due to maritime or air cargo services are low, as these firms provide generally good quality services, so no particular strategies are needed to improve these services. On the other hand, hidden costs results from inefficiencies of port and airport operations which have an impact on the overall hidden cost of the transport / logistics chain. Thus strategies to continue improving the quality and efficiency of port and airport operations must be a priority.

2.78 The direct costs of road freight transport are relatively low and there are no toll roads so the user does not pay direct costs for the use of road infrastructure. As a result, there is no particular need to try to further reduce these costs. On the other hand, the indirect costs of land freight transport are significantly high and impact a great number of logistic chains as land transport is the basis for most of the transport of freight to and from El Salvador. So the GOES should prioritize all strategies and actions leading to the reduction of indirect or hidden costs from the trucking sector.

Total Costs (Marítime transport services) = Direct costs (High) + Hidden Costs (Medium)

Total Costs (Air transport services) = Direct Costs (High) + Hidden Costs (Medium)

Total Costs (Land transport Services) = Direct Costs (Low) + Hidden Costs (High)

2.79 Looking forward, as a general strategy and as a result of the above análisis the GOES should pursue a strategy to reduce hidden costs primarily and first of all. This should result in the internalization of inefficiencies that should migrate to the direct costs, making the corresponding markets more transparent and allowing users to make informed choices regarding the service they parchase. Logically direct costs should increase. The GOES should continue to pursue the improvement and optimization of the use of existing infrastructure and reduce bottlenecks that may affect hidden costs of services. For example, road infrastructure improvements may result in tolls though road concessioning with an increase in capacity, reliability and security for the trucking services which would be an example of hidden costs migrating toward a direct cost. Similarly, one could imagine that the result of regulation of the trucking industry may result in the renovation of the fleet reducing unreliabily, accidents and pollution but resulting in a higher land freight transport fee as the cost of a more expensive vehicle is introduced to the cost structure of the trucking company.

2.80 In a second phase, the majority of hidden costs have been reduced to an aceptable level, and thus all economic agents have an informed idea of what they are purchasing and for what cost, and the negative externalities to third parties are reduced as they have been internalized into the direct cost as much as possible. At this point, the GOES should pursue the reduction of direct costs by the increase of competition in each market.

IMPACT OF ELECTRICITY AND TELECOMMUNICATIONS ON COMPETITIVENESS

2.81 *Electricity Services*. Quality of service--reliability in particular--is a key input to a firm's competitiveness as it affects their ability to plan and to forecast investment needs. This section analyzes the impact of electricity costs and quality of service in the context of competitiveness. Electricity costs account for a significant portion of total costs of the indicative sectors analyzed in this Chapter, ranging from 5 percent and 6 percent in food and textiles respectively, to 13 percent in the chemical sector.

2.82 *Cost of Service*. Electricity prices in El Salvador follow a cost-based structure, with prices for each distribution company assigned by voltage level and consumer size. Prices among distribution companies vary significantly as a reflection of urban/rural composition and load density (e.g. 54MWh/km^2 to 338MWh/km^2). Price comparisons among major companies in Central America show that the largest Salvadoran company has indeed the highest domestic prices but also the lowest prices for large users at higher voltages in the region. The Salvadoran price structure is considered to be more aligned with costs than others in that high-cost users—such as residential consumers—are charged much higher prices than low cost, high voltage consumers. The final tariff applied to consumers has three components: a) energy charge; b) network use charge; and c) charge for administrative services. The first component is not derived from a cost-based market but it is determined by the prices offered by operators in the wholesale market and applying a pass-through to obtain the retail price. The second and third components are determined by the costs incurred by the companies for the operation and maintenance of the network as well as the invoicing, notification, and collection of consumption. Finally, customer tariffs consider the voltage level, seasonality, and hourly distribution of energy use.

Table 2.17: Electricity prices in Central America for selected users (US¢/kWh)[1] —December 2004

Power Company	E.E.G.S.A	C.A.E.S.S.	E.N.E.E	E.D. N y S	I.C.E	ELEKTRA NE
Country	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Panama
COMMERCIAL						
1,000 kWh (small)	16.69	10.90	12.38	13.30	11.06	9.55
15,000 kWh, 41 kW (medium)	17.15	8.46	12.38	11.86	9.34	11.53
50,000 kWh, 137 kW (large)	16.95	8.46	12.38	12.66	8.83	11.52
INDUSTRIAL[2]						
15 000 kWh, 41 kW (medium)	17.15	8.46	12.37	11.81	9.34	11.53
50 000 kWh, 137 kW (large)	16.95	8.46	12.37	11.88	8.83	11.52
100 000 kWh, 274 kW (large)	13.68	8.46	10.00	10.14	8.83	9.80
930 MWh, 2500kW (very large)	13.48	8.44	8.94	10.09	6.12	7.84
1,488 MWh, 4MW	13.47	8.44	8.94	10.09	6.12	7.84

Source: ICE (Instituto Costarricense de Energía) Calculations based upon information supplied by power companies: E.E.G.S.A: Empresa Eléctrica de Guatemala S.A, C.A.E.S.S.: Compañía de Alumbrado Eléctrico de San Salvador, E.N.E.E: Empresa Nacional de Energía Eléctrica, DISNORTE y DISSUR: Nicaragua, I.C.E, ELEKTRA NORESTE S.A: Panama
Notes: [1]30 June 2004 [2]Based on 50% Load Factor

2.83 Prices shown in Table 2.17 were calculated directly from tariff schedules of the different companies, for selected types of users, and prices for other companies may differ from those shown erlier. Average prices by company and by subsector yield the levels shown in Table 2.18.

Table 2.18: Average prices by distribution company and by consumer subsector, 2004 (US¢/kWh)

	CAESS	DELSUR	AES-CLESA	EEO	DEUSEM	TOTAL
Domestic	11.9	13.0	13.8	14.9	14.7	13.1
Total Low Voltage	11.9	13.0	13.6	14.5	14.4	12.9
Total Medium Voltage	8.89	9.91	10.5	11.1	11.7	9.62
Avg. non-domestic	9.62	10.5	11.2	12.4	13.0	10.4
Total	10.4	11.4	12.1	13.2	13.8	11.4

Source: SIGET 2004

2.84 Within a Latin American perspective, prices exhibit the levels shown in Table 2.19.

Table 2.19: Average prices in Latin America (US¢ /kWh)

	Commercial	Industrial
Argentina	4.44	2.08
Barbados	19.95	19.65
Bolivia	8.43	3.98
Brazil	7.27	3.84
Chile	8.21	5.56
Colombia	9.24	7.17
Costa Rica	8.58	5.96
Cuba	10.45	8.35
Ecuador	11.11	9.65
El Salvador	**11.89**	**12.10**
Grenada	23.40	18.80
Guatemala	6.21	7.48
Haiti	8.84	8.45
Honduras	2.88	3.44
Jamaica	15.03	11.55
Mexico	13.95	6.95
Nicaragua	16.24	12.61
Panama	11.80	9.90
Paraguay	5.97	3.76
Perú	7.59	7.20
Dominican Republic	10.60	10.82
Suriname	17.30	13.10
Trinidad & Tobago	3.73	4.62
Uruguay	7.03	3.89
Venezuela	7.90	2.80

2.85 Finally, a worldwide perspective shows a large spread of prices among countries, as shown in Table 2.20.

Table 2.20: Electricity prices worldwide as of 2004 US$/kWh[1]

	Industry	Households
Australia (a)	0.0357 L	0.0619 L
Austria	0.0964L	0.1771L
Chinese Taipei	0.0532 L	0.0738 L
Czech Republic	0.0618 L	0.0888 L
Denmark	0.0950	0.2856
Finland	0.0735L	0.1264L
France	0.0501	0.1417
Germany	0.0485 L	0.1356 L
Greece	0.0638	0.1096
Hungary	0.0901L	0.1305L
India		0.0354 L
Ireland	0.1099L	0.1633L
Italy	0.1477 L	0.2000 L
Japan	0.1148 L	0.1742 L
Korea	0.0503 L	0.0738 L
Luxembourg		0.1117 L
Mexico	0.0585	0.0981
Netherlands		0.2219L
New Zealand	0.0520	0.1159
Norway	0.0440 L	0.0695L
Poland	0.0602	0.0971
Portugal	0.0934L	0.1764L
South Africa	0.0122 L	0.0317 L
Slovak Republic	0.0836L	0.1237L
Spain	0.0484 L	0.1139 L
Switzerland	0.0849	0.1415
Turkey	0.0917L	0.0960L
United Kingdom	0.0608 L	0.1336
United States (a)	0.0490L	0.0830L

Source: IEA Key World Energy Statistics, 1st Quarter 2004
Notes: (L) Latest data available (a) Price excluding tax

2.86 Based on this worldbwide perspective, industrial prices are on the order of 5–6US¢/kWh, i.e. around 1/3 less than those in CAESS, the lowest-priced company in El Salvador.

2.87 *Quality of Service.* Technical performance. In 2004, losses in the distribution network amounted to 10.8% of energy injected into the distribution companies' systems. This is a very good indicator when compared to most utilities in the region (e.g. Panama, with 15.5% losses in distribution for 2003). Overall losses, including transmission (1.8% in 2004, down from 2% in 2003), amounted to 12.4% of energy injected into the system. Losses show a decreasing trend, e.g. a reduction of around a percentage point between 2002 and 2004. Distribution companies' estimates of non-technical losses (i.e. theft, unmetered consumption and meter error) range between less than 1% in CAESS, the largest company, and 4.7% in the smallest (DEUSEM). Although losses vary among distribution companies, allowable losses (those that can be passed onto consumers) are limited by SIGET in regulated prices, thereby providing an incentive to reduce them. Table 2.21 shows comparative losses among Central American countries (transmission and distribution). Those in El Salvador are among the lowest in the region.

Table 2.21: Distribution losses 2001 (% of total output)

Argentina	14
Brazil	17
Chile	7
Colombia	22
Costa Rica	7
Guatemala	23
Honduras	21
Mexico	14
Panama	22
Average (9 countries)	16
El Salvador	**13**

2.88 Another measure of technical performance of particular concern to industry consists of service interruptions associated. Data for the January-June period of 2003 and 2004 is shown in Table 2.22.

Table 2.22: Outages by cause (January-June)

	2003	**2004**	**Increase (Decrease)**
Transmission outages	68	63	(5)
Transmission maintenance	74	67	(7)
Distribution circuit outages	668	735	67
Distribution circuit maintenance	257	228	(29)
Interconnection outages	11	6	(5)
Interconnection Maintenance	92	110	18
Totals	1170	1209	39

Source: SIGET

2.89 There appears to be a slight increase in the number of service cuts, particularly in the case of distribution circuits. Unserved energy for the same period amounted to 3,726MWh in 2004 and 3,367MWh in 2003, an increase of 11%.

2.90 These statistics are not particularly significant by themselves, and they require translation to indices. Measurements of technical service quality in electricity utilities comprise primarily frequency and duration of power cuts. In El Salvador, SIGET is trying out a procedure for providing incentives to improve these indices. The usual approach is to institute a reimbursement to consumers who are affected by indices that exceed a predetermined standard. During an initial trial period (which started in October 2002 and ended in June 2003) distribution companies implemented the required measurement procedures; during a transition period (ending December 2004) distribution companies are expected to take remedial measures to achieve the required standards, and starting January 2004, compensation to consumers began to take place when standards are not met.

2.91 The technical service quality indicators set by SIGET include:

- FMIK: mean frequency of interruption per kVA, which represents the number of times a company's average kVA was interrupted during a given period;

- TTIK: total interruption time per kVA, which represents the average time a company's kVA lacked service during a year;
- SAIFI: system average interruption frequency index, is a common measure in utilities that gauges the number of interruptions per customer per year;
- SAIDI: system average interruption duration index, another common measure in utilities shows the average number of hours of interrupted service experienced by customers (hours per customer per year).

These limits were revised after the trial and transition periods. Values achieved by specific companies in 2004 (permanent period values) are shown in Table 2.23.

Table 2.23: Service quality indicators, December 2004[1]

Index	TTIK		FMIK		SAIDI		SAIFI	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
LIMIT	**14**	**30**	**8**	**14**	**18**	**30**	**9**	**15**
CAESS	23.33	79.97	17.62	35.31	28.95	77.83	20.21	34.81
DELSUR	18.6	66.77	10.36	24.35	25.02	78.78	14.60	29.87
AES-CLESA	36.99	31.68	20.84	16.02	38.55	32.16	21.32	15.82
EEO	NC[2]	64.11	NC	47.12	NC	72.54	NC	53.11
DEUSEM	NC	49.13	NC	26.01	NC	54.11	NC	30.27

Source: SIGET 2004
k çíÉW2004 cumulative value [2]Not Calculated

2.92 Although some companies have achieved the target levels, it would appear that there remains lots of room for improvement. The indicators for CAESS, the largest distribution company, appear to be particularly below standard.

2.93 Another quality indicator is related to voltage fluctuations. SIGET instituted a voltage measurement campaign whereby every month the distribution companies monitor a sample of low- and medium-voltage users. Quality is measured as the frequency with which voltage exceeds a 3% band around its nominal value. The limit frequency as a percent of time was set at 5%, with the results shown in Table 2.24. No explicit sanctions are taken for not complying with the prescribed frequency limit, but distribution companies are expected to take remedial measures.

Table 2.24: Product quality index 2004

COMPANY	CAESS		DELSUR		AES-CLESA		EEO		DEUSEM	
INDICATOR	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
LIMIT	5	5	5	5	5	5	5	5	5	5
Jan	0.0%	27.5%	5.6%	4.5%	0.0%	4.1%	NA	12.8%	NA	0.1%
Feb	12.0%	28.3%	10.3%	4.6%	0.0%	7.9%	NA	1.1%	NA	1.7%
Mar	13.5%	9.2%	8.5%	5.1%	0.0%	5.6%	NA	21.3%	NA	1.4%
Apr	18.0%	15.1%	9.5%	6.2%	0.0%	30.5%	NA	15.8%	NA	3.0%
May	7.6%	13.0%	11.1%	6.3%	25.0%	21.7%	NA	8.3%	NA	2.2%
Jun	4.1%	6.3%	11.0%	8.5%	0.0%	14.0%	NA	4.4%	NA	1.6%
Jul-	7.3%	4.2%	11.6%	6.1%	0.0%	2.9%	NA	16.7%	NA	3.0%
Aug	8.4%	8.4%	13.4%	6.8%	1.4%	1.0%	NA	6.3%	NA	3.5%
Sep	5.6%	5.6%	12.6%	7.1%	0.0%	11.6%	NA	4.7%	NA	7.0%
Oct	7.2%	7.2%	12.8%	6.8%	0.0%	5.6%	NA	10.6%	NA	4.1%
Nov	1.4%	1.4%	11.9%	7.2%	0.0%	13.7%	NA	4.0%	NA	6.6%
Dec	8.8%	8.8%	2.8%	3.7%	0.0%	5.4%	NA	12.1%	NA	6.4%

Source: SIGET 2004

2.94 *Commercial quality performance.* In addition to the technical indicators, SIGET monitors and regulates a number of commercial quality indicators:

- COSE: percentage of new service connections provided within a maximum authorized delay (5, 7, and 10 days for high, medium and low-density areas, respectively); the permissible value of this indicator is 92%;
- USRE: percentage of users reconnected after a service interruption within authorized delays (6, 8, and 10 hours for high, medium and low-density areas, respectively); the permissible value is 92%;
- IPE: percentage of billing errors, calculated for different tariff categories, which should not exceed 4%;
- IFE: percentage of estimated billings due to meter-reading errors, not to exceed 3, 4 and 6% for high, medium and low load densities;
- PRU: percentage of serviced claims with respect to total customers, broken down into interruption-related, technical, and commercial (PRU_i, PRU_t, PRU_c), which should not exceed 4%, 4% and 3%;
- TPA: average processing time for claims, not to exceed 15 days;
- PRA: percentage of claimed cases resolved with respect to total claims, should be at least 90%;
- RCSU: percentage of reconnections of suspended customers who have resolved their situation (15, 20 and 24 hours for high, medium and low load densities);
- RCUS: percentage of queries from users that have been answered in writing by the utility, should be at least 92%.

2.95 Table 2.25 shows the results during 2003 of commercial quality indicators for different companies.

Table 2.25 Commercial service quality indicators, 2003

Indicator	Tariff/Area	Limit	CAESS	CLESA	DELSUR	DEUSEM	EEO	
COSE	High Density	92%		88.21	NA	95.06	NA	NA
COSE	Medium Density	92%		90.28	80.42	96.95	NA	NA
COSE	Low Density	92%		93.85	87.83	97.48	99.32	97.07
USRE	High Density	92%		97.93	NA	97.83	NA	NA
USRE	Medium Density	92%		98.59	84.35	97.29	NA	NA
USRE	Low Density	92%		98.94	93.21	95.32	99.83	NA
IPE	Domestic	4%		0.27	0.12	0.24	0.27	0.42
IPE	General Use	4%		0.27	0.06	0.15	0.3	0.27
IPE	Med. load, LV	4%		0.09	0.12	1.89	1.92	0.47
IPE	Med load, kW	4%		0.66	NA	0.79	0.69	NA
IPE	LV, TOD	4%		0.74	0.1	1.11	1.67	1.96
IPE	LV large, TOD	4%		0.44	NA	8.51	4.76	NA
IPE	MV, kW meter	4%		0.64	NA	0.91	0.81	NA
IPE	MV, TOD	4%		0.75	NA	1.35	1.19	1.83
IPE	MV large, TOD	4%		0.73	NA	0.57	2.08	2.67
IPE	Unregulated	4%		0.66	NA	0.11	NA	NA
PRUI		4%		1.99	0.8	NA	0.02	NA
PRUT		4%		0.08	NA	NA	NA	NA
PRUC		4%		7.23	0.5	2.43	7.33	0.65
PRA		90%		91.96	93.69	92.26	90.91	80.54
TPA		10 Days		11.45	1.6	0.97	1.81	12
RCSU	High Density	92%		48.21	NA	98.87	NA	NA
RCSU	Medium Density	92%		52.81	93.18	97.8	NA	NA
RCSU	Low Density	90%		69.87	98.67	96.75	87.51	NA
RCUS		92%		NA	96.58	100	NA	NA
IFE	High Density	3%		0.32	NA	NA	NA	NA
IFE	Medium Density	4%		0.28	0.92	NA	NA	NA
IFE	Low Density	6%		0.18	0.42	NA	0.02	0.138

Source: SIGET

2.96 Findings for 2003 indicated that customer service has improved, and that setting quality indicators may have been a contributing factor. Overall, electricity quality, reliability and cost do not seem to be significant constraints to firm competitiveness in El Salvador.

2.97 *Cost of telecommunications.* Telecommunication services are a crucial element for the competition of countries in the global economy. The portion of telecommunications as a cost input is thus misleading. Even though the portion corresponding to telecommunications in the cost structure of the three sectors considered in the survey is only around 2 percent in 2004, the sector still faces important challenges. Access and availability of IT, service reliability, and access to regulation in the case of reclamations, for example, contribute to firm productivity and competitiveness.

2.98 *Cost of service.* Commercial telephone prices are higher in El Salvador than in nearby Honduras and Costa Rica due to cross-subsidies from international service in those countries.

Table 2.26: Local commercial prices in Central America in 2003 (US$)

	Commercial (1000 min)
Guatemala	28.03
El Salvador	**35.28**
Honduras	23.72
Nicaragua	41.83
Costa Rica	12.5

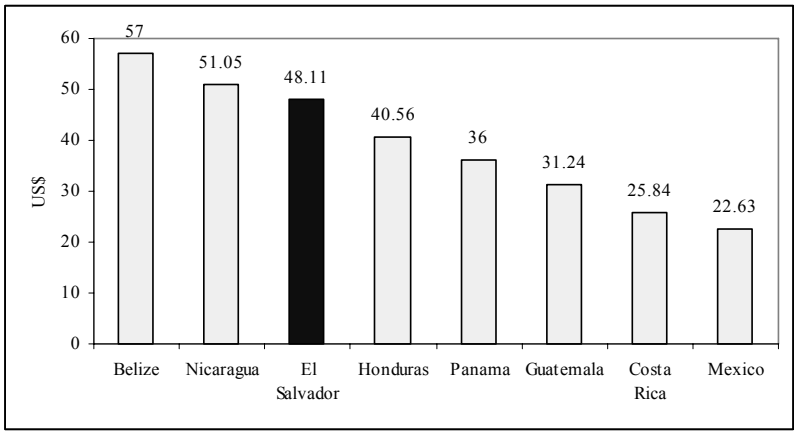
Source: author's calculations based on regulatory agencies' information

2.99 International accounting (or termination) rates are the charges payable to interconnecting international operators under traditional settlement arrangements for mutual termination of traffic between their networks.

2.100 In El Salvador, the international termination rate is still US$0.19. Despite this high rate, the significant difference in the ratio of incoming vs. outgoing traffic (10 to 1) entails high settlement payments from US operators. The need to rebalance international and national rates has important implications for price cap regulation. For many countries, a significant amount of rate rebalancing may be both desirable and necessary. Accordingly, pricing restrictions should not deprive the operator of sufficient pricing flexibility to implement rebalancing. The potential volatility of international prices and uncertainty of customer response may make it beneficial for the regulator to implement a fixed-weights scheme for the price cap formula, at least until the majority of the rebalancing has occurred.

2.101 *Internet.* Internet prices in El Salvador are high. The price for 20 hours per month of dial-up Internet use is around US$48, against US$22 and US$ 25 in Mexico and Costa Rica respectively. This is difficult to afford for SMEs in El Salvador. One main reason for high Internet prices is the absence of a special tariff for this service. To navigate the Internet, users must pay the price of a local call, or around US$ 0.02/minute. Of all Central American countries, only Nicaragua and Belize have higher prices for Internet services than El Salvador (see Figure 2.16).

Figure 2.16: Internet prices for 20 hours per month



Source: ITU

2.102 Lack of local content. El Salvador has few Internet websites and few private initiatives to promote the use of Information and Communication Technologies (ICTs)**.** As described above, El Salvador is below the Latin American average in terms of E-government readiness. Therefore, it is essential for the GoES to focus on strategies that promote the use of ICTs to position the country at a competitive level in the region.

2.103 The local telephone pricing is a disincentive to the establishment and expansion of ISPs, who create local content. This is because the incumbent offers free of charge to interconnect with its own ISP, but charges local telephone rate for the use of Internet. Therefore, no ISP can compete with the incumbent's free charges. Few ISPs means few local content, low use, and low development.

2.104 Too few ICTs training programs focused on adult population, and few higher education programs. Even though the young population is growing in an ICT environment (cyber-cafes and some schools with ICT training programs), it is important for the adult population to have access to institutions that provide this training to create an ICT environment.

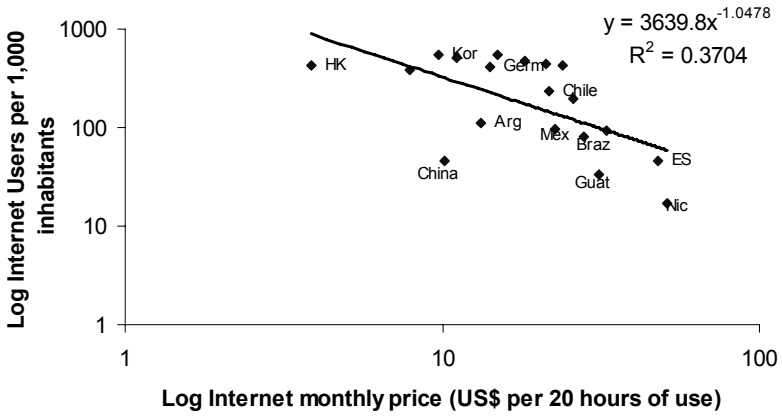
2.105 Also, higher education institutions offer relatively too few programs to prepare students to ICTs-oriented technical professions. The Ministry of Education, through its vice-ministry of ICTs, is currently launching a program to promote certification courses for young adults in ICTs. This is an important effort by the GoES to increase ICT levels in the country.

2.106 E-commerce regulation. El Salvador does not have an E-commerce regulatory framework for protection and certification of online transactions. The absence of confidence in online transactions severely hinders the development of E-commerce in the country, which in turn is an obstacle to the development of its ICT sector.

Recommendations

2.107 Establish a reduced rate for Internet access. SIGET should establish a special rate for Internet access, allowing people to use Internet services at a more affordable cost. This would extend use of the service to a larger mass of population and small businesses, which could exchange emails and visit web pages. Even existing users would increase the time they spend online. As a result, El Salvador would achieve the "minimum critical mass" of users, and from this point, Internet usage would grow exponentially. As shown in Figure 2.17, based on a large group of countries, there is a positive correlation between low Internet prices and higher Internet usage. Telephone companies would benefit from increased number of users and traffic. More companies would enter the ISP segment and develop more local content. Business productivity would improve and thus foster El Salvador's competitiveness.

Figure 2.17: Internet prices and internet users



Source: Author's calculations with World Bank Indicators

CHAPTER 3: FINANCING INFRASTRUCTURE AND THE INSTITUTIONAL FRAMEWORK FOR DEVELOPMENT

3.1 This section presents an analysis of the financing structure of El Salvador's infrastructure. First, it examines the volume of financing flows and their composition according to sectors and sources, both public and private. The chapter then looks ahead by estimating the cost of meeting the country's future needs in infrastructure, the financing options for addressing those requirements and the institutional challenges that must be addressed in order to mobilize sufficient private and public resources.

3.2 Rapid decline in investment levels in infrastructure: After establishing an investment trend level of about 2 percent of GDP, infrastructure investment in El Salvador reached a high of 3.3 percent of GDP in 2000. Since that banner year, combined public and private investment levels have dropped to a low of 1.2 percent of GDP in 2004. This rapid decline in infrastructure investment has been caused by two processes:

- A structural decline in the participation of infrastructure as percentage of total public investment (see Figure 3.1 (b)).

- A drop in the levels of private investment since its peak in 2000 (see Figure 3.1 (a)).

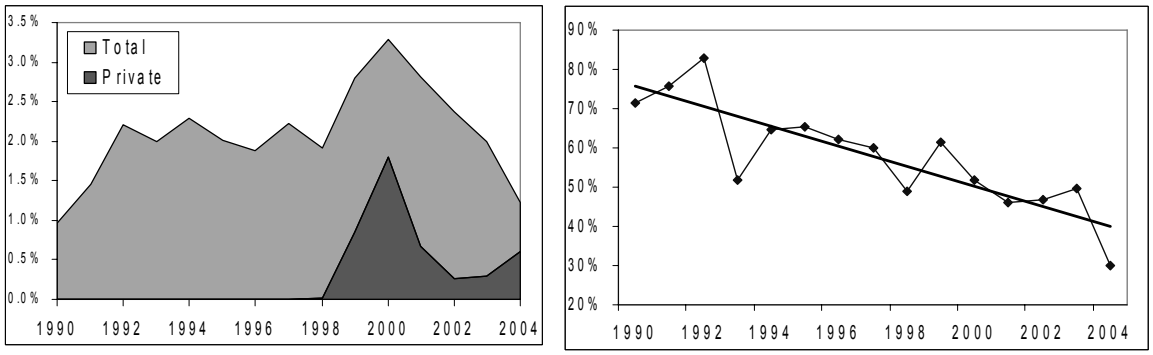
3.3 Against a background of fiscal restraint, the Government of El Salvador has worked to meet the growing needs of its population–from healthcare and education to pensions and provision of basic services. Much of the spending required to satisfy these needs has come at the cost of infrastructure financing, which has dropped as a percentage of public investment from between 70 and 80 percent to 30 and 40 percent over the past decade. In absolute terms, public expenditures on infrastructure have dropped from US$200 million to US$300 million per year through most of the 1990's to less than US$100 million in 2004.

3.4 In parallel to the drop in public funding of infrastructure, private investment has also fallen since the reform of the telecommunications and electricity sectors of the late-1990s—from US$240 million in 2000 to less than US$100 million in 2004. Though these early reforms unleashed large-scale private investment in the expansion and updating of assets and the procurement of new equipment by investor-operators, private flows in infrastructure observed in the past three years has returned to a level that is consistent with the long-term yields anticipated by private investors. As such, it is unlikely that the current batch of private operators will significantly increase their investments in the near future.

3.5 Unless a concerted effort is made to increase public investments in infrastructure or new private investment opportunities come to financial closure, El Salvador's total infrastructure investment will likely remain at is current level of 1.5 percent of GDP per year. This will not be sufficient to expand services, to raise the competitiveness of El Salvador's logistics backbone or to break the cycle of low investment and low growth.

Figure 3.1: Investment in infrastructure in El Salvador

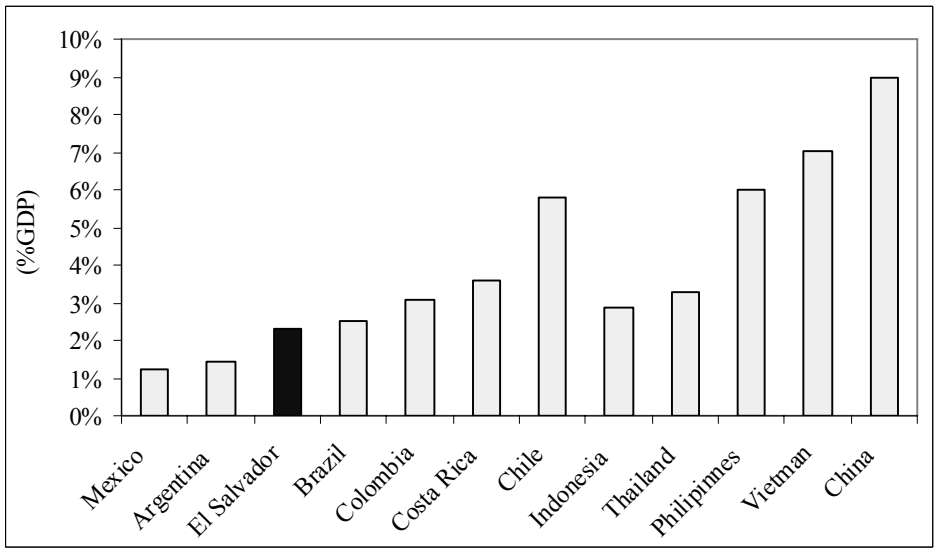
(a) Total and Private as % of GDP **(b) Public as % of the Total Public Investment**



Source: Ministry of Finance and Fitch Ratings for Private Investment in Telecommunications and Energy
Note: Private Investment does not include divestitures, only capital disbursements

3.6 Comparatively low levels of investment in infrastructure: Though the historic level of investment in infrastructure of El Salvador of 2 to 2.5 percent of GDP is higher than that of some middle income Latin American countries such as Mexico and Argentina, it is not comparable with the faster growing economies in the region. Costa Rica and Chile, for example, have sustained levels of investment in infrastructure between 3.5 and 5.5 percent for many years and have sustained rates of economic growth between 4 and 7 percent. Moreover, high growth economies in East Asia such as Vietnam, Thailand, and China, that have overhauled their infrastructure to stimulate exports, invest between 3 and 9 percent of GDP in infrastructure each year (Figure 3.2). Moreover, while El Salvador has posted a drop in its spending in infrastructure since 2001, regional and Asian competitors have sustained their levels of investment to help them compete with China.

Figure 3.2: Average investment in infrastructure as % of GDP 1998-2001



Source: World Bank EAP Infrastructure Flagship, 2004; El Salvador Ministry of Finance; Fitch Ratings; Easterly and Serven, 2000.

3.7 Changing sectoral focus: El Salvador's allocation of investment by sector is unique among its group of comparator countries. The predominant nature of this profile of investment has been an increasing concentration in transportation with declining investment in the sector of water and sanitation. The characteristics of each of the sectors can be described as follows:

- Transportation: Over the past six years El Salvador has allocated a higher percentage of its infrastructure investment to the transportation sector than any other country in Latin America. Expenditures in reconstruction and expansion of the main roads are unlikely to reach the levels of the post-earthquake years. Still, the new access road to the north, the public investments in the Port of Cutuco (approximately US$140 million) and the private investments anticipated in the Port of Acajutla and the International Airport Cargo Terminal are likely to keep the levels of transportation investment from declining in absolute terms. Moreover, if the Government of El Salvador were to undertake many of its planned road projects—including improved access to La Union in the East and a ring road around San Salvador—transport would likely continue to dominate infrastructure investments.

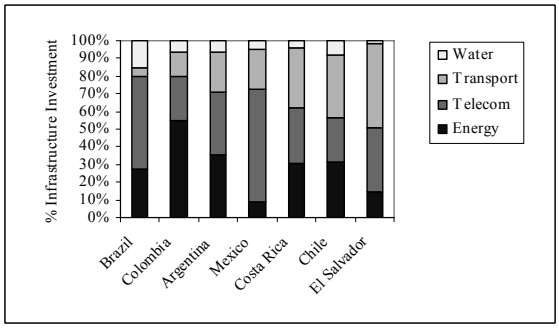
- Telecommunications: Investments in telecommunications has also represented an important percentage of infrastructure investment (36 percent of the total) driven by the expansion of mobile telephony (see Chapter on Telecommunications). As the rates of penetration of fixed and mobile lines continue to decelerate, it is probable that these levels of investment will drop as a percentage of the total investment in infrastructure.

- Electricity: Investment in the electricity sector has declined steadily over recent years and has represented less than 15 percent of the entire investment in infrastructure. This is one of the lowest percentages of regional countries with similar income levels as El Salvador. In part, this can be explained by the leveling of the penetration rates of home connections and by the use of imported electricity, which represents approximately 7 percent of the total purchases of KwH (see Chapter on Electricity). Only a return to higher levels of growth, a thrust in public investment in hydroelectric generation and/or adjustments to the market structure that reduce the risk of higher investment for private generators would have a significant effect on investment levels of the electricity sector in general.

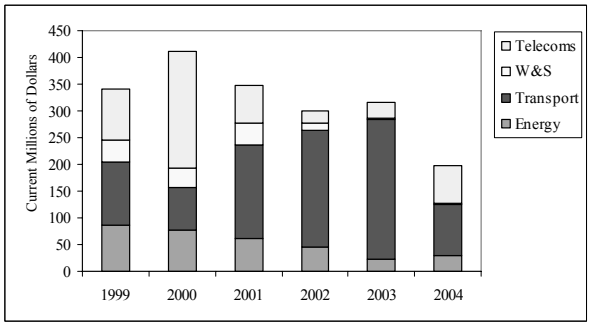
- Water and sanitation: Despite being ranked last with respect to access among comparator countries and in Central America, El Salvador has allocated only 1.4 percent of its investment in infrastructure to this sector since 1999. This is much lower than the 6.6 percent of total investment dedicated to water and sanitation in the benchmarked countries. Practically speaking, there has been no investment in water or sanitation for the past two years resulting in an actual decrease in coverage levels in the sector (see Chapter on Water and Sanitation).

Figure 3.3: Composition of the investment in infrastructure

(a) Distribution of the Total Investment 1998-2003



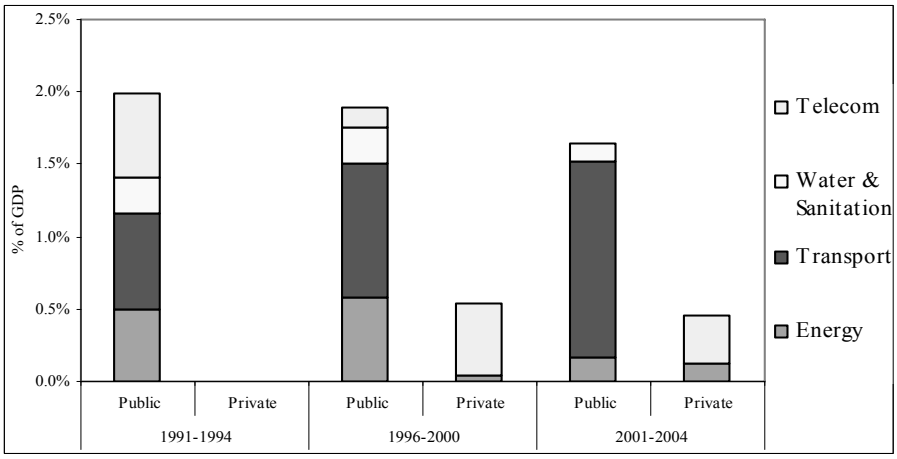
(b) Total Investment of El Salvador in millions



Source: El Salvador Ministry of Finance; Fitch Ratings; Easterly and Serven, 2003
Note: Data are from the last five years available and vary slightly by country

3.8 While Figure 3.3(b) shows a rapid decline in infrastructure investment over the last four years, a bundling of investment data into 5 year periods shows a more nuanced story. As shown in Figure 3.4, the change in the allocation of public investment toward transport has accompanied a rise in private investment in infrastructure. Since private investment has gone entirely toward electricity and telecommunications and public investment in water and sanitation has dried up, transport has grown from 33 percent of total spending in the first five year period (1991-1995) analyzed to about 2/3's of total spending over the last five years. The result has been stalled access to basic utility services (water, sanitation, electricity and landline telephones) in parallel to a rapidly improving road network.

Figure 3.4: Composition of the investment in infrastructure

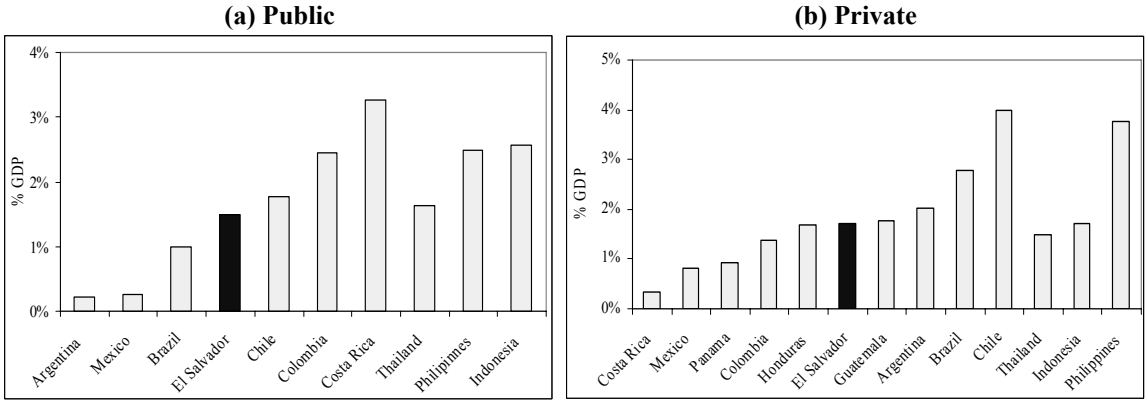


Source: Ministry of Finance and
Fitch Ratings for Private Investment in Telecommunications and Energy
Note: Private investment does not include divestitures, only capital spending

3.9 The role of the private sector in the financing of infrastructure in El Salvador: El Salvador has retained a more balanced ratio of public versus private investment than its comparator countries, many of which have been philosophically driven to rely on either the public sector (e.g., Costa Rica) or the private sector (Chile, Argentina) to finance its infrastructure

(see Figure 3.5(a)). This having been said, the Salvadoran balance between public and private investment illustrates a different approach to different sectors rather than an equilibrium of financing sources that cuts across all sectors. The levels of private investment in El Salvador are the result of the first wave of sectoral reforms undertaken in the mid and late-90s, which resulted in the rehabilitation and expansion of the electricity and telecommunications services. With a second generation of reforms under discussion (see respective sectoral Chapters), El Salvador could generate modest increases in the level of investment in these two sectors. The launch of a successful concession program in transportation as well as first generation reforms—institutional, legal and regulatory—in water and sanitation are necessary before either sector can benefit from significant increases in private investment.

Figure 3.5: Investment in infrastructure

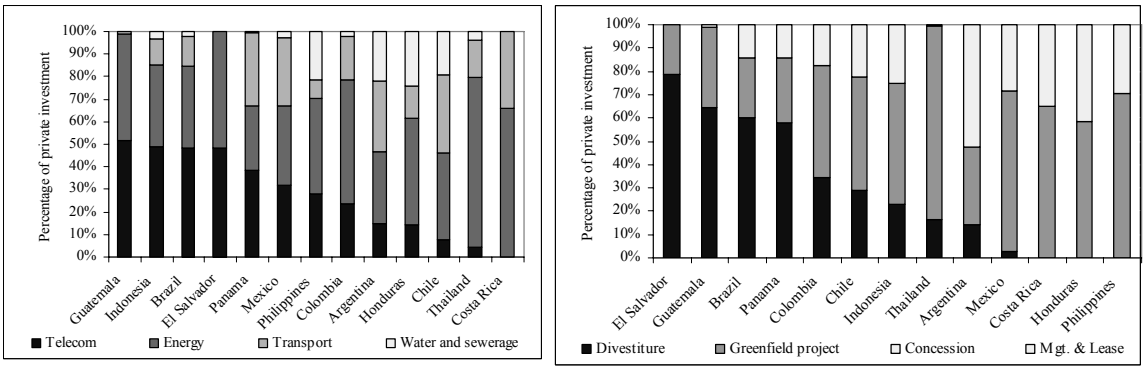


3.10 Forms of PPI: The sales of existing assets represented a greater percentage of the activities of private investment in El Salvador than in any other of the comparator countries in Latin America or East Asia, with almost 80 percent of the private investments in infrastructure of El Salvador taking the form of asset sale from 1993 to 2003. This results from a private participation in infrastructure (PPI) program that, to date, has been concentrated in the sectors of telecommunications and energy (Figure 3.6(b)). In these sectors, asset sales and licenses for new entry are the norm whereas concessions and other forms of contracts (e.g., leases or management contracts) generally play a minimal role.[31]

[31] Governments generally prefer contract arrangements that do not involve the transfer of ownership of assets in sectors that are considered to have strong characteristics of the public domain, strategic value or to be politically sensitive. For this reason, the majority of negotiations of PPI in water, sanitation and transportation around the world in development have involved concessions, or to a lesser extent, lease contracts and management instead of direct sales or divestitures. Accordingly, the economic and financial basic principles that govern the private property of infrastructure services confer to licensed assets under concession that are in similar risks of monopoly conduct, sensitivity to public interference on the tariffs and the associated regulatory requirements.

Figure 3.6: Composition of private investment, 1993-2003

(a) By Sector of Infrastructure **(b) By Type of PPI**



Source: World Bank, Database of PPI

3.11 Broadly speaking, El Salvador has involved the private sector in power and telecommunication to a degree similar to that of much of Latin America whereas El Salvador's public sector continues to dominate water and sanitation to a greater degree than many of the region's countries. To view the contrast in the use of the private sector in utilities between El Salvador and the rest of Latin America, see the maps in Annex 2.

LOOKING AHEAD: AN ASSESSMENT OF EL SALVADOR'S INFRASTRUCTURE INVESTMENT NEEDS

3.12 This section presents an assessment of El Salvador's investment needs in comparison with recent levels of spending in infrastructure.[32] In general, the results suggest that spending will have to increase in order for basic policy objectives of increased access to basic services and higher levels of competitiveness and growth to be achieved. Sectorally, it is necessary to increase substantially investments in water and sanitation. Spending levels on roads might increase as well depending on the implementation of government plans to create a logistics network. While there is some debate about the need for El Salvador to increase its reserve margin in electricity generation, further diversification of the country's energy sources are likely to require greater investment. Only the telecommunications sector seems to be spending at a level that is roughly consistent with the dual objectives of fair returns for private investment and meeting consumer needs.

[32] The minimum total investment estimate focuses on the principle bottlenecks with regard to access for citizens of El Salvador and thus includes roads, electricity, telecommunications, water and sanitation. The maximum estimate includes the development of a logistical network, but does not include the development of the Free Economic Zone (approximately US$60 million) is it remains outside a strict definition of infrastructure. The calculation also does not include the construction costs of the Port of Cutuco (approximately US$140 million) considering that the 7-year grace period in the obligations of financing of the port extends beyond the timeframe considered in these calculations. For purposes of a conservative calculation, neither of the estimates assumes significant investments in Acajutla or the International Cargo Terminal as a result of the concession programs. Any or both would increase the percent of GDP invested in infrastructure.

3.13 As a percent of GDP, the historic level of investment in infrastructure—that is, prior to 2001—is near that of the medium-term needs of the country; however, the current level is insufficient. Based on the costing exercise described below, El Salvador could achieve universal coverage of homes in electricity, drinking water and sanitation; maintain consistent growth in the availability of telecommunications; and improve all the roads in poor and fair condition, with an annual investment in infrastructure of approximately 2.9 percent of GDP. If the goal is to convert El Salvador into a logistics center, this level of spending would go up to approximately 4 percent of GDP. In either case, the private sector could cover approximately 1.5 percent of the total investment, leaving the government with 1.4 percent to 2.5 percent of GDP to spend on infrastructure, again depending of how ambitious the logistics program is. This suggests that if El Salvador reaches a level of investment slightly above its historic levels in the short to medium-term, it could achieve universal access in social infrastructure and meet the growing demands of the business community in providing competitive services.

3.14 In order to meet these goals, expenditures would need to be effectively allocated and implemented. The approach to achieving effective expenditure—particularly through better subsidy design—is discussed in more detail in the Social Infrastructure Chapter.

Table 3.1: Yearly investment needs estimate for El Salvador (in millions of US$) 2006- 2010

	Maintenance	Investments	Total Spending	Est. % Private	Private Investment	Public Investment
Electricity	$53	$83	$136	55%	$75	$61
Water	$21	$28	$49	20%	$10	$39
Sanitation and Urban drainage	$21	$47	$68	20%	$14	$54
Telecommunications	$47	$47	$95	95%	$90	$5
Roads (minimum)	$90	$34	$124	14%	$17	$107
Roads (Logistical Center)	$126	$170	$296	14%	$41	$255
TOTAL MINIMUM	$232	$239	$471	44%	$205	$266
% 2004 GDP	1.5%	1.5%	2.9%		1.3%	1.7%
TOTAL MAXIMUM	$268	$375	$643	36%	$229	$414
% 2004 GDP	1.7%	2.4%	4.1%		1.4%	2.6%

Source: Own calculations; World Bank maintenance and investment per unit cost averages; MPWT cost estimates and private sector participation estimates for new road investments

3.15 Assumptions of the investment needs assessment. Below is an explanation of the assumptions corresponding to each component of the calculation.

3.16 *Electricity.* Investment needs in electricity are calculated based on the goal of reaching universal electricity coverage by 2015 with the coverage level baseline determined by responses to the Multi-Use Survey of Households (EHPM) in 2004. The calculation takes into account three types of spending required to reach universal coverage: new connections to the network, investment in new generation capacity and maintenance spending. Investment in new connections was calculated based on the rate of expansion of the service needed to reach universal coverage by 2015, using the population projections of the United Nations. The all-in cost of a new connection to the network is estimated at $1,000. The investment in new generation capacity is based on continued expansion at the annual average rate of 1995 to 2004,

at a cost of $600 per Kw.[33] Annual maintenance spending is equal to 2 percent of the total current value of connections and generation capacity. The resulting estimates are similar to or even a little more conservative than the estimates of ETESAL for the next five years.[34] The proportion of private over public participation is based on that assumed by ETESAL, with the portion corresponding to public-private partnership divided, in equal parts between public and private investors.

3.17 *Water Supply.* The investment needs in water are calculated based on the goal of reaching universal access to a better source of water–defined as a private or public connection–by 2015. In this calculation, homes that use a neighbor's connection are improved to a private household connection homes without water service receive either a private connection or a tap. The price of a household connection is $547 and the price of a tap is $291 per home. The annual maintenance costs are calculated as three percent of the current value of both types of connections. It is assumed that a relatively modest proportion of investments in water and sanitation (20 percent) could be financed by the private sector in the short term. This could include, for example, the "greenfield" development of a wastewater or water treatment plant or the concessioning of a secondary urban system.

3.18 *Sanitation and Urban Drainage.* The investment in sanitation needs is calculated based on the goal of reaching universal access to a better sanitation system–defined as a home sanitation connection or a better latrine by 2015. In the estimate, the percentage of homes that use a private latrine is maintained constant, while homes without coverage, beyond the percentage that has a latrine, receive a connection to the sanitation system. The cost of a new sanitation connection is about $650 and the cost of a private latrine is $156. The annual maintenance costs are calculated as 3 percent of the current value of the entire infrastructure of improved sanitation. The costs of an urban drainage system have been taken from an engineering estimate conducted by the World Bank and financed by Cities Alliance in 2003, and are limited to the AMSS.

3.19 *Roads.* The minimal investment needs in roads are calculated based on the goal of maintaining the current level of paved roads while upgrading the quality of all "poor" and "fair" roads to "good" quality roads. The current conditions of the roads are based on assessments made in 2004 by the Ministry of Public Works and Transport (MPWT). The annual maintenance costs assume that 80 percent of the existing roads require routine maintenance, while 20 percent of them require periodical maintenance. The maximum investment needs are based on the list of projects of the Ministry of Public Works modified to prioritize logistical networks and connectivity with the north of the country. An estimated fourteen percent of private participation is applied to investment and to maintenance (e.g., assuming that the private concessionaires of roads will cover their own maintenance costs without applying for FOVIAL funds). This percentage is derived from MPWT estimates.

3.20 *Telecommunications.* The investment needs in telecommunications are calculated as in Fay and Yepes (2003) and are based on the spending level required to meet the future demand for services. The annual maintenance costs are calculated at 8 percent of the current value of the telecommunications infrastructure. It is assumed that the private sector will continue to cover almost all investment needs of the sector. However, a small portion (5 percent) will fall on the

[33] Beyond the current import levels, the model does not include the potential of greater use of the interconnected network of transmission to compensate for the higher domestic needs of generation

[34] ETESAL projects investment needs on the basis of individual projects, reaching a total of US$106 million per year between 2005 and 2009

public sector. This public contribution could include such investments as rural telecenters or equipment for the monitoring of the radio spectrum.

Finding the Money: Sources of Financing and Fiscal Space

3.21 Regardless of whether the public sector or the private sector finances investment in infrastructure, ultimately all costs are absorbed or reimbursed by users (through tariffs, tolls or other direct fees) or by taxpayers (through general tax revenue). That is, no matter what percentage of investment is financed by the private sector, in the end, the true cost of infrastructure service provision is borne by the people and businesses of El Salvador. For this reason, the most effective means of mobilizing and allocating resources must be considered for both public and private financing in order to avoid over taxing and unfair allocation of costs across segments of society. This section presents the current fiscal situation and sources and uses of funds that are being spent on infrastructure. It also considers constraints and opportunities for mobilizing financing, so as to achieve the investment levels required over the next five to seven years.

3.22 As explained in the previous section, financing investment levels in infrastructure between 2.9 percent and 4 percent of GDP should be feasible for El Salvador. Compared with most countries in Latin America, El Salvador has benefited from a solid set of macroeconomic policies and has a commercial grade sovereign risk rating in international financial markets. That said, large-scale reconstruction and significant public expenditures working against a modest tax base have contributed to an increase in public debt since 2000 (WB-PER, 2004). Though fiscal imbalances have been financed at moderate costs, slow economic growth has perpetuated the cycle of reduced fiscal space for public expenditure over the past four years.[35] The International Monetary Fund (IMF) has recommended that El Salvador manage its fiscal situation carefully so it can respond to adverse crises, due to this combination of slower growth and greater indebtedness (IMF, 2004). While the Government recognizes the importance of prudent fiscal management, there is a growing sense of awareness that the low-investment, low-growth cycle must be broken in order for El Salvador to achieve its social policy goals and to compete for investment and in export production.

3.23 Within this seeming paradox of constraints and needs, how can fiscal space be found for investment in infrastructure?

3.24 Creating fiscal space for investment in infrastructure: The answer to the above question will come through both macro and micro-responses. That is, fiscal space can be increased by means of a series of strategies including an increase in tax revenue; redesign of subsidies to public services; increase in the rates for services to users; and the use of the private sector to undertake investment more efficiently. These are explained in detail below:

3.25 *Increase in tax revenue.* In El Salvador, tax revenue equals only 11.6 percent of GDP. This is much lower than the minimum goal of 15 percent suggested by the IMF. The government of El Salvador has set the goal of increasing tax revenue by 3 percent of GDP for 2009. This increase alone would enable El Salvador to return to its historic levels of investment in infrastructure as well as to fund other necessary expenditures. However, competition for those

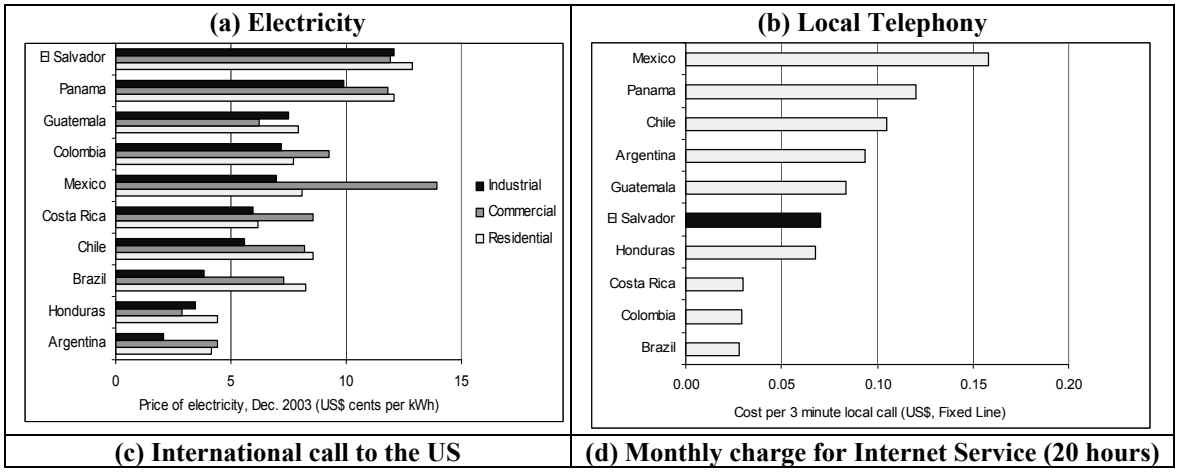
[35] The fiscal space is defined here as the amount of budgetary resources that can be assigned to a desired purpose – such as investment in infrastructure – without endangering the sustainability of its financial position or the stability of the economy

resources will be fierce given El Salvador's debt overhang, pension liabilities and social needs. Sector level policies and strategies should be employed to make the use of public funds more efficient and to thus create greater "space" for infrastructure investment.

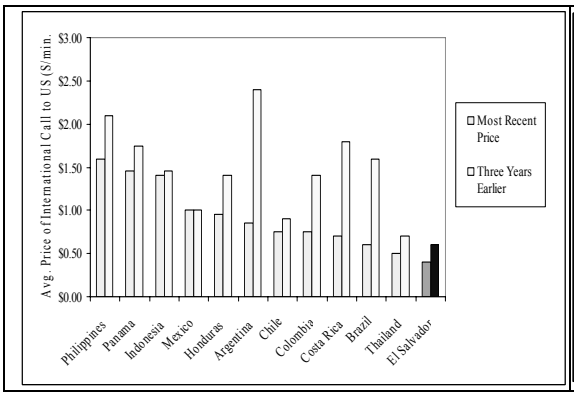
3.26 Re-evaluation of subsidies and lists of tariffs for services of infrastructure provided publicly. Few would debate the political and social benefits of assisting the poor with access to basic services. However, when public monies are spent on subsidy programs for electricity, gas and water which do not benefit the poor, those funds are in effect a regressive tax—a benefit to the wealthy and "connected" users of services paid for out of general revenue taxes that draw from all elements of society. The inefficient allocation of subsidies for infrastructure services is an important loss of public resources in Latin America.[36] El Salvador is no exception. These problems can be reduced by making use of progressive subsidy programs that only benefit those who truly need them. The Social Infrastructure Chapter analyzes these inefficiencies in detail.

3.27 *Increase in tariffs for services to users.* It may be politically and practically impossible to charge tariffs that allow the recovery of costs in all areas of infrastructure (urban highways, rural roads, storm drainage and waste water treatment are classic examples). But it is not a coincidence that the sectors that have experienced a rapid expansion and investment outside of public spending have achieved it due to tariffs that make it possible to recover costs. Though the regulatory challenges persist (see the respective sector-oriented chapters) the tariffs in these sectors—namely, electricity and telecommunications—are making it possible for private providers to meet most of the demand of these services when they recover the yield on investment. Figure 3.7 below illustrates the relative cost of the services of electricity and telecommunications, which recover the costs of the investors of the sector.

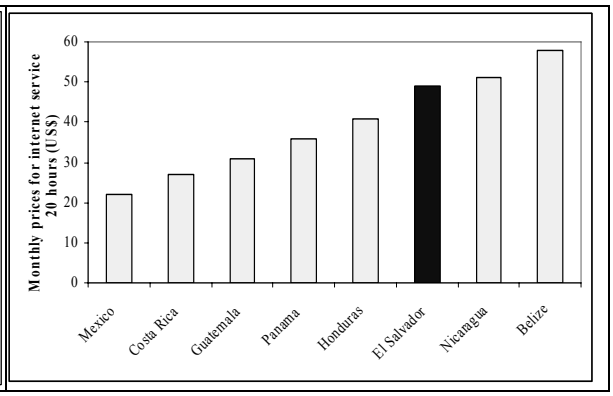
Figure 3.7: Prices of electricity and telecommunication services



[36] Mexico spends approximately 1 percent of its GDP on poorly designed electricity subsidies alone



Source: OLADE for electricity, ITU and Tariff for telephony data



Source: ITU

3.28 In contrast to electricity and telecommunications, the water and sanitation sector – the sector with the greatest needs of capital – posts tariffs to users that do not cover the operating and maintenance costs, not to mention depreciation and new investment needs.

3.29 *Efficient financing by means of public-private partnerships.* The participation of the private sector in the provision of infrastructure services can reduce the financial burden of the public sector or otherwise increase fiscal space in four ways:

- More coverage and better quality of the services: Under an adequately regulated environment and with performance incentives, the participation of the private sector can result in a high level of quality of the service without requiring additional investment. The incentive to reduce exposure to ROI requirements means a preference for using labor capital and operating efficiency in large capital projects. [Example: private operators in the water sector act quickly to reduce leaks, disconnect non-paying clients and improve the billing systems in order to reduce water that does not produce revenue and prevent the need to install new production capacity.]

- Efficiencies in capital spending: When expansion of capital is clearly needed, private investors are motivated to negotiate more aggressively with vendors of equipment and construction services and are not limited by requirements of public procurement. Although costs of capital in financing may appear higher, private sector operators and investors are generally able to negotiate cheaper acquisition costs reducing the principal on borrowing signicantly.

Box 3.1: The hidden costs of public procurement

Even though the current administration of the Port of Acajutla has done an extraordinary job in rejuvenating the performance of the Port through labor reform and the implementation of service contracts, it remains the sole entity responsible for financing investment. However, Acajutla's administration has limited flexibility in replacing assets due to public procurement regulations that, for example, restrict the purchasing of used equipment. As a result, the Port continues to refurbish bulk handling equipment that is in excess of 30 years old and unscheduled maintenance (i.e., repair) costs have risen drastically. CEPA hopes that a private concessionaire can make more economic decisions in the employment of its capital.

- Withdraw budgetary allocation from self-sufficient public institutions. It is not unusual for government balance sheets to include the assets and liabilities of public agencies such port and airport authorities or even power utilities. Indeed, IMF accounting to date requires this. However, some of these providers may be solvent entities when viewed in their own right given their cash flows, profitability and debt management. When these agencies are transferred from public management to private management and investment responsibility is transferred as well, the agency is often able to engage in debt financing backed by its own set of assets without affecting the formal fiscal space of the government's budget.

- The concessioning of Acajutla may well fit into this category. That is, while CEPA could probably finance expansion of Acajutla out of its own budget backed by the balance sheet and present value of future cash flows of the existing port, such investment would come out of a zero-sum ceiling on public debt. By concessioning the Port, the private sector will be able to capitalize the Port's cash flows, leverage its balance sheet and mobilize financing without affecting other government investments.

- Distribution of investment load through credit enhancements: The public sector can help prevent restrictions to fiscal space by distributing "lumpy" costs over several years with private financing. Instead of making a single large investment in, say, a wastewater treatment plant or a new road, a government can ask the private sector to finance the construction with a program of guaranteed payments from the government to cover any explicit or implicit deficit of financing over time. These transfers could take the form of off-take payments (for water production or waste water treatment); traffic or minimum revenue guarantees (for transport infrastructure); or regular payments for least-cost subsidy-bid concessions (for, say, water or wastewater connections). This way, the public spending requirements are distributed over time—financed by the private sector—and there is a smaller public financial burden in the fiscal years that correspond to the period of the capital works.

3.30 Overall, there are several positive trends that could improve the fiscal situation of El Salvador in the upcoming years. As mentioned above, the Government of El Salvador has announced its intent to increase tax revenue by three percent. In addition, the public sector has been capable of reducing its gross financing needs from an average of 10.5 percent of GDP from 1999 to 2002 to an average of 5.9 percent of GDP in 2003 to 2004. As for the cost of capital, the

restructuring of the public debt from short-term bonds to long-term bond has reduced the servicing costs of the debt. Finally, and perhaps most importantly, the government of El Salvador has announced plans to stimulate greater private participation in the electricity sector, ports, airports, roads and water.

3.31 Even though the private sector does not represent a free source of money that is derived from outside the economy, it can help to improve the efficiency of public spending, provide a better quality of service to users and provide alternative plans of financing for public transfers. This would reduce a good part of the burden that the financing of infrastructure places on the public sector. The following section considers the current framework for the private provision of infrastructure and analyzes options for improving that framework.

THE FRAMEWORK FOR PRIVATE INVESTMENT IN INFRASTRUCTURE

3.32 Over the coming months and years, El Salvador will seek to expand the role of the private sector in the provision of infrastructure services—beyond electricity and telecommunications and into ports, airports, roads and perhaps water and sanitation. As is widely acknowledged, the transport and water sectors are considered more socially sensitive, more naturally monopolistic and riskier for investors than power and telecommunications. In these sectors, the political economy of public-private partnerships becomes even more important to a program's success and consumer and investor patience with perceived missteps decreases sharply. The credibility of the PPI program going forward will thus depend on its adherence to the basic principles of public-private contracting, namely:

- Credibility: Transparency of bidding, selection and contracting processes as well as clarity in the service obligations of potential operator-investors;

- Efficiency: Competition for the right to serve (particularly where competition within service provision is not possible) and economic regulation when necessary as a proxy for real competition;

- Sustainability: Equilibrium between the private sector's costs (investments, operations, financing, transfers to government) and potential benefits (profitability) as well as protection from arbitrary political interference; and

- Accountability: Regulatory arrangements that provide consumers with both a voice and a response to their concerns.

3.33 Indeed, mapping El Salvador's earlier private participation in infrastructure (PPI) initiatives in power and telecommunications against this list illustrates why they have largely been viewed as a success.[37] This section considers the achievements of El Salvador in leveraging private participation in infrastructure as well as the pending challenges as the PPI program expands and deepens.

3.34 Sectoral summary: In the 1990s, El Salvador implemented a successful first generation of institutional reforms in the electricity and telecommunications sectors. As a result, it has

[37] Challenges that remain in the area of regulatory "accountability" are discussed in more detail at the end of the chapter on Social Infrastructure

institutional frameworks that facilitate and promote private investment encapsulated in a single regulatory entity, SIGET. To date, these institutional and legal frameworks have succeeded in attracting sufficient private investment to improve substantially the coverage and quality of the services in both sectors.[38]

3.35 In transportation, there has been significant progress made at the sub-sectoral level in the creation of a new institutional and legal framework to facilitate private investment, such as the new sector-wide laws for airports, ports and road maintenance and the separation of the functions of operation and regulation in ports and airports. However, there remains work to be done in the design of an institutional framework that lays out the forms of private participation in the sector, the processes to be followed to attract it, the conditions in which private investors will invest, and, in particular, the principles for allocation of risks.

3.36 In water and sanitation, El Salvador has been suffering from a slow-burning crisis that can be characterized by a collapse in confidence of the national water utility (ANDA), a failure to invest in the sector and the evolution of a multitude of unregulated, independent suppliers who are trying to fill the widening service gap. Though various attempts have been made to reform the sector and its 1960s-era institutional and legal framework, all these have been shelved. While large-scale private participation in the sector may help to bring operating and investment efficiencies to the sector in the medium term, the pending agenda must deal with the creation of a new sector-wide legal framework and the separation of the responsibilities for policy-setting, regulation, and operation of drinking water and sanitation services. Under these conditions, the Government could contemplate significant private participation in some components of production and sanitation—eventually in distribution and commercial operations.

3.37 Faced with the existing fiscal limitations and public debt, El Salvador has proposed a second stage of reforms to promote private investment in infrastructure. While in electricity, this phase could include the sale of certain assets in the electricity sector, the majority of projects that are being considered will either be concessions or private participation schemes through associations with public companies or the State. Below is a list of potential projects in which the private sector could participate (Table 3.2). The list is dominated by the transportation sector where private investment is basically geared toward concessions of existing infrastructure and toward building, operating and transferring (BOT) type concessions for new projects, as demonstrated by international experience.

[38] See chapters on telecommunications and electricity for changes required in the institutional and legal frameworks in order to mobilize a second generation of reforms and private investments

Table 3.2: Potencial infrastructure projects to be transferred or developed in association with the private sector

Project	Type of PP	Private Investment	Date contract
Port of Acajutla	Concession of port services	Still to be defined	July 2007
Port La Union	Concession of services or leasing contract	Minimal. The modernization is financed and carried out by CEPA at a cost of US$154 million.	2008 before the entry into operation of the new port
Cargo Terminal in the International Airport El Salvador	Concession	It will be defined once the *"Plan Maestro del Aeropuerto"* is updated	Still to be defined
Opening of the Boulevard Diego de Olguín – Santa Tecla	Concession of operation and maintenance	Minimal. The construction will be financed and carried out by the MPW.	Before construction has been completed
Beltway of San Salvador – East segment	Concession BOT (probable)	Still to be defined	Still to be defined
Opening of connection CA1-CA8 – Segment site of Niño -Ateos	Still to be defined	Still to be defined	Still to be defined
Bypass in the city of Usulutan	Still to be defined	Still to be defined	Still to be defined
Bypass in the city of San Miguel	Still to be defined	Still to be defined	Still to be defined
Bypass in the port of La Libertad	Still to be defined	Still to be defined	Still to be defined
Bypass in the city of de La Palma	Still to be defined	Still to be defined	Still to be defined
Hydroelectric El Chaparral (64 MW)	Still to be defined	Total cost: US$66 or US$143 million	Still to be defined
Hydroelectric El Cimarron (243 MW)	Still to be defined	Total cost: US$405 million	Still to be defined

Source: Technical Secretary of the Presidency, Ministry of Public Works, CEPA, CEL

Achievements and Progress in Private Participation in Infrastructure

3.38 *Electricity reform.* The reform of the electricity sector created a new legal framework and transferred distribution services and part of generation to the private sector. The new sector-wide law, Legislative Decree 843 of 1996, opened the generation and distribution of electricity up to competition and established the basis for a competitive market. Moreover, the Office of Electricity and Telecommunications (SIGET) was created [by] Legislative Decree 808 of 1996, as the regulatory organization responsible for monitoring compliance of the new sector-wide laws in electricity and telecommunications. The National Investment Fund in Electricity and Telecommunications (FINET) was also created by Legislative Decree 960 of 1997, as an autonomous public entity whose purpose is the promotion and development of universal service of telecommunications and electricity in the neediest rural areas of the population. Lastly, the restructuring and privatization of electricity distribution was authorized by means of Legislative Decree 142 of 1994.

3.39 The assets and companies involved with distribution within the state company Hydroelectric Executive Commission of Río Lempa (CEL) were restructured into five companies: La Compañía de Alumbrado Eléctrico de San Salvador (CAESS) [The Electrical Lighting Company of San Salvador], la Compañía de Luz Eléctrica de Santa Ana (CLESA) [The Electrical Light Company of Santa Ana], Distribuidora de Electricidad del Sur (DELSUR) [Electricity Distributor of the South], Distribuidora Eléctrica de Usulutan (DEUSEM) [Electrical Distributor of Usulutan], and Empresa Eléctrica de Oriente (EEO) [Electrical Company of the East]. Each of the companies assumed the distribution assets in one region of the country: CAESS in the central region, DELSUR in the south-central region, CLESA in the western region, and EEO in the eastern region. Blocks of shares that fluctuate between 75 percent and 96 percent of the total capital of the companies were sold by public international auction for a total amount of US$594 million in February 1998. Among the investors that won the auctions were AES, Electricidad de Caracas, Reliant Energy, and Emel. In July 1999, the government also sold two thermal generation plants (Acajutla generator with 200 MW and Salvadoran generator 81 MW) by international public auction to Duke Energy for US$ 125 million.

3.40 Despite this considerable transfer from public to private hands, by the end of 2004, the Salvadoran government maintained an active role in the provision of electricity through the electricity transmission company (ETESAL) and the state company CEL. CEL maintains the ownership and operation of the hydroelectric generators and has partnered with the private sector for geothermal generation projects. It controls 55 percent of the installed capacity of electricity generation in the country with the remaining share held by private generators.[39]

3.41 *Telecommunications reform.* Telecommunications reform completely transformed the provision of the telecommunications services to the private sector through a new legal framework and the privatization of the state company Administración Nacional de Telecomunicaciones (ANTEL) [National Administration of Telecommunications]. The sector-wide law--Legislative Decree 807 of 1996--established a legal framework that promoted the participation of the private sector and promoted competition. The legal framework was supplemented by the law for the creation of the SIGET as the sector regulator. Subsequently, the privatization of the National Administration of Telecommunications (ANTEL) was authorized by means of Legislative Decree 900 of November 1996.

3.42 As part of the privatization process, ANTEL was divided into two companies: The Telecommunications Company of El Salvador (CTE), entrusted with the fixed telephony and to which was granted a license of mobile telephony, and Internacional de Telecomunicaciones (INTEL) that assumed the mobile telephony of ANTEL. In July 1998, blocks of shares of 51 percent of the total capital of both companies were sold by means of an international public auction for a total amount of US$ 381 million. France Telecom acquired CTE and Telefónica de España bought Intel. In December 2004, the government sold its remaining equity in CTE (47 percent of the total capital) to América Móvil, current majority shareholder, for US$ 295 million.

3.43 Currently telecommunications services are provided by private companies which compete with each other. At the end of 2004, El Salvador had ten fixed telephony companies and eleven long-distance operators, even though CTE still controlled 90 percent of these markets. In

[39] See the chapter on electricity for more information with regard to the market structure of the electricity sector

mobile telephony, there were four private operators: Telemovil, Telefónica, América Móvil and Digicel. The first three have captured almost the entirety of this market.[40]

3.44 *Transportation sector.* To date, private participation in transport primarily revolves around yearly contracts administered for road maintenance by the Highway Conservation Fund (FOVIAL). As a part of the restructuring of the Ministry of Public Works and Transportation (MPWT), the administration of highway maintenance was transferred to FOVIAL, an institution created by means of Legislative Decree 208 of 2000.

3.45 FOVIAL was created as an autonomous public technically-oriented entity that reports to the MPW and is responsible for the routine and periodic maintenance of the national primary highway network. Of the 10,500 km of roads that exist in El Salvador, 6,000 km belong to the primary highway network. The law prohibits FOVIAL from directly executing any highway conservation work and established that the maintenance shall be contracted out to private companies by means of annual yearly contracts that can be renewed twice. In order to ensure the financing for road maintenance, FOVIAL law created a tax of US$0.20 per gallon of gasoline, diesel or mixtures with other fuels. FOVIAL's tax was enacted in 2003 and the annual income was equal to US$72 million in 2003, US$76 million in 2004 and a similar figure is anticipated in 2005.

3.46 In ports, the reform to introduce private participation has made significant progress—particularly with the shifting of Acajutla toward service contracts for nearly all areas of operations. Still it has not yet been possible to concession the port as planned. The legal framework of the sector was modernized by means of the new general maritime law, Legislative Decree 994 of 2002. The law limits the participation of the State in port activities and regulates the maritime activities and the construction and operation of national ports. The law entrusts the operation of ports to the Commission of the Port Authority (CEPA), and the regulation and supervision of the sector to the specifically created Maritime Port Authority (AMP) as regulating entity of port and maritime services.

3.47 Among the functions granted to the AMP are:

- The supervision and control of the processes for granting and fulfilling concession contracts of ports and, if applicable, their expiry;
- The approval of the assignment, extension, expiry and recovery of the concessions; and
- The regulation of the port tariffs and the establishment of adjustment mechanisms thereof.[41]

3.48 The labor reform of Acajutla was also carried out in order to improve its productivity and as a measure before its transfer to the private sector. Moreover, an integral concession of the Port of Acajutla was granted by means of Legislative Decree 1014 of 2002. The international public auction of the concession of the Port of Acajutla was held in April 2003, but was declared null and void due to the fact that the only bidder that presented an economic offer did not meet the required technical qualifications.

[40] See chapter on electricity for more information with regard to the market structure of the telecommunications sector.
[41] Article 7 paragraphs 8, 9 and 10 of the Maritime Law.

3.49 *Water and sanitation.* Though there have been various attempts to reform the sector in the past ten years as prior condition for the introduction of private participation, none of them has reached the proposed objectives. It is estimated that by the end of 2004, there would be at least 100 independent drinking water and sanitation systems in the urban areas which would provide services to approximately 3 percent of the total users. These independent systems are usually designed and built by construction companies as part of their residential projects. In some cases, the operation of these systems is provided by the construction companies while in other cases, it has been transferred to owner associations.[42]

The Current Institutional Framework and the Recent Experience

3.50 In El Salvador, the entities in charge of incorporating the private participation in infrastructure have been established in the laws of privatization or concession of each of the companies or services to be transferred to the private sector. The privatization of the National Administration of Telecommunications (ANTEL) was initially delegated to the Presidential Commission for the Modernization of the State,[43] and subsequently was transferred to a commission of privatization which was headed by the commission of modernization composed of the ministers of the Treasury and Economy.[44] For its part, the privatization of the electricity distribution companies was delegated to the Executive Hydroelectric Commission of Río Lempa (CEL).[45] While the concessions of Port of Acajutla and Port La Union were entrusted to the Commission of the Port Authority (CEPA).[46]

3.51 This company-by-company or project-by-project focus and the absence of an overall institutional framework for private investment adheres to the constitutional mandate that any concession of public works and its conditions shall be approved by specific laws by the Legislative Assembly.[47] The Constitution does not specify the level of detail of the conditions to be approved by the Legislative Assembly except the term of the concession. However, the LACAP, when developing the constitutional mandate, establishes the bid conditions, including the basic conditions and term of concession, that are then studied by the Legislative Assembly for its approval.[48]

3.52 The results of the sector-wide experiences, however, have differed substantially. The bid process for granting the concession of the Port of Acajutla failed in its first attempt (see Table 3.1). On the other hand, the privatization processes of ANTEL and the electricity distribution companies were successful. Moreover, El Salvador is one of the countries that in a post-conflict period has more successfully developed the reforms of telecommunications and electricity, able to attract important private investments.[49]

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[42] Cf. the chapter on water and sanitation for more detailed information on the independent private systems.
[43] Article 2 of the ANTEL Privatization Law, Legislative Decree 900 of November 1996
[44] Articles 3 and 4 of the ANTEL Privatization Law, Legislative Decree 53 of July 1997
[45] Article 1 of the Law regarding the sale of stock of electricity distribution companies, Legislative Decree 74 of April 1997
[46] Article 11 of the bid documents for the concession of the public works in the Port of Acajutla, Legislative Decree 104 of October 2002
[47] Article 120 of the Constitution of the Republic of 1983
[48] Article 134 paragraph 2 of the LACAP
[49] Schwartz, Jordan, S. Hann and I. Bannon. 2004. "The Private Sector's Role in the Provision of Infrastructure in Post-Conflict Countries: Patterns and Policy Options." CPR Working Paper 16, Washington, D.C.: World Bank, http://rru.worldbank.org/PapersLinks/Open.aspx?id=2487

Box 3.2: The failed attempt to make the Port of Acajutla into a concession

In 2001 and 2002, CEPA undertook an ambitious program to concession the Port of Acajutla. CEPA defined the integral concession as the best possible private participation scheme for the Port of Acajutla and presented the bid information to the Legislative Assembly. The bid documents were approved by means of Legislative Decree 1014 of October 2002.

The minimum requirements established for the potential bidders of the concession were:

1. Having the financial capacity and solidity to subscribe a share capital of a minimum of US$20 million.

2. Having a minimum of 5 years experience in the administration and operation of ports and a cargo volume of 2.5 million metric tons or over per year over.

The obligations that were established for the future concessionaire were:

1. Invest US$ 18 million in infrastructure and equipment, of which US$11 million were to be invested in the first three years of the concession.

2. Lower port tariffs by 25%.

3. Pay CEPA an advance of U$12 million as royalty fee at the time the concession contract is signed.

4. Pay the monthly fee offered at auction, in which the successful bid is the highest fee. The minimum of the fee was established at 14% of gross income minus VAT during the concession period.

5. Pay a regulation rate of up to 6% of port tariffs.

6. Assume the concession for a 25-year period renewable for 10 years.

With the bid documents approved, CEPA went on to hold the bid for which Baker & McKenzie was the legal consultant and *Banco Bilbao Vizcaya Argentaria*, BBVA with Hamburg Port Consulting served as investment bank. Various submissions were made and visits to potential interested parties. Ten companies acquired the bid documents. Of those ten, six operators were port operators: *Sudamericana Agencias Áreas y Marítimas*, Hutchison Ports Mexico, *Sociedad Portuaria Regional de Barranquilla, Socidedad Portuaria Regional de Buenaventura, Sociedad Portuaria Regional de Cartagena and IPM Altamira Infraestructura Portuaria*. The other four were involved in other fields: the French construction company Bouygues, the warehouse operator of El Salvador Alcasa, the Peruvian logistics operator Ransa, and *Agrícola Industrial Salvadoreña*.

The public auction was held on April 15, 2004 in the conditions stipulated in Legislative Decree 1014. Only one offer was submitted that belonged to the Consortium Terminal Acajutla, headed by Sudamericana Agencias Áreas y Marítimas. The bid evaluation commission declared the auction null and void considering that the technical offer of the sole bidder did not pass the technical evaluation.

3.53 Though the institutional framework surrounding the first attempt to give the Port of Acajutla in concession appears similar to that used in the privatization of ANTEL and the electricity distribution companies, in practice, they were substantially different. In telecommunications and electricity, the State Modernization Commission (CME) now STP, led the institutional reforms that included the privatization of ANTEL and the electricity distribution companies. The technical unit of the CME was charged with designing the telecommunications reform, preparing the sector-wide laws, establishing SIGET and executing the auction of ANTEL.[50] The CME also managed the reform of the electricity sector and offered strong technical and political support to CEL in the design and implementation of the auctions of the distribution companies. This strategy made it possible to work out the private participation schemes coordinate them with the new legal and political frameworks of the sector, and assure the approaches were sector-wide (and not company level). In addition, this central agency held decision-making authority and was able to obtain all necessary the political support.

3.54 In the concession of the Port of Acajutla, CEPA led the process under the monitoring of the Technical Secretary of the Presidency (STP) which is responsible for supervising the private participation processes and ensuring that they are consistent with the priorities and policies of the government. The concession process for the Port of Acajutla, however, was not part of a long-term sector-wide policy as CEPA does not have the authority to formulate policies across transport sectors. This lack of sector-wide coordination was one of the factors that led to the lack of interest in the concession of the Port of Acajutla. The concession of the Port of Acajutla was designed and auctioned off at a time that the Government was developing the Port of La Unión at an estimated cost of US$154 million. According to interviews with the firms which chose not to bid, the lack of a clear definition with respect to the competitive or complementary character of the Port of La Unión created uncertainty around the future demand for the Port of Acajutla.

3.55 The experience of the failed concession of Port of Acajutla also offered important lessons with regard to the design of concession contracts and suggests that the focus used should be reviewed. A review of the program reveals the following lessons:

3.56 Financial disequilibrium of the bid criteria. The concession scheme must be consistent with market conditions. One of the problems of the auction of the concession of Port of Acajutla was the inclusion of too many key economic variables without evaluating whether the potential investors would find the concession attractive under such conditions. The tariffs, investments and royalty fees were determined as a function of three criteria: the current net value of the concession by using the business plan of CEPA, the tariffs and levels of royalty fee in port concessions of the region, and the minimum level of revenue the concession was expected to generate for CEPA. Consultations with potential investors did not occur until a year and a half after the economic and financial conditions were approved.

3.57 The risk of bringing a new concession to market without sufficient consultations with potential investors is two-fold. The auction fails due to lack of interest; or, worse still, it attracts investors who are intending to game the state, present dubious offers from the financial standpoint and renegotiate their obligations once they are ensconced. The airport concession of Peru is described here as an example of that type of behavior (see Box 3.3).

- Rigid decrees establishing bid criteria: In passing project-specific decrees to allow for concessions, they should be formulated in a general manner so the economic variables

[50] Interview with staff of the Technical Secretary of the Presidency. Also see Maria Eugenia Ochoa, 2001, Privatization of Electricity Distribution: www.saprin.org/elsalvador/research/els_res_privitazacion.pdf

can be adjusted as a function of changing market conditions. This appears to be feasible according to El Salvador's own prior experience. As opposed to the excess of specifications in the decree of the Port of Acajutla concession, the ANTEL and the electricity distribution privatization decrees were fairly general, providing flexibility to the executing entities to define financial and economic bid criteria as a function of market conditions.

- Mandatory "canon" payments: The emphasis on establishing initial transfers and minimum payments of a concession or a new project to the government should be reviewed. Though they improve public finances, these payments and transfers represent an additional cost for the investor. This additional final cost is financed through lower investments in infrastructure, higher tariffs or both.

- Input-oriented investment requirements: The emphasis on establishing investment commitments and specifying investment programs should also be reviewed. International experience has shown that this regulation has two problems. First, it limits the capacity of innovation of the private sector and accordingly, the gains in efficiency that it can generate. Second, it significantly increases the risk of renegotiation of the concession. In a recent study, it indicates that 70 percent of the concessions of infrastructure that regulate commitments of investment were renegotiated (see Table 3.2).

3.58 A better option of regulation is through performance indicators. This regulation is focused on improving the quality and expansion of the services and in turn reduces the risk of renegotiation. The aforementioned study estimated that only 18 percent of concessions regulated by means of performance indicators were renegotiated.

Box 3.3: The Concession of the Jorge Chavez Internacional Airport in Lima, Peru

At the beginning of 2001, the Jorge Chávez International Airport Chávez in Lima was given in concession to a private consortium headed by the airport operator Frankfurt Airport and comprised of Bechtel and a local partner. The private consortium was selected by means of a public auction won by the highest economic offer. The selection criterion was the highest percentage of gross revenue that the private consortium agreed to hand over to the State. The winning consortium offered 47% of gross revenue and agreed to invest more than US$1 billion. The investments included building a second runway before the eleventh year of the 30-year concession. The government considered the process a success and signed the concession contract.

Though the offer appeared very attractive from the government's standpoint, it was questionable from a financial standpoint. The offer implied that with 53% of the gross revenue, the private operator would be capable of covering all the operating costs, amortize investments and obtain an attractive rate of return on its investments.

As could be foreseen, a short while after signing the contract, the winning consortium asked to renegotiate the contract and put off the execution of investments that had been agreed until then. During this time, discussions between the concessionaire and the regulatory entity were ongoing. Finally, the concession was renegotiated at the end of 2003, and investment commitments and the percentage of gross annual income that the operator would transfer to the State were adjusted. This renegotiation effectively negated the value of the original bidding process and increased the likelihood of gaming in future concession award processes.

Source: Jose Luis Guasch, 2004, Granting and Renegotiating Infrastructure Concessions: Doing it Right, World Bank Institute.

3.59 The experience in Latin America shows that other characteristics of the concession process of infrastructure also have a great bearing on the probability of contract renegotiation. These characteristics and their effect on renegotiations are summarized in Table 3.3. The table also shows the contract characteristics that represent a high potential risk of renegotiation in El Salvador, and accordingly should be taken into account when designing concessions and new projects of infrastructure with private participation.

Table 3.3: Contract characteristics and their impact on the renegotiation of concessions of Latin America and the Caribbean, 1984-2000

Characteristic	Likelihood of Renegotiation w/in 3 years (%)	Potential Risk for El Salvador	
		Transportation	Water and sanitation
Criterion of regulation			
Investment commitments (regulation by inputs)	70	High	High
Performance indicators (regulation by objectives)	18	Preferred approach	Preferred approach
Existence of a regulatory entity			
Regulating entity exists	17	Preferred approach	Preferred approach
No regulating entity	61	High for highways	High
Impact of the legal framework			
Regulatory framework established by law	17	Preferred approach (ES: Ports, Airports)	Preferred approach
Regulatory framework established by decree	28	High	High
Regulatory framework established by contract	40	High for highways	High

Source: Jose Luis Guasch, 2004, Granting and Renegotiating Infrastructure Concessions: Doing it Right, World Bank Institute

Options for the Institutional Framework

3.60 El Salvador is faced with the challenge of deciding on the appropriate institutional framework for a successful private participation program in the sectors of infrastructure. The institutional options for designing and implementing a successful reform program in the sectors of infrastructure are various. To create concession schemes and public/private associations, some countries—such as Bolivia—have opted to create new agencies dedicated exclusively to seeking novel investment schemes in infrastructure.

3.61 Countries, such as El Salvador, that are trying to avoid expansion of public agencies very probably have to adapt the existing institutions to their capacities. In addition, regardless of the model that is finally chosen, it is necessary to establish clearly the respective responsibilities and prevent different institutions from having overlapping functions or acting simultaneously. Moreover, it is necessary for the institutions involved in the process to take all the potential aspects of the private participation into account, such as fiscal constraints, the necessary sector reform, chronology of the required process and potential social and environmental impacts.

3.62 Four options stand out that appear to be the most relevant:

(i) Establish a general legal framework that defines the private participation program in concessions and new projects, and delegates the design and bidding of projects to public entities responsible for each sector. The legal framework includes the authorities of the entities in charge of the administration of the program, the rights and obligations of the concessionaires, the general conditions of suspension and termination of concessions, the monitoring of the fulfillment of concessions and indemnifications, etc.

This model has been followed in Chile which has a law of concessions of public works[51] and a system of concessions of drinking water and sanitation established in the law of sanitary services.[52] The office of Coordination of Concessions of the Ministry of Public Works is responsible for granting concessions under the law of concessions of public works. While the Office of Sanitary Services is in charge of granting and supervising concessions in the drinking water and sanitation sector, the System of SEP Companies, in turn, is responsible for transferring the state drinking water and sanitation companies to the private sector. The SEP is a Chilean government committee responsible for administering the shareholder rights of the Chilean state in companies with state participation. Moreover, it has over time made progress in defining the mechanisms for the resolution of disputes.

This option has the following advantages:

- It creates a model of private participation of the country which guides executing entities in the preparation of private participation schemes and projects. Moreover, it establishes clear rules for private investors.

- It depoliticizes the private participation program since the intervention of the Legislative Assembly is geared toward defining the general framework of the program and monitoring its fulfillment instead of approving the contract conditions of each project.

- Leaves in hands of the entities that are better acquainted with the sector-wide aspects regarding the handling of the process.

This option, however, has various and important disadvantages. The political cost of negotiating a law of concessions can be fairly high. To be effective, it needs a high degree of trust between the government and the Legislative Assembly. Moreover, the executor entity can not know the detail of other considerations, such as fiscal, environmental or social aspects that must be taken into account in the process. Lastly, given the decentralized aspect of the execution, the transaction costs are greater having to repeat the learning curve in each case.

(ii) Delegate to a central government entity such as the Technical Secretary of the Presidency the design and execution of the private participation program. This central unit would be responsible for defining the objectives of the private participation program, the criteria to include projects in the program, the distribution of the technical, operating and financial risks among the public and private sectors, the guarantees that the government is willing to offer, etc. Moreover, the unit would be in charge of preparing private participation projects and their bidding process.

This centralized model has been used in Bolivia and Colombia. In Bolivia, the Ministry of Capitalization was created which was given the responsibility of incorporating private participation in public service companies and a good part of the transportation infrastructure. Over a three-year period, the Ministry of Capitalization, whose minister had strong support from the president, supervised the capitalization of the public companies in the sectors of telecommunications, electricity, railroad, airlines, airports and hydrocarbons. In Colombia,

[51] Decree/Law No. 900 of 1996 of the Ministry of Public Works of Chile
[52] Decree/Law No. 382 of 1988 of the Ministry of Public Works of Chile

the National Department of Planning (DNP) that has authority at the ministry level, has the responsibility of incorporating the private participation of infrastructure into various sectors. The DNP also has a central role in the approval of new projects. Accordingly, the DNP has the capacity of coordinating the private participation program in infrastructure existing with the development initiatives of new assets. Moreover, a specialized unit was created for the administration of the concessions that is responsible for monitoring them.

The main advantages of this option are:

- It creates a consistent scheme for incorporating private participation in public works projects.
- It facilitates the coordination at the sector level.
- It reduces the cost of prepping and bidding on private participation projects since the same technical team would be in charge of several of them.
- It facilitates the transfer of lessons and experience in projects from different sectors.
- It makes it possible to ensure accounting and generally applicable financial procedures.
- It does not require a general law.

This option, however, has the disadvantage of requiring that each public works concession go to the Legislative Assembly for approval without there being a reference legal framework. On the other hand, it requires a very clear definition between the role of coordinator agency and the sector entities, which has not always been easy.

(iii) Delegating each private participation program to the public entity of the sector without establishing a general framework for the private participation. This model is that being established in El Salvador for the new wave of concessions.

The main advantages of this option are:

- It does not require a general law.
- It requires few resources from central units of the government like a Planning Department, the Ministry of Finance or the Technical Secretary of the Presidency.

The main disadvantages are:

- A consistent approach to private participation that the private sector can easily identify is not established in public works which may raise the cost of investment.
- It requires that each public works concession has to go before the Legislative Assembly for approval without there being a reference legal framework.
- It increases the cost of preparing and bidding on private participation projects.

- It does not facilitate the transfer of lessons and experiences among projects of different sectors.

(iv) A coordination Scheme through a Committee or Commission. An intermediate model that makes it possible to ensure the possible advantages of the aforementioned schemes, is the creation of a coordinating commission. The ministries or executing entities are part of this commission with a Technical Secretary in addition. This scheme would make it possible to take advantage of the experiences of other sectors or projects, without the need to create a separate entity. Countries that have used this scheme--though with certain variations--include Peru, Argentina and Colombia.

In the concrete case of El Salvador, a commission could be imagined with participation of the Ministries of the Treasury, Economy and Public Works, and the CEL, CEPA and ANDA. The Technical Secretary function of the Commission could be assumed by the Technical Secretary of the Presidency. The functions of this Commission would include:

- Studying and presenting the set of laws, decrees and standards that constitutes the legal framework and defining the conditions thereof.

- Promoting the consolidation of the legal framework. Proposing specific reforms, decrees or with protection mechanisms against potential legal reforms that could affect areas undefined by the legal framework.

- Establishing the basic criteria for potential concessions or other projects with private investment.

- Choosing the projects to be offered for investment with participation from the private sector.

- Approving criteria to be included in the terms of reference for the contracting of international auditors.

- Approving the scheme and the bidding of the binding process of the private sector, including aspects such as public co-financing, guarantees.

- Approving the final selection of possible concessionaires and the contract scheme proposed by the private investor based on the recommendations of the executing entity.

FRAMEWORK FOR PUBLIC INVESTMENT IN INFRASTRUCTURE

3.63 This section presents an analysis of the evaluation schemes of projects and budget allocation aimed at increasing the quality of the infrastructure project portfolio. This assumes that El Salvador seeks to allocate its resources to projects with profiles of greater impact in accordance with the priorities of public policy. A review is conducted here of the way this scheme works in El Salvador. Budgeting and the planning of public financing in infrastructure is reviewed as are some aspects of the execution of public financing related to the facilitation of private concessions.

Public financing of infrastructure

3.64 The public project financing process in El Salvador is defined by the following sequence of actions:

- The Office of Public Investment (DGICP) of the Ministry of Finance proposes the policy of Public Investment based on the guidelines defined by the Technical Secretary of the Presidency.

- The National Council of Public Investment – CONIP – formed by the Ministries of Finance and Economy and the Technical Secretary of the Presidency approves the Public Investment policy.

- Based on this, the corresponding Ministries formulate the sector-wide investment policies; that in turn enable the executing entities to identify and prepare investment projects.

- Then, based on the Public Financing and Investment Program established by the Ministry of Finance, the executing entities and the Ministries formulate and add the annual institutional public investment programs.

- The sector-wide entities directly formulate the projects and have the powers to negotiate loans with international organizations after the corresponding budget allocation has been granted.

- The Technical Secretary of the Presidency and CONIP evaluate and then approve the Annual Investment Program based on the technical analysis and the recommendations made by DGICP of the Ministry of Finance.

3.65 This scheme responds to a budget logic and corresponds to what can be observed in countries of the Organization for Economic Co-operation and Development (OECD) and in countries with modern management schemes of the public infrastructure in the region. However, the scheme does not weigh financial and economic evaluation by project. Though the DGICP requires general standards and methods for the evaluation of projects to be included in the aforementioned Annual Program, no minimum requirements of financial or economic return or evaluation of social impact are established. In general, the projects that are finally included respond better to political criteria and determinations. This means there is no exercise of evaluation of the project portfolio in accordance with common criteria of national public policy.

Planning of Public Investment Projects

3.66 In addition to the aforementioned general scheme, the following considerations should be noted for the sectors of infrastructure:

3.67 In other countries of the region, such as Chile or Colombia, there are lists or portfolios of projects (called “bancos”). Before projects are included in the annual public investment program, they must be approved in these portfolios. Approval requires a detailed calculation of economic and financial benefits. Those projects that have not met the requirements to be included in the

project portfolio cannot be part of the annual public investment program. Though the standards in El Salvador require these mechanisms, they have not been put into operation.

3.68 In the case of Colombia, the methodology for ex ante appraisal is approved by the Committee for the Approval for Investment Projects (GAPI). This methodology must be followed by each executing entity in order to be submitted for consideration of the National Government. Regional or national planning entities conduct a second evaluation as quality control. Subsequently a technical committee prioritizes the projects according to the benefits that have been established by the corresponding evaluation. Though the final inclusion in the Annual Investment Program satisfies a definition of political priorities, no project can be financed without having been included in the portfolio of prospective projects of the aforementioned GAPI.

3.69 An ex post evaluation system is much less frequent. Usually, an evaluation of the project against the original physical and financial execution criteria which revisits the anticipated economic and social return is a requirement of those projects financed by multi-lateral institutions. The results are rarely internalized in decision-making processes. In the countries of the OECD (Germany and Scandinavian countries, for example) as well as the more advanced middle-income countries of Latin America, ex post evaluation is a requirement within the budget process. The evaluation process is carried out by outside consultants based on criteria similar to those initially contemplated for the ex-ante evaluation.

3.70 The budget system of El Salvador does not include the ex post evaluation process of the projects executed. The general practice in countries with advanced budget systems in the region (Colombia among others) includes this type of evaluations. Not only are the physical/financial execution aspects of the projects evaluated, but also its economic and financial impact with regard to that initially anticipated. El Salvador should include this type of evaluation within its budget practice.

3.71 The ex-post evaluation has two objectives:

- To allow the real tracking of the results of the executing entities by improving the information and signals of the Central Government—in this case the CONIP and the Technical Secretary.

- To improve or calibrate the ex ante evaluation of the future portfolio of projects. It is a method of accumulating knowledge in the development of investment on the projects, and on the executing entities.

3.72 In El Salvador, the water and sanitation sector has evidenced problems in the formulation and execution of projects. In the case of execution by the decentralized entities, the lack of criteria and methodologies for analyzing projects is even more precarious. However, an improving trend has been observed with the extension of the portfolio of rural projects to be executed under FISDL. In the case of roads, it is a positive sign that there are clear criteria to formulate new projects related to the plan for developing transportation, creating the necessary roads for the development of the port of La Unión, and the connectivity with the areas of social and tourist development with the AMSS.

Execution of the public budget in infrastructure

3.73 In general terms, the system of budget implementation in El Salvador meets the best practices. The level of execution is relatively high and there have been no sudden or substantial changes during the annual period of validity. The foregoing having been said, two problems have arisen in the execution of the public budget for infrastructure projects: a) under execution with regard to the initial budget, and b) the limits to new projects. However, it should be pointed out that these problems are less critical in El Salvador than in other countries of the region.

3.74 On average the budget execution is around 85 percent. Due to specific problems of execution of this type of project, the figures for the highway sector are slightly below the average. The percentages of the execution are even lower considering that it has not been possible to carry out the water sector reform project for several years. To achieve even higher execution numbers, a better performance is required in municipalities, precisely in projects related to water and sanitation.

3.75 The El Salvador system includes possible readjustments during the period of validity as budget characteristic if there are significant phase lags. It is important to note that in spite of the foregoing, only between 25 percent and 30 percent of the budget includes new projects; the rest of the budget is for executing projects that come from previous years. In turn, he projects executed with priority correspond to those with resources from the multi-lateral bank and/or donor agencies that can be ensured of the corresponding compensation. Accordingly, budget flexibility is reduced by the dynamics of the outside financing and the execution of multiple-year projects.

3.76 The system for monitoring and controlling the execution of the approved annual program is comparable to the most sophisticated schemes. The physical and financial progress of projects are tracked through a computer system in real time. The DCGIP meets periodically with the executing entities to establish improvement agreements in the execution of the projects, if applicable. In addition to the tracking through the computer system, the DCGIP, the Technical Secretary and the executing institutions conduct field visits to observe the physical/financial progress of the works. In general, the evaluation of tracking and control is comparable to international standards.

Budget System for Concessions

3.77 The public budget system must take certain important aspects into account that are required to promote the private participation in concession schemes. Countries with a history and longer experience with private participation processes in infrastructure have had to create budget certainty on public obligations in private participation schemes in infrastructure, and also include liabilities contingent on the budget. From the government's standpoint, this should see as something that reduces the risk of the private sector and accordingly reduces the cost of using the capital, lowering investment requirements and improving the profile of the projects.

3.78 Thus, an important element that should be included in the budget framework of El Salvador or be the inclusion of future validity periods for actual or contingent obligations related to possible concessions. Currently, only obligations of future years are allowed when they are related to international credits. However, it will be important to have the possibility of budgeting

obligations or guarantees that the State assumes with respect to individuals within the concessions process in infrastructure.

3.79 In other countries, with a longer history of concession projects (like Colombia) State payments are required that cover various budget years. Payments can be annual such as contributions to highway concessions, which without these payments would not be viable. Another example is the payment of tariffs as compensation within sales contracts of electricity. Without a scheme that assures the private investor of the certainty of these payments in the annual budget, the anticipated private financing cannot be provided.

3.80 On the other hand, as part of the process of attracting private investors, El Salvador needs certain guarantees to be assumed. Examples can be guarantees of minimum traffic in highway concessions, guarantees for payment obligations of the State, or guarantees assumed to ensure the refinancing of credits to achieve longer terms. These guarantees can facilitate the financing of private infrastructure projects or achieve better conditions. In any event, the guide for the government issuing guarantees and recognizing contingent liabilities is that the commercial risk is the object of the private participation and accordingly must be assumed thereby. Moreover, guarantees should only be granted if a) the capital that is moved is additional; b) after a detailed cost/benefit analysis; c) the profile of risk is unchanged, i.e., the government is not constituted as a co-proprietor; and d) the guarantees are granted under purely commercial conditions.

3.81 The challenge with these contingent liabilities is that, on one hand, they should be included in the budget to grant the necessary security for the private investor and the financial institutions that finance the projects, on the other they shall be properly estimated so as not to incur high risks that close future fiscal space.

3.82 Moreover, the recognition of this reality by the budget should go hand-in-hand with schemes that ensure disbursements to the private sector. The guarantees that the World Bank has developed have the additional advantage of reducing the risk of the projects, of not being reflected in the fiscal balance for reasons of reporting to the International Monetary Fund, effectively extending the fiscal space for public investment under specific conditions.

Recomendations

3.83 To improve access for the poor to basic services, the conditions for economic growth and the competitiveness of the country:

- El Salvador should ramp up its public spending on infrastructure to 3 percent of GDP. In particular, investments should be increased in water and sanitation to achieve coverage in accordance with the level of development of El Salvador. If the concept of a logistics center is to be developed, El Salvador should increase spending in infrastructure to approximately 4 percent of GDP.

- In order for these figures to be reached under the fiscal constraints of upcoming years, approximately 1.5 percent of spending should come from the private sector, mainly through concessions and other forms of public-private partnerships.

- In addition to efficient procurement of investment through increased private sector participation and the planned increase in tax revenues, fiscal space should be found in the

redesign of the allocation of subsidies, particularly the gradual elimination of highly inequitable subsidies to gas and an improved focus on subsidies in the water and sanitation sector.

3.84 To develop a successful private participation program in infrastructure projects in El Salvador, the following is necessary:

- To go from a decentralized model of allocation by projects without an overall legal framework to a centralized model that has a consolidated legal framework, or, at least, a centralized, coordinated and highly placed body that retains responsibility for the program. This scenario can go hand-in-hand with a decisive role of the Technical Secretary of the Presidency in the leadership of the program, its design and implementation. It might also be achieved through a commission or coordinating committee, with the Technical Secretary as central axis, but with the participation of the sector entities.

- A focus on the design of concession contracts in order to ensure that the lessons from the failed concession of the port of Acajutla and international best practices are incorporated.

3.85 To improve the quality in the execution of the projects:

- El Salvador should establish a financing source to respond to ex-ante project evaluations based on a method that establishes financial and economic benefits of each projects to be included in the Annual Program of Public Investment.

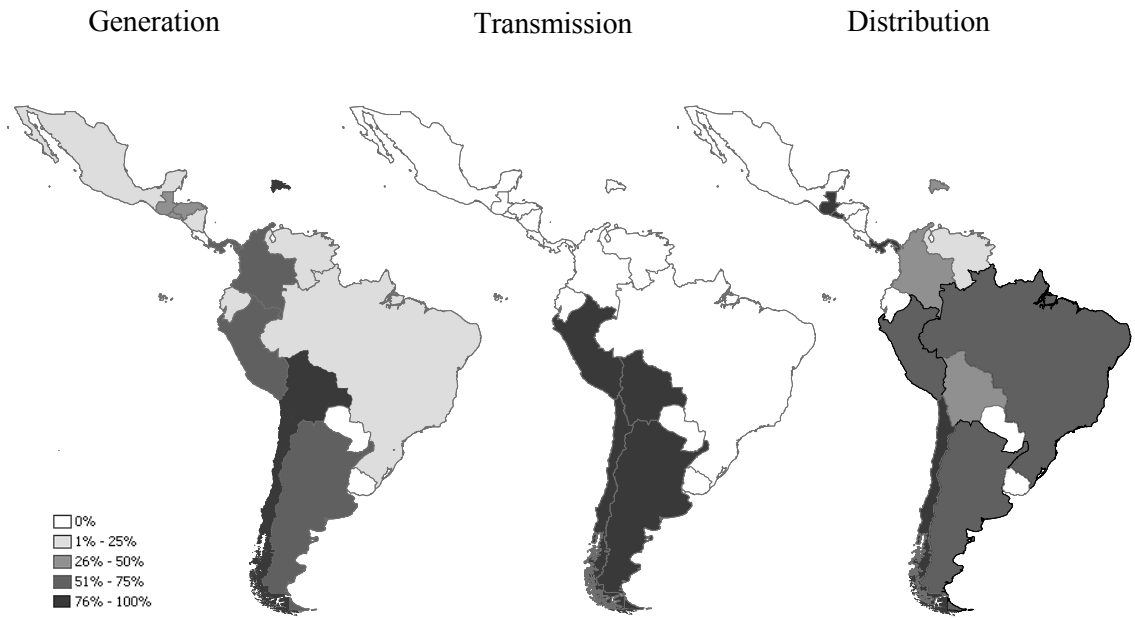
- Additionally, an ex-post evaluation should be contemplated of the projects, possibly with outside auditors that make it possible to review the physical and financial implementation by executing entities.

- To promote private investment in concessions, future contributions as well as contingent liabilities should be included within the scheme of the public budget.

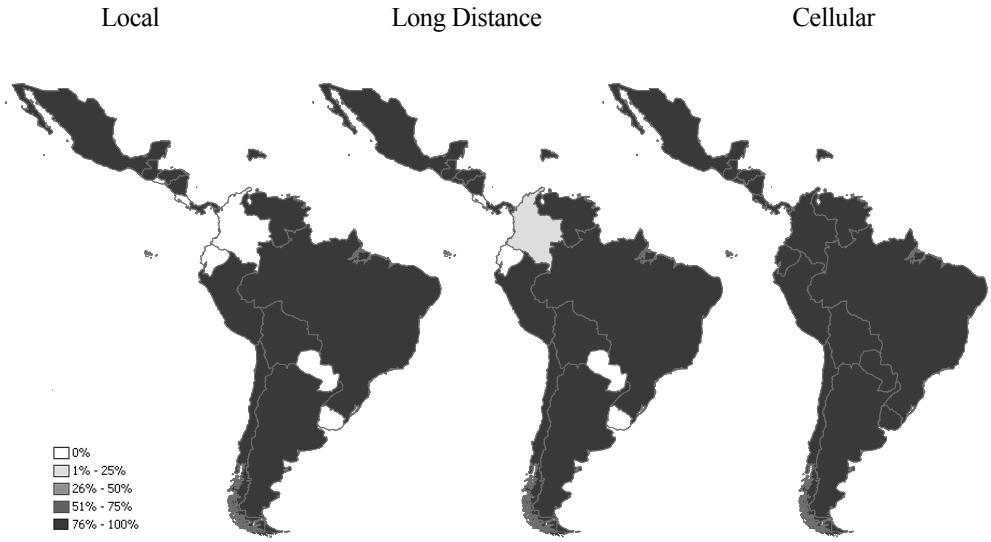
ANNEX 1

Regional maps: The following series of maps illustrates the degree of participation of the private sector in the countries of the region in accordance with the percentage of the market that is expected by private operators.

Figure A.1: Percentage of the market expected by private operators

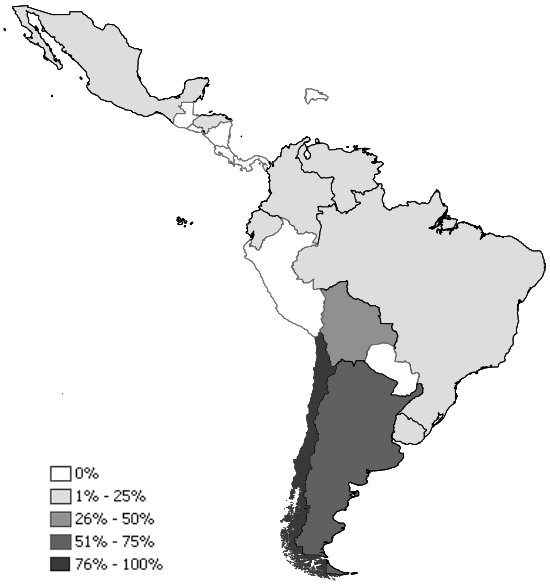


(a) Electricity
Source: In-house



(b) Telephony
Source: In-house

Figure A.2: Percentage of the market expected by private operators (continued)



(c) Water
Source: In-house

ANNEX 2

SURVEY OF BUSINESS OWNERS OF THE REDI IN EL SALVADOR

A survey was conducted for this study on business owners belonging to companies surveyed in the REDI. The objectives of this survey are: (i) to identify logistics problems that the national production lacks and that hinder the competitiveness of the companies, in order to present suggestions for changes in the corresponding public policies. (ii) to quantify the relative importance of logistics in the companies' production costs; (iii) to identify the current or potential production chains in order to establish mechanisms to strengthen them. The design of the survey making it possible to achieve these objectives is aimed at the Salvadoran corporate sector and investigates the following:

- Structure of logistics cost in the export process.
- Affect of infrastructure on the logistics services
- Cost structure of the logistics chain (transportation, inventories, warehousing, etc. The transport component will be separated by type of transport, sea, air, etc.)
- Perception on the quality and access to logistics services

Selection of supply chains studied and the companies surveyed

The study is focused on the perception of the demand of infrastructure and logistics, so the object of the study will be the opinion of those requesting logistics and transport services from the three most representative export supply chains and with the most prospects with regard to international trade in the country. These three chains are:

1. Fibers, textiles, processing (assembly and non-assembly) and footwear
2. Food products in the sub-sectors dairy, ethnic product, baked goods, etc.
3. Chemical products in the product sub-sectors: pharmaceutical products, plastic products, cleaning products.

The selection of these products was based on the following criteria: (i) Share of total exports of El Salvador. (ii) Share of total imports to El Salvador. (iii) Share of the GNP.

Trade balance of goods

According to the trade balance of goods, assembled goods are the most important component of exports from El Salvador, occupying 60 percent in 2003 and 55 percent in 2004. Moreover, assembly is one of the most important categories within imports: it was 24 percent in 2003 and 22 percent in 2004. The other two most significant headings are non-durable consumer goods (23 percent in 2004) and intermediate manufactured goods (26 percent in 2004).

These data suggest that assembly is central to the international trade of El Salvador, a theme that is repeated in the supply chain of fibers, textiles, linen and shoes as the most representative for this study.

On the other hand, non-traditional exports were responsible for 40 percent of the exports in 2004, while traditional exports were only 5 percent of total exports. This indicates that other key supply chains of El Salvador's international trade can be found among non-traditional exports, such as prepared foods and chemical products.

Trade balance of goods. Data accumulated in millions of U$S

Item	2003	2004*	2003	2004*
I. Exports FOB	3,128	3,295	%	%
Traditional	163	166	5.2%	5.0%
Coffee	105	123	3.4	3.7
Sugar	47	37	1.5	1.1
Prawn	11	5	0.4	0.2
Non-tradicional	1092	1309	34.9	39.7
Central America	746	822	23.8	24.9
Rest of World	346	487	11.1	14.8
Assembly	1,873	1,821	59.9	55.3
II. Imports CIF				
Consumption assets	1589	1787	27.6	28.5
Non-durable	1321	1451	23.0	23.1
Durable	272	336	4.7	5.4
Intermediate goods	1,849	2114	32.1	33.7
Manufacturing industry	1,444	1646	25.1	26.3
Agriculture	96	117	1.7	1.9
Construction	249	290	4.3	4.6
Others	60	61	1.0	1.0
Capital goods	936	990	16.3	15.8
Manufacturing industry	269	258	4.7	4.1
Transport	388	437	6.7	7.0
Agriculture	13	45	0.2	0.7
Construction	80	60	1.4	1.0
Trade	109	107	1.9	1.7
Electricity, water and services	40	47	0.7	0.7
Other	37	36	0.6	0.6
Assembly	1379	1378	24.0	22.0
III. Trade balance	-2,626	-2,973		

Note: *Preliminary figures
Source: Quarterly review, Central Reserve Bank

Composition of the Internal Product

Within the manufacturing industry that occupied 24 percent of GDP in 2003, prepared food products represented 27 percent and was the most important group. Within the group of prepared food products, the activity with the largest share (32 percent) was that of baked goods. These were re followed by sugar and other prepared food products with 25 percent each. Of all food products prepared with other prepared food products (not including meats, dairy products, fish products and sugar) prepared food products accounted for 57 percent. When the 11.5 percent that represent dairy products are added to this 57 percent, prepared products account for 68 percent, a business that represents 27 percent of the manufacturing industry of the country. This composition definitively qualifies the supply chain of food products: baked, ethnic and other goods, as representative for the study.

Industrial assembly services represent 13.6 percent of the manufacturing industry and it is the second largest group after food. Accordingly, the selection of the supply chain is made up of fibers, textiles, linen, assemblies and non-assemblies, shoe production.

The group with the highest percentage within the manufacturing industry after industrial assembly services is that of chemicals and prepared products with a percentage of 8.5 percent. If the activities of base chemicals and prepared products, oil refinery products and rubber and plastic products, are added, they total 16 percent, with the selection of the supply chain of Chemicals defined by: pharmaceuticals, plastics and home cleaning products, as third chain representative for the study

Development of the survey process

The survey has a total of 80 questions (with a total of 245 variables of the databases). The field phase followed a training phase of the interviewers. Visits were then made to the companies. Of the original 101 selected, 68 companies were interviewed. The remaining 33 companies did not wish to offer the information or were companies that merged with others already existing in the sampling or simply disappeared. Starting in August, the companies that did not collaborate in the study were replaced with others with similar characteristics (same business and size), then the problem arose that some sectors were very small and there were no more companies to visit. Approximately 50 companies were selected. A sampling of 75 companies was made. These surveys were assigned through the month of August.

SECTION II

Sectoral Diagnoses of the Infrastructure in El Salvador:

- *Electricity*
- *Telecommunications*
- *Water and Sanitation*
- *Transport Infrastructure and Services*

Table of Contents

List of Figures

List of Boxes

List of Tables

CHAPTER 4: ELECTRICITY

MARKET STRUCTURE, INSTITUTIONAL AND REGULATORY FRAMEWORK

4.1 Until the mid 90s the Salvadoran power sector operated through the Government-owned *Central Hidroeléctrica del Río Lempa* (CEL), which provided generation, transmission and distribution services. The power sector was restructured in 1996–2000 following the so-called standard model. Generation, transmission, distribution, and supply sub-sectors were separated. Generation and distribution were horizontally divided into several companies. The Electricity Law[1] and its secondary legislation[2] were enacted in 1996 and 1997 through initiatives led by the Ministry of the Economy (MINEC) and its Electrical Energy Directorate.

4.2 The generation sub-sector now comprises four major power enterprises whose market share fluctuates between 20 percent and 30 percent each. CEL continues to be Government-owned and operates the country's hydro facilities; a geothermal enterprise is jointly owned by the Government and ENEL of Italy. The two other power companies are privately owned and account for 42 percent of in-country production. The distribution sub-sector comprises five private companies with non-exclusive supply zones. Four of the companies are part of the AES group of power investments, and the other is owned by Pennsylvania Power and Light. The distribution companies vary in size from 45 percent to 2 percent of the market. Transmission is non-exclusive, but it is currently the responsibility of one Government-owned company. Multiple private supply companies operate in the market, but account for less than 8 percent of total market transactions. A detailed description of the sector is provided in Table 4.1.

4.3 Regulation of the power sector is the responsibility of SIGET (*Superintendencia General de Electricidad y Telecomunicaciones*); SIGET is in charge of regulating the power market, the distribution companies, and consumer prices. The Electricity Law created a power market that operates according to price bids from generators and suppliers. The market is managed by a privately organized company, UT (*Unidad de Transacciones*); it is in charge of system dispatch and performs clearing-house functions. UT's board has representatives from the generation, transmission, and distribution companies, large users, and (since 2004) the suppliers.

4.4 The Salvadoran Electricity Law is quite exceptional in the liberty it affords market agents. Article 8 explicitly authorizes vertical integration in generation, transmission, distribution and supply. The only limitation consists of prohibiting generation, distribution and supply companies from owning shares in ETESAL (*Empresa Transmisora de El Salvador, S.A. de C.V.)*, the transmission enterprise resulting from the restructuring of CEL (while allowing them to participate in other transmission enterprises). This allowance, together with the organization of a price-based spot market, is surprising in a small system with few operators. The price-based market, in particular, has originated many of the issues confronting the sector, which will be examined further ahead.

[1] Legislative Decree No. 843, October 10, 1996
[2] Executive Order No. 70, July 25, 1997

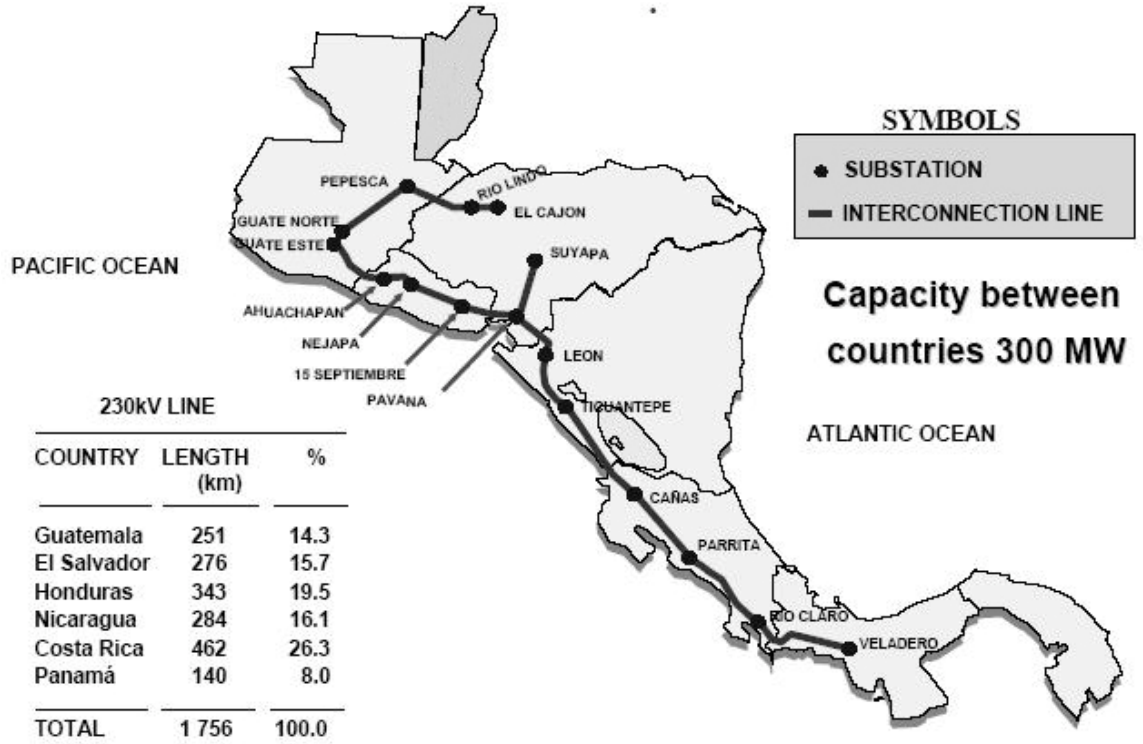
Table 4.1: Summary of electricity industry structure

GENERATION			
Name	**Description**	**Capacity**	**Market Share 2004 (% of in-country production)**
CEL	Former national operator. Became Government-owned hydro operator.	430 MW installed, 422MW available	31%
La Geo	Organized as a joint venture between the Government and ENEL of Italy to develop geothermal resources.	161MW installed 115MW available 2 fields, 7 units	24%
Duke Energy	Private generator, purchased part of CEL's thermal plants on privatization	498MW installed 470MW available 21% steam, 24% gas, 55% internal combustion	20%
Nejapa Power (El Paso)	Private generator, purchased part of CEL's thermal plants on privatization	144MW installed, 139MW available 100% internal combustion	22%
Cemento de El Salvador (CESSA)	Self-supplier, participates in the wholesale market	32.6MW installed, 31.3MW available 5 internal combustion engines	2%
Compañía Azucarera Salvadoreña S.A. (CASSA)	Sugar mill producing electricity with fuel oil	20MW installed, 11.5MW available One internal combustion engine	1%
TRANSMISSION			
ETESAL	National transmission company, publicly owned	Operates 115kV lines + two 230kV interconnection lines (Guatemala and Honduras). Responsible for system planning	
DISPATCH AND MARKET OPERATOR			
Unidad de Transacciones (UT)	Organized as private company (generators, distributors, suppliers, transmission Co.)	Responsible for system dispatch and clearing-house functions	
DISTRIBUTION			
Name	Description	Number of users Dec'04	Energy Sales (2004) and Market Share
CAESS	Supplies San Salvador area, owned by AES Corp.	479,038 (38%)	1,757 GWh, 45%
AES-CLESA	Owned by AES Corp.	262,589 (21%)	683 GWh, 18%
EEO	Owned by AES Corp.	194,677 (15%)	392 GWh, 10%
DEUSEM	Owned by AES Corp.	52,200 (4%)	91 GWh, 2%
DELSUR	Subsidiary of Pennsylvania Power and Light (PPL)	268,621 (22%)	961 GWh, 25%
SUPPLY			
Name	Description	Sales (2004)GWh	Market Share (% of total sales to consumers)
Excelergy	Private	345	8%
CONEC-ES	Private	17	<1%
CEC	Private	6.4	<1%
CEL Comercializadora	Branch of CEL	4	<1%
El Paso Technology	Branch of El Paso	51	1.2
ORIGEM	Private	98	2%
Mercados Eléctricos S.A.	Private	5	<1%

Source: Own compilation based on SIGET 2004 Report

4.5 The Salvadoran system is directly interconnected with Guatemala and Honduras, and indirectly with the other Central American countries (Costa Rica, Nicaragua, and Panama). An interconnection with Mexico is under construction under a Guatemala-Mexico agreement. Until now, energy trade among countries has been limited by physical constraints associated with the existing 230kV links; a considerable reinforcement (300MW between countries) will come about with the so-called SIEPAC project, which consists of a transmission line and associated substations interconnecting all the Central American countries from Panama in the South to Guatemala in the North (Figure 4.1)

Figure 4.1: SIEPAC Project



230kV LINE

COUNTRY	LENGTH (km)	%
Guatemala	251	14.3
El Salvador	276	15.7
Honduras	343	19.5
Nicaragua	284	16.1
Costa Rica	462	26.3
Panamá	140	8.0
TOTAL	1 756	100.0

Source: SIEPAC

4.6 The Central American interconnection has been operating as a loosely organized market with bilateral contracts, a regional regulator, and a regional coordinator (housed by the Salvadoran dispatch entity). The interconnected system is to be strengthened institutionally by the creation of a full market and a grid transmission operator. Proposals for the corresponding norms are being considered for implementation in the near future. Invitations to bid for the construction of the line were issued in May, 2005 and proposals for contract award are expected by end-2006.

4.7 The regional market is a significant factor for the Salvadoran power system. Around 10 percent of the country's requirements are imported through the interconnection lines, and within the regional market El Salvador accounts for around 50 percent of all trade.

4.8 Expectations regarding sector reform included, among others, creating a sustainable structure which would generate reasonable and stable prices, and would attract investment from the private sector to finance future supplies in order to cover load growth. If it worked out, the proposed scheme would have succeeded in removing the power sector from the fore of the Government's agenda, or at least limiting its prominence to issues such as electrification and quality control. On this count, reform has been disappointing. Average tariffs to consumers rose sharply in 2000 (9.8 percent) and further in 2001 (4.6 percent); although these years were followed by decreases, tariff levels have remained a constant concern and have prompted various initiatives to stabilize them through different averaging schemes. On the investment front, results have also been below expectations. Private operators invested in the early years to replace high cost, distillate-driven engines by more economical units burning fuel oil, but no new investment to keep up with load growth has taken place in the private sector. The Government is worried that without new generating units supplies could be jeopardized. As a result, the power sector continues to be a source of prominent concern for the Government.

DEMAND AND COVERAGE

4.9 *Overall energy.* Comparative data for Latin America, shown in Table 4.2, indicates that El Salvador falls within the lower half of all countries in per capita consumption, energy intensity and per capita kWh. El Salvador ranks among the lowest 25 percent in terms of modern energy consumption per capita, confirmed by its electricity consumption per capita, where it also ranks among the lower third. This can be explained by a low level of industrial development, but also points towards a potential for the penetration of oil products and electricity, greater electrification and electricity use, and productivity improvement. The country ranks around the median in terms of energy intensity, above countries of similar size, which indicates a potential for improvements in energy efficiency.

Table 4.2: Comparative energy statistics in Latin America (OLADE)

Country	Final Energy Consu-med (1)	Per Capita GDP (3)	Per capita. Final Consu mer	Energy Intensity (2)	Consuption			
					Electricity		Oil Products	
					Final	Per Capita	Total	Per Capita
	103Boe	1995 US$	Boe/inhab	Boe/103 1995 US$	GWh	kWh/inhab	103 Boe	Boe/inhab
Argentina	314,726	6,423	8.2	1.3	80,026	2,084	174,210	4.5
Barbados	1,897	6,826	7.0	1.0	782	2,895	2,495	9.2
Bolivia	19,599	954	2.2	2.3	3,665	412	15,280	1.7
Brazil	1,146,394	4,285	6.5	1.5	329,771	1,860	595,385	3.4
Colombia	168,338	2,312	3.8	1.6	36,518	819	90,881	2.0
Costa Rica	18,381	3,833	4.3	1.1	6,708	1,580	12,764	3.0
Cuba	61,984	4,277	5.5	1.3	12,469	1,103	42,355	3.7
Chile	148,738	6,102	9.4	1.5	41,895	2,656	91,453	5.8
Ecuador	48,047	1,780	3.6	2.0	8,366	627	49,048	3.7
El Salvador	**23,114**	**1,760**	**3.5**	**2.0**	**4,839**	**729**	**14,259**	**2.1**
Grenada	454	3,176	4.8	1.5	130	1,379	522	5.5
Guatemala	50,523	1,551	4.1	2.6	5,808	472	22,298	1.8
Guyana	5,295	751	6.9	9.2	644	840	3,661	4.8
Haiti	12,534	412	1.4	3.4	283	32	3,964	0.4
Honduras	23,637	717	3.4	4.7	3,817	545	13,725	2.0
Jamaica	17,554	2,029	6.6	3.3	6,516	2,458	25,313	9.5
Mexico	701,409	4,689	6.8	1.4	160,384	1,553	636,419	6.2
Nicaragua	16,308	785	3.0	3.8	1,653	301	9,204	1.7
Panama	16,678	3,159	5.4	1.7	4,359	1,399	12,893	4.1
Paraguay	26,853	1,474	4.5	3.1	4,315	729	9,006	1.5
Peru	77,056	2,436	2.8	1.2	20,206	744	51,622	1.9
Republica Dominicana	38,587	2,072	4.4	2.1	11,893	1,349	41,070	4.7
Suriname	4,188	1,390	9.9	7.1	1,339	3,166	4,151	9.8
Trinidad &Tobago	65,582	6,241	50.2	8.0	5,876	4,496	254,216	194.5
Uruguay	16,035	4,892	4.7	1.0	5,970	1,752	9,719	2.9
Venezuela	256,399	2,485	10.0	4.0	62,477	2,445	181,508	7.1
Total	3,280,308				820,706		2,367,42	
Regional Average		3,782	6.1	1.6		1,529		4.4

Source: OLADE estimate based on Energy Balances and IPCC Methodology
Notes: (1) Final Consumption + Transformation Center Consumption + Own Consumption; (2) Final Energy Consumption / Gross Domestic Product; (3) Information of 2003 (base year 1995)

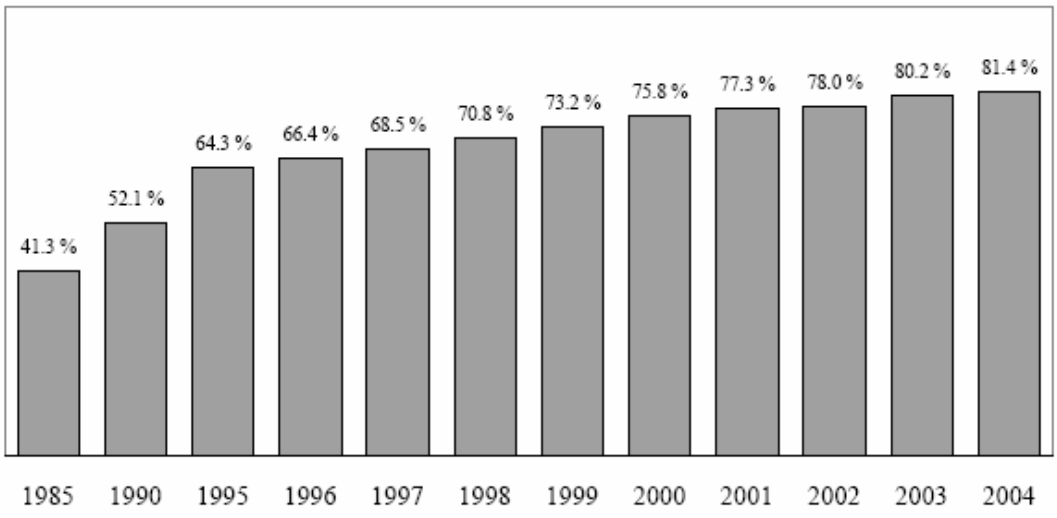
4.10 *Coverage.* Access to electricity since 1985 is summarized in Table 4.3 and Figure 4.2. Electrification has progressed significantly since the mid '90s.

Table 4.3: Estimated electrification index

Year	Population (´000)	Persons per dwelling	Total Dwellings (´000)	Residential Users (´000)	Electrification Index (%)
1985	4769	5.0	950.0	391.9	41
1990	5110	4.9	1046.1	544.7	52
1995	5669	4.8	1193.4	767.0	64
1996	5787	4.8	1218.3	808.9	66
1997	5908	4.8	1243.9	852.1	68
1998	6031	4.8	1269.7	898.7	70
1999	6154	4.8	1295.6	948.1	73
2000	6276	4.8	1321.3	1001.5	75
2001	6397	4.8	1346.7	1041.0	77
2002	6518	4.8	1372.2	1070.3	78
2003	6638	4.8	1397.5	1121.4	80
2004	6757	4.8	1422.6	1157.4	81

Source: These figures have been calculated by the WB REDI team and FUSADES and they have not been separately corroborated with any of the relevant lines agencies.

Figure 4.2: Electrification ratio for El Salvador 1985-2003



Source: ECLAC

4.11 El Salvador's electrification ratios compare well with most other countries in the region: the Central American average is around 78 percent; Nicaragua and Honduras are at the lower end, El Salvador, Guatemala, Panama are in the 80–90 percent bracket, and Costa Rica is well above, with 98 percent electrification (Table 4.4).

Table 4.4: Electrification index (%) in Central America

	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
El Salvador	**41**	**52**	**64**	**66**	**69**	**71**	**73**	**76**	**77**	**78**	**80**	**81**
Costa rica	81	91	93	93	94	94	94	95	95	96	97	98
Guatemala	31	36	46	47	55	59	63	70	78	79	80	83
Honduras	30	38	45	47	49	51	53	55	59	62	65	66
Panamá	54	73	77	78	79	80	81	81	82	83	84	85
Nicaragua	47	45	48	48	49	48	47	46	47	47	49	52

Source: These figures have been calculated by the WB REDI team and FUSADES and they have not been separately corroborated with any of the relevant lines agencies.

4.12 *Sales.* Electricity demand can be visualized through sales of different companies, as shown in Table 4.5; domestic sales account for 38 percent of the total and commercial and industrial sales account for 62 percent. Small domestic demands account for 27 percent of total domestic sales.

Table 4.5: Sales by distribution company and by consumer subsector, 2004 (GWh)

	CAESS	DELSUR	AES-CLESA	EEO	DEUSEM	TOTAL	%
Domestic 0-100 kWh/mo	153	87.2	90.9	60.6	16.7	408	10.5
Total Domestic	602	352	259	222	52.2	1,488	38.3
Total Low Voltage	881	459	353	287	71	2,051	52.8
Total Medium Voltage	876	498	330	105	20	1,829	47.2
Total	1,757	957	683	391	91	3,879	100

Source: SIGET 2004

4.13 There are significant differences among the distribution companies, which have consequences on costs and prices. The largest (CAESS—comprising the San Salvador demand) has 45 percent of the total market, and its domestic consumers account for only 34 percent of all sales, whereas the domestic share of each of the two smallest companies (EEO and DEUSEM) is around 57 percent—which implies higher billing and customer service costs, and reflects on their performance.

4.14 Historical sales by distribution company are shown in Table 4.6. Demand has increased at a rate of 4-5 percent during the last two years. The smallest companies have experienced the highest growth rate.

Table 4.6: Historical sales by distribution company 1998-2004 (GWh)

	CAESS	DELSUR	CLESA	EEO	DEUSEM	TOTAL	Annual Growth %
1998	1595	731	531	269	65	3192	
1999	1591	766	576	281	65	3279	2.7
2000	1631	826	592	316	71	3436	4.8
2001	1631	804	539	322	70	3366	-2.0
2002	1674	876	567	357	78	3552	5.5
2003	1689	939	624	372	84	3708	4.4
2004	1757	957	683	391	91	3879	4.7
Avg. Growth %	1.6	4.7	4.3	6.4	5.8	3.3	3.3

Source: SIGET, 2004

4.15 There are currently around 1.3 million electricity customers; as shown in Table 4.7, the number of customers has increased faster than electricity sales, and consumption per customer of the distribution companies has therefore decreased, particularly in the largest one (CAESS).

Table 4.7: Evolution of total consumers by distribution company 1998-2004 (thousands)

	CAESS	DELSUR	CLESA	EEO	DEUSEM	TOTAL	Annual Growth %
1998	404	205	201	137	37	983	
1999	421	216	210	145	39	1030	4.8
2000	437	229	221	158	42	1086	5.5
2001	451	237	229	167	44	1129	3.9
2002	452	247	239	177	47	1162	3.0
2003	473	260	251	186	50	1218	4.9
2004	479	269	263	195	52	1257	3.2
Avg. Growth %	2.9	4.6	4.6	6.1	6.0	4.2	4.2

Source: SIGET, 2004

4.16 *Supply*. El Salvador's only indigenous energy resources consist of biomass, hydro potential for electricity generation, and geothermal resources. Total production in 2002[3] amounted to around 2,400ktoe, and total supply amounted to 4,300ktoe. The difference, equivalent to 44 percent of total supply, consisted principally of imported oil and oil products, with a minor component of electricity trade. The shares of total primary energy supply in 2002 include oil (44.3 percent), biomass (33.3 percent), geothermal (20 percent) and hydro (2.3 percent). The electricity sector is an important user of imported oil products: it accounts for 53 percent of residual fuel oil (imported and produced), and 14 percent of distillate (2002).

4.17 Table 4.8 shows a breakdown of electricity production by energy source. Hydro and geothermal production have accounted for around half of all electricity production since 2003. Geothermal production in El Salvador—an unconventional energy source—is quite exceptional, as it accounts for a large fraction (around 20 percent) of the total. Hydro power produces a large proportion of all electricity, but its share varies significantly according to hydrological conditions. Whereas it was stable at around 1,100-1,200 GWh/year during 2000-2002, it increased by as much as 50 percent in a wet year such as 1999.

Table 4.8: Electricity production by source (GWh)

	1999		2000		2001		2002		2003		2004	
Hydro	1762	45%	1170	29%	1158	28%	1133	26%	1460	32%	1383	30%
Geothermal	558	14%	739	18%	907	22%	936	21%	966	21%	948	21%
Thermal (oil)	1319	34%	1416	35%	1691	42%	1909	44%	1652	39%	1825	40%
Other			52		6		2		0.4		0.3	
Imports	458	12%	808	20%	353	9%	435	10%	428	9%	466	10%
Exports	(208)	-5%	(112)	-3%	(44)	-1%	(51)	-1%	(103)	-2%	(84)	-2%
Net Trade	250	6%	696	17%	309	8%	384	9%	325	7%	382	8%
Net Injections	3889	100%	4073	100%	4071	100%	4365	100%	4403	100%	4538	100%

[3] International Energy Agency (IEA)

Source: SIGET 2004 report

4.18 *Supply/demand balance.* Installed capacity and system demand are shown in Table 4.9. Peak demand has grown at an average 2.4 percent per year since 1999, lower than net injections (3.1 percent), which has led to a higher load factor and better capacity utilization. The apparently ample reserve margins shown in Table 4.3 do not take into account available capacity due to units on maintenance or otherwise unavailable. Available capacity is typically around 93 percent of installed capacity, which would lead to an effective reserve capacity around 10 percent less than shown in Table 4.3. The indicated reserve margin does not take into account capacity available from imports through the 100MW capacity interconnection lines with Guatemala and Honduras (the latter has been operating since 2003), which are not counted in the sense that they are not 'firm' supplies. In any case, the resulting reserve margins once corrected for availability would appear to be sufficient—around 30 percent— for operating safely. However, the capacity balance of Table 4.9 fails to capture the vulnerability of the generation system to particular unit outages, specially those related to hydro capacity and availability:

- In 2004, the hydro system's capacity of 430MW was distributed in 10 units, with the largest four amounting to 309MW, or 28 percent of installed capacity;

- In contrast, the geothermal plant capacity of 151MW was distributed in 6 units (i.e. an average of 25MW/unit) and the thermal (oil) capacity of 515MW was distributed in 53 units (around 10MW/unit on average).

4.19 Due to the skewed distribution of capacity, the system is highly dependent on maintaining hydro units on line. In April 2005 two of the largest units, amounting to over 150MW went out of service, drastically reducing available capacity and shrinking the reserve margin to less than 10 percent. This led to sudden increases in spot market prices and regulatory intervention.

Table 4.9: Installed capacity by plant type and peak demand (MW)

	1999		2000		2001		2002		2003		2004	
Hydro	388	39%	395	36%	396	35%	411	39%	430	39%	430	39%
Geothermal	150	15%	161	15%	161	14%	161	15%	161	15%	151	14%
Thermal (oil)	450	46	546	50%	561	50%	472	45%	515	46%	515	47%
Total	988	100%	1,102	100%	1,117	100%	1,044	100%	1,105	100%	1,096	100%
Peak Demand	718		758		734		752		785		809	
Reserve %	38%		45%		52%		39%		41%		36%	

Source: SIGET, 2004

4.20 Future supplies are expected to be added to the system according to a notional expansion plan developed by ETESAL, the transmission company, to cover projected demand, which is expected to grow from 4554GWh and 833MW peak demand in 2005, to 5646GWh and 1030MW peak demand in 2010. Table 4.10 summarizes the proposed additions to generating capacity.

Table 4.10: National generation expansion plan 2005-2009

Date	Project	Company	Added MW	Type of Installation
03/2005	Cerrón Grande	CEL	18.9	Repowering of Unit 2
11/2005	Sonsonate	CASSA	20.0	Unit 2
03/2006	Ahuachapán Geothermal	LA GEO	4.5	Binary Thermal Unit
03/2006	Berlín Geothermal	LA GEO	5.5	Binary Thermal Unit
03/2006	Berlín Geothermal	LA GEO	44.0	Geothermal
06/2006	15 de Septiembre	CEL	11.7	Repowering of Unit 1
06/2007	Guajoyo	CESSA	50.0	Steam (Pepcoke)
06/2007	15 de Septiembre	CEL	11.7	Repowering of Unit 2
12/2007	SIEPAC Line	SIEPAC	300	230kV line
11/2009	El Chaparral	CEL	65.9	Hydro
	Total		532.2	

Source: ETESAL

4.21 Several features stand out from this plan:

- The SIEPAC line facilitates the introduction of more capacity to the system (300MW) than all other plants combined; the assumption that supplies from the regional market will materialize constitutes the medium-term backbone of the expansion plan for supplying future loads;

- Private sector participation (70MW) is limited to the CASSA sugar mill and the CESSA cement plant;

- All other new plant corresponds to public generators CEL (108MW) and LaGeo (54MW) partnered with private investors.

4.22 Planning simulations indicate that the risk of power rationing is unlikely to occur until 2010 even if there is a delay in the commissioning of the SIEPAC interconnection, i.e. if 100MW of firm capacity can be counted upon for supplies through the existing interconnection. Whether this capacity will be available from the regional market remains to be seen as it requires new investment in generation in the context of the agreements and instruments under discussion. Another source of uncertainty is in regard to CEL's El Chaparral plant, due towards the end of 2009; private investment in large hydro plants has not taken place in the region and the required arrangements, particularly if a project finance scheme is adopted, will probably necessitate lengthy negotiations, which would preclude putting the plant in operation by its programmed date. The proposed expansion plan should therefore contemplate alternatives to cope with a scenario in which regional supplies do not materialize or the Chaparral is delayed, as appears likely.

INVESTMENT AND PRICING

4.23 The overall financial performance of the power sector has been satisfactory. Distribution companies have achieved returns on equity of 14 percent-20 percent in 2004, and have been rated AAA to BB+ by a financial ratings agency. Private generating companies (e.g. Duke Energy)

have also achieved positive results. These are good indications that the sector as a whole is in a position to contribute to investment from internally generated funds.

4.24 Expansion plan requirements include, in addition to generation additions indicated beforehand, transmission investments (including 230kV lines that tie-in with the SIEPAC interconnection) and distribution investments, including rural electrification. An estimation of total financing requirements is provided in Table 4.11, together with a breakdown between public, private and public/private partnership financing.

Table 4.11: Estimate investment requirements 2005-2009 ($ millions)

	Total	Public	Private	Public/Private
Generation	298	8	84	206
Transmission	47	47		
Distribution	84		84	
Rural Electrification	101	83	18	
Total	530	138	186	206

Source: ETESAL, own estimations

4.25 Public/private partnerships constitute the major source of financing for generation. They include investments in geothermal facilities through La Geo and its strategic investor, which are likely to go ahead; other investments in this category include the Chaparral power plant ($143 million) which is still at an early stage in its planning and development. The Government expects to contribute land and the water resource, and to find a private partner to invest the bulk of civil works and equipment. Private finance for this undertaking will require a reasonably guaranteed long term supply contract to assure its bankability. The existing wholesale market has not developed instruments to provide this assurance; long term contracts currently under consideration are a step in the right direction towards establishing the institutional foundations (which may require additional instruments/guarantees) for these projects to develop.

4.26 The above estimate of investment requirements is for investments required within El Salvador. It does not take into account financing required for the 300 MW of firm generation capacity assumed to be available from regional sources through the SIEPAC line. Given the importance of these supplies in the medium term, requirements to mobilize this financing at the regional level need to be considered as among the most important issues in the sector.

4.27 Pricing. Electricity prices are regulated by SIGET. They comprise generation, transmission, distribution, and supply components. The generation component has reflected the average spot price in the wholesale market. Transmission charges are determined yearly based upon ETESAL's cash flow requirements, and final distribution tariff components are set on the basis of a cost-based pricing formula which is established for 5-year periods, with annual adjustments to reflect changes in its parameters. Tariff schedules follow the structure of marginal costs, i.e. they are set according to voltage levels rather than use—with the exception of domestic supplies, which are in a separate category.

4.28 Pricing issues are mostly concerned with the generation component of tariffs which accounts for 68-75 percent of the final price. Because it reflects the spot market price, it is potentially subject to large fluctuations due to unit availability and hydrological phenomena. In order to avoid sudden changes in tariff levels, the regulator has successively extended the period for calculating the average price from one month to three and six months. Although average spot

market prices keep within a relatively narrow band (e.g. 6-8US¢/kWh in 2004), the choice of a price-bid market has often raised the question as to whether market power has been exercised. This has not been proven but at the Government and regulatory level there is dissatisfaction with the lack of predictability in the existing tariff mechanism, and procedures are being put in place to provide greater stability to consumer prices.

4.29 A perspective on international electricity prices indicates that prices in El Salvador appear to be among the highest in the region (Table 4.12).

Table 4.12: Average electricity prices in Central America (US¢/kWh)

Residential	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
El Salvador	**5.3**	**6.1**	**7.5**	**8.2**	**8.1**	**12.3**	**12.6**	**14.4**	**13.4**	**13.3**	**13.6**	**13.1**
Costa Rica	6.3	6.6	7.3	6.8	5.9	5.2	5.0	5.3	6.4	6.4	6.0	6.5
Honduras	5.6	4.6	5.9	6.6	6.9	6.8	6.5	6.9	6.8	7.0	7.3	7.8
Nicaragua	9.4	8.9	9.3	9.6	10.5	11.1	10.6	10.8	10.7	11.3	12.4	12.2
Panama	12.1	12.1	12.0	12.0	11.8	11.9	10.7	11.9	11.6	11.3	12.0	12.0
Commercial												
El Salvador	**6.9**	**8.1**	**9.9**	**10.8**	**10.7**	**9.6**	**11.0**	**12.4**	**13.4**	**13.2**	**13.1**	**12.9**
Costa Rica	10.7	10.9	11.7	11.2	10.2	9.1	8.5	8.4	9.6	9.3	8.6	8.9
Honduras	9.4	9.2	11.0	10.3	10.8	10.6	10.3	10.7	10.4	10.6	11.3	12.1
Nicaragua	9.7	9.6	10.6	11.6	12.2	13.0	12.7	12.7	12.7	13.5	14.4	14.4
Panama	11.9	11.9	11.9	11.9	11.8	11.6	10.4	11.6	11.5	11.5	12.3	12.7
Industrial												
El Salvador	**6.7**	**8.2**	**10.1**	**10.9**	**10.6**	**9.1**	**9.9**	**11.0**	**10.4**	**9.2**	**9.6**	**9.6**
Costa Rica	8.9	9.1	9.5	9.6	8.7	7.5	6.8	6.8	7.6	7.2	6.7	6.9
Honduras	7.0	7.1	8.3	7.9	8.2	8.6	8.3	8.0	8.1	8.2	8.6	9.2
Nicaragua	7.7	7.4	8.2	9.0	9.3	10.1	10.2	10.1	9.3	8.9	8.6	7.8
Panama	10.1	10.1	9.9	9.9	9.9	9.7	9.4	10.4	10.2	9.0	8.6	8.4

Source: ECLAC

Note: These values collected by ECLAC may not match with official numbers but they have been kept to allow comparison among countries applying uniform proceedings.

4.30 Electricity prices in El Salvador became high with respect to other countries in the region since 1998, when the sector was being prepared for privatization. The price levels which were reached by then corresponded to those recommended by the World Bank, when the reform was being prepared[4] in 1995, to reflect marginal costs.

4.31 A closer look at electricity prices within El Salvador shows that prices vary considerably from one distribution company to another, as shown in Table 4.13. The two smallest companies have average prices which are 30 percent above those of the largest company (CAESS). When CAESS prices are compared to those of selected companies in other countries, domestic and small low voltage (commercial) prices for typical bills continue to appear high, but industrial prices are substantially lower than those in other companies of the region for large consumers. This would indicate that tariffs in El Salvador reflect costs better than those in other countries (small—high cost—consumers have high prices and larger—lower cost—consumers, have lower prices).

[4] Energy Sector Modernization Project (Report 12528-ES), May 1995, p.5

Table 4.13: Average prices by distribution company and by consumer subsector, 2004 (US¢/KWh)

	CAESS	DELSUR	AES-CLESA	EEO	DEUSEM	TOTAL
Domestic	11.9	13.0	13.8	14.9	14.7	13.1
Total Low Voltage	11.9	13.0	13.6	14.5	14.4	12.9
Total Medium Voltage	8.89	9.91	10.5	11.1	11.7	9.62
Avg. non-domestic	9.62	10.5	11.2	12.4	13.0	10.4
Total	10.4	11.4	12.1	13.2	13.8	11.4

Source: SIGET 2004

4.32 Within a wider framework, domestic prices in El Salvador are on the order of those observed in several developed countries (France, New Zealand, UK), whereas prices for industrial users in those countries are about 1/3 less than those in CAESS, the lowest-priced company in El Salvador.

4.33 Prices in the 0-100kWh per month range are subsidized directly by the Government; for example, a 75kWh consumer pays an average 7.6¢/kWh ($5.7 per month) instead of 13¢/kWh (around $10 per month). Subsidies have a cost to Government of around US$30 million per year. Subsidized energy accounts for 10 percent of total energy sales.

TECHNICAL PERFORMANCE

4.34 According to data from SIGET, in 2004, losses in the distribution network amounted to 10.8 percent of energy injected into the distribution companies' systems. This is a very good indicator when compared to other utilities in the region (e.g. Panama, with 12.9 percent losses in distribution in 2004[5]). Overall losses, including transmission (1.8 percent in 2004, down from 2 percent in 2003), amounted to 12.4 percent of energy injected into the system; they increase to 14.4 percent when including station use. Losses show a decreasing trend, e.g. a reduction of around a percentage point between 2002 and 2004. Distribution companies' estimates of non-technical losses (i.e. theft, unmetered consumption and meter error) range between less than 1 percent in CAESS, the largest company, and 4.7 percent in the smallest (DEUSEM).

4.35 For comparative purposes, Table 4.14 shows total losses among Central American countries (including station use, transmission and distribution) as reported by ECLAC[6]. Data for El Salvador does not tally exactly with SIGET information, but is adequate for inter-country comparisons, showing that losses in El Salvador are the second lowest in the region, after Costa Rica.

[5] As reported by the Panamanian regulator (Ente Regulador de Servicios Públicos—ERSP—)
[6] United Nations Economic Commission for Latin America and the Caribbean

Table 4.14: Electricity losses in Central America (%)

	Total	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
1985	13.8	8.5	12.8	16.6	13.0	13.0	19.2
1990	17.0	10.6	15.6	14.1	23.2	17.6	24.5
1993	17.9	11.3	15.4	12.9	28.5	24.6	22.5
1994	17.6	10.2	15.6	12.5	27.9	28.7	22.4
1995	17.2	10.5	12.5	14.1	27.0	29.6	20.5
1996	17.8	11.3	12.9	14.9	25.7	29.9	21.3
1997	17.4	11.3	12.4	13.5	25.4	27.0	22.3
1998	16.9	10.1	10.6	15.3	22.6	29.1	22.7
1999	16.0	10.5	12.1	12.5	20.9	30.1	19.8
2000	15.2	10.0	11.0	11.6	18.1	31.9	19.6
2001	16.1	9.2	12.6	14.9	19.8	31.3	19.7
2002	16.8	9.7	14.6	15.3	20.6	32.5	19.4
2003	17.1	9.7	13.0*	17.3	21.9	32.5	18.6
2004	16.4	9.4	14.5	15.5	22.7	30.4	16.0

Source: ECLAC
Note: * 14.9% according to SIGET

4.36 Service quality is another dimension of technical performance that is worth examining. SIGET has set performance standards relative to a variety of indicators, including duration and frequency of outages, as well as limits for voltage fluctuations (product quality). In the case of duration and frequency of outage indicators, most companies are far from meeting the standards and there remains a lot of room for improvement.

ELECTRIFICATION PERFORMANCE

4.37 Household surveys conducted by MINEC indicate that lack of electricity is a predominantly rural problem. Electrification in most major urban centers is estimated to be above 97 percent, whereas rural coverage is only around 71 percent. MINEC's plans seek to reach a 93 percent rural electrification index by 2009 by combining the efforts of Government, municipalities, and distribution companies. The budgeted investment in rural electrification during 2004-2009 amounts to around US$100 million, financed as shown in Table 4.15.

Table 4.15: Rural electrification plan 2004-2009

	Government	Municipalities	Distribution companies	Total
Isolated Systems	$12.0 M	$9.6 M	$2.4 M	$24M
New Lines	$28.8 M	$28.8 M	$14.4 M	$72M
Substations	$3.8 M	---	$1.3 M	$5M
Total	$44.6 M	$38.4 M	$18.1 M	$101M

Source: MINEC, 2004

4.38 Rural electrification projects are executed mainly through FISDL (*Fondo de Inversión Social para el Desarrollo Local*). FISDL has operated since 1990 and has executed a large number of projects totaling over US$400 million. It has a well-defined procedure for processing grid extension projects, including the coordination of municipal governments and distribution companies. Procedures for off-grid electrification are less developed and require strengthening. The main obstacle to achieving the proposed goals is the lack of secure financing. For 2004-2007 FISDL budgeted $60 million, of which $11.9 million have been executed. The remaining $48 million would be financed by the distribution companies ($5 million), the municipalities ($18 million), and the remainder—around $25 million—would require funding from FINET. FINET's sources of funds derived originally from the privatization process, and have largely been spent; other resources originate in contributions to SIGET derived from fines on regulated power and telecommunications companies, but they only amount to around $250,000. The Franco-Salvadoran Fund would contribute around $5 million. There is effectively a gap of around $20 million until 2007 that would depend on Budget allocations. An alternative to the latter could consist of re-directing a fraction of budgeted consumption subsidies towards connection subsidies.

SECTOR CHALLENGES

4.39 Two principal linked issues stand out from the analysis:

(a) The effect of unpredictable variations of the spot price on consumer tariffs; and

(b) The absence of private sector interest in investing in the sector and the consequent effects on prices in the spot market.

4.40 Discomfort with the mechanism that translates spot market prices to tariffs has existed since the early years of the sector's reform. For example, the spot market price in 2000 jumped from 7.4¢US/kWh in December 1999 to 17.4¢/kWh in April 2000. With monthly indexing of tariffs to follow the spot market price, the consequences became politically unmanageable. Since then, regulatory measures have been instituted by successively patching the market's rules as well as the mechanisms to translate market prices to tariffs. Examples of such patches include setting a ceiling to the spot price, instituting a capacity remuneration for units on 'cold reserve', averaging the spot market price over longer periods for tariff purposes, and limiting the remuneration to bid values for the highest cost plants. In addition to these, CEL has oriented its market behavior towards stabilizing and moderating the spot price.

4.41 Regarding system expansion incentives, the remuneration of generators in the spot market was expected to generate interest on the part of private producers to obtain high returns and therefore to install new capacity. This has not taken place, and the Government has viewed with concern the possibility that a lack of new generation could lead both to higher spot prices and higher tariffs, lower reserve margins and eventually a supply crisis where it could be forced to invest in the sector.

4.42 Two non-exclusive approaches have been considered for addressing these problems: (a) instituting long-term compulsive contracts between suppliers and distributors, and (b) shifting to a cost-based market—as opposed to the existing price bid market—as a way to reduce potential market power. In 2003 and 2004 the Government instituted rules for allowing competitively-bid

long-term contract prices to be reflected in consumer tariffs and empowered the regulator to shift to a cost-based market if evidence of market manipulation emerged.

4.43 Until now, contracts have been short term (less than a year) and their price has been linked to the spot price, which defeats the purpose of price stabilization. With long-term contracts for a substantial fraction of distributors' demand, the component of generation costs in consumer tariffs would become more predictable. Currently, MINEC is putting forth a proposal whereby (a) 50 percent of demand would be traded under long-term contracts, (b) competitively-bid contracts of up to five years with existing generators would be accepted, and (c) competitively-bid contracts of up to fifteen years contracted with an anticipation of three years would be accepted. These proposals are being put to the consideration of market participants in the expectation that they will be accepted on a voluntary basis. Making them compulsory is an option that would require an amendment to the Electricity Law and would necessitate a longer term for its implementation.

4.44 The lack of interest of investors for new plant in El Salvador can also be traced to the absence of market mechanisms. Long-term investments in generation, particularly if developed on a project finance basis, require the backing of long-term contracts to ensure their 'bankability'. Investing in merchant plants, i.e. those that rely solely on the spot market for their remuneration, is unlikely to happen because of the market risk involved. This problem has occurred elsewhere and requiring long-term contracts is a solution that has been adopted or is under consideration in other systems (e.g. Peru, Chile, Brazil). The proposed rules for long-term contracting would therefore simultaneously solve the issue of predictability of consumer tariffs, as well as the lack of incentives for developing new plant. As noted before, long term contracts would be particularly useful in providing the assurance required by prospective private investors to develop hydro plants such as CEL's Chaparral project. They could also play an essential role in mobilizing investment at the regional level.

4.45 The other major reform that has received consideration consists of transforming the wholesale market into a cost-based market similar to others in the region. Although market transformations have taken place elsewhere, as in the UK where a price-bid system has been replaced by one based upon bilateral contracting, this would require significant resources to produce market rules, dispatch and clearinghouse procedures, and their supportive software. In addition to practical implementation problems, cost-based systems have their own problems and can be subject to manipulation as well, either through cost-declarations that could appear to be unreal, or, more importantly, through availability declarations that could increase the spot market price. The latter possibility is particularly pernicious, as it has the potential for creating artificial scarcity. Controlling these possibilities may require lots of 'un-market' intervention and intrusive regulation, which creates barriers to private participation. Advice provided to the Government and to the regulator has proposed that reforms proceed through the introduction of longterm contracts as outlined above, and avoid market restructuring for the time being.

RECOMMENDATIONS

4.46 Regarding the primary sector issues discussed above, the proposal by the Government to establish long-term contracts appears sound and is endorsed by the REDI study. However, there are risks that should be taken into account and mitigated if possible. Experience with long-term contracts (PPAs) in many countries (including El Salvador) has been negative in the sense that they ultimately prove to be unattractive relative to market prices. The risk in El Salvador is that

contract prices in the long term may prove to be high relative to the regional market, once the latter develops more fully. This could mean that consumer tariffs could be forced to be set at unreasonably high levels in order to cover contracted conditions.

4.47 Five recommendations emerge in this context:

(a) Policy makers urgently need a frame of reference for the Salvadoran power system vis à vis the regional market. Studies are needed to define expectations of regional market development and its consequences for the national market; the opportunities and requirements for mobilizing supplies from abroad in terms of timeliness, quantity, probable costs and risks; and the measures required to adapt efficiently to its organization;

(b) Long term contracts—compulsory if necessary—should be required to stabilize consumer prices and to stimulate supply;

(c) Consideration should be given to establishing long term contract conditions to mitigate commercial risk, such as clauses that would allow putting the contracts to the market after a given period, to be incorporated in long term contracts;

(d) Contract conditions and support required for mobilizing new investment should be identified, especially for: (a) the development of new plant with strategic partners as in the case of new hydro plants, such as *Chaparral* and *Cimarrón*; (b) the development of new capacity at the regional level; and

(e) Contingency planning should be done in case the proposed approach is unsuccessful.

4.48 Delaying fundamental changes in market structure (to cost-based market), unless there is clear evidence that the market is being manipulated, also appears to be a sound decision. On this subject two specific recommendations emerge for consideration:

(a) Several countries have discarded both the price-based model and the cost-based model in favor of bilateral contracting between agents. Also, the regional market will impose its own rules and national markets will have to adapt to them. Accordingly, in the medium term, modifying the market's structure should be considered if a more efficient alternative is identified, particularly if it adapts better to the regional market; and

(b) Judgments on whether the market organization is fulfilling its function efficiently, or whether market power is being exerted, are best left to experts. Since its inception, the Panamanian market has had an international group of experts that conforms a Market Surveillance Panel to periodically review market performance and propose modifications to its rules. A similar organization could be implemented in El Salvador (to be financed through market agents) in order to provide answers to questions regarding market structure and modifications thereof. An immediate assessment would be required, with subsequent periodical reviews, e.g. every two years.

4.49 Three regulatory questions to be addressed include:

(a) Problems of service quality at the distribution level should be addressed by implementing incentives to improve reliability as well as product quality;

(b) The development of the supply function should be stimulated, particularly in the context of the regional market; and

(c) The degree to which the system dispatcher and market administrator (UT) is free to change the rules should be re-examined. Limiting this faculty would generate greater confidence in the market by ensuring that its rules and procedures are determined by legislation or regulation.

4.50 Electrification questions to be addressed as part of sector policy include:

(a) Funding for on- and off-grid electrification should be assured, either through Budget allocations or by re-directing consumption subsidies to FISDL and financing connection subsidies; and

(b) FISDL's capacity to implement off-grid electrification should be strengthened.

CHAPTER 5: TELECOMMUNICATIONS

MARKET STRUCTURE, INSTITUTIONAL AND REGULATORY FRAMEWORK

5.1 *Background*. In 1998, the Government of El Salvador (GoES) undertook a successful reform of its telecommunications sector, which led to a significant growth of the sector. Among the main measures adopted, the GoES approved a new telecommunications law and new regulations to promote private sector investment and foster competition, created SIGET (General Superintendence for Electricity and Telecommunications) as a new independent regulatory authority for both sectors, and privatized ANTEL, the incumbent state-owned enterprise.

5.2 Despite the successful reform of the telecommunications sector, the country still faces important challenges in order to fully develop the sector. Three critical issues need to be addressed to reach this goal: (a) the absence of a specific entity at ministerial level, in charge of designing, planning, and implementing an ICT strategy and its related policy, (b) market failure that has resulted in some high interconnection rates, and (c) the underdevelopment of the Internet sector, hindered by high costs unaffordable to low-income households and small and medium enterprises (SMEs).

5.3 This study will evaluate the institutional and regulatory framework of the telecommunications sector in El Salvador, its current status and its main issues. It will conclude with some recommendations on how to address those issues.

5.4 *Market Structure*. El Salvador's telecommunications structure is highly liberal, and relies on market forces to achieve efficiency, quality, and low tariffs in the sector. Hence, the General Law on Telecommunications of 1996, adopted in 1998, limits SIGET's role of regulation and supervision. However, while such a regulatory framework allowed a strong and dynamic growth of the telecommunications operators, it created at the same time important distortions and barriers that the market couldn't solve by itself, therefore calling for regulatory intervention.

5.5 *Institutional Framework.* Regulatory Agency. SIGET was created by Decree No. 808 of September 12, 1996, as the independent regulatory agency responsible for regulating and supervising both the telecommunications and electricity sectors in El Salvador. Its Board of Directors comprises of three members designated every seven years by the President, the private sector, and the judicial power.

5.6 SIGET's budget is made out of regulatory fees for radio spectrum use, numbering allocation, and others. The majority of the fees (98.5 percent) are allocated to the Energy and Telecommunications Fund (FINET), and the rest to the national Treasury. This fund has only been used to finance rural electrification projects and no allocation has been made for telecommunications projects to provide universal access.

5.7 *Regulatory Framework.* The General Telecommunications Law of 1996 prohibits anticompetitive behaviors. Agreements between operators such as fixing, manipulating, or raising any type of prices are prohibited. Cross-subsidies are also illegal, except for specific situations covered in the Law. Mergers derived from incumbent restructurings are prohibited. In addition, mergers from operators with more than 50,000 users require SIGET's supervision.

5.8 According to Articles 19 and 20 of the General Telecommunications Law, operators are required to give access to "essential resources" at non-discriminatory prices to all operators requesting interconnection. If negotiations between operators regarding interconnection fail, the regulatory agency can intervene only when the operators request for it formally.

5.9 Since it is unclear in the regulatory framework that SIGET can regulate high interconnection rates without the formal request of an affected party, SIGET has not been able to intervene in the market and solve interconnection issues. These include high mobile–to–fixed interconnection charges and high internet rates, as will be discussed further.

5.10 Radio Spectrum Management. SIGET is responsible for granting licenses (concessions) for the use of radio spectrum. Licenses are either granted through bidding process (when demand is higher than supply) or directly assigned to operators.

5.11 Due to its limited budget resources, SIGET lacks capacity to monitor and manage the radio spectrum. Also, the current Law does not give SIGET enough power to penalize illegal use of radio spectrum. These two factors increase illegal use of the spectrum, which in turn leads to interferences on operators' frequencies. In addition, the Government of El Salvador (GoES) suffers a significant lack of revenues due to the absence of license fees.

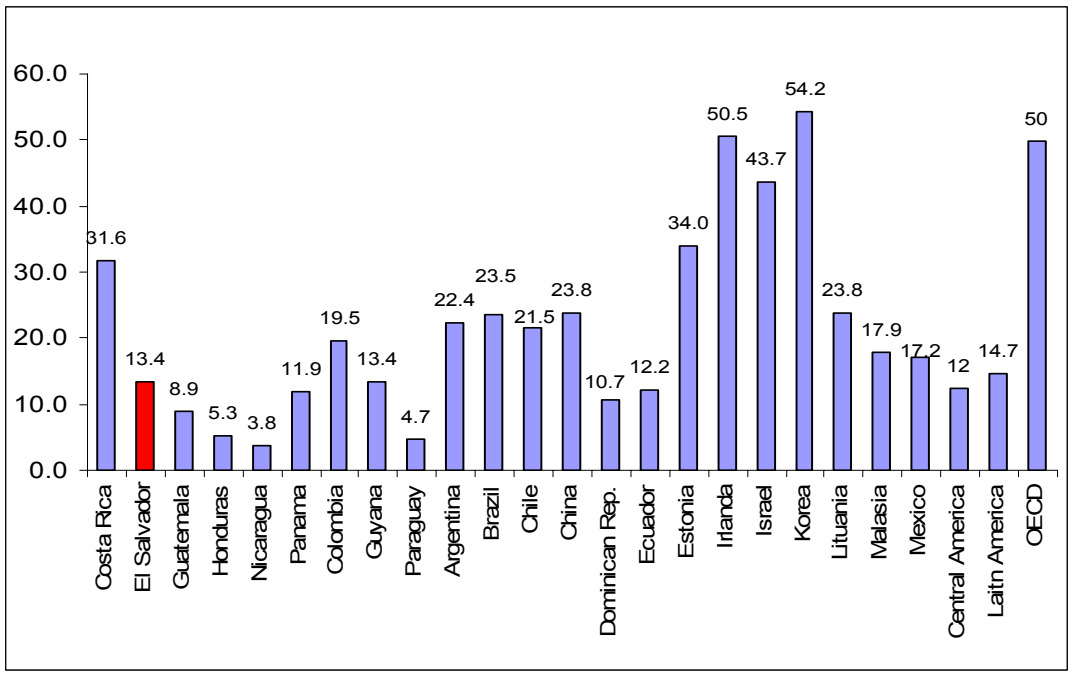
5.12 The lack of monitoring and management of spectrum resources can be solved by acquiring a radio spectrum monitoring and management system and a registration database for radio frequency users. This would allow SIGET to efficiently monitor the use of radio frequency, and have control over the license fees. Moreover, this would permit the introduction of new broadband technologies and thus increase ICT use in the country.

DEMAND AND COVERAGE

5.13 *Fixed telephony.* Since the privatization of ANTEL in 1998, fixed telephony in El Salvador has shown a significant growth. In 2004, the number of fixed lines reached roughly 890,000 lines, with an average annual growth of 129.6 percent since 1998. In 2004, teledensity in the country reached about 13 lines per 100 inhabitants.

5.14 Figure 5.1 shows telephone penetration in El Salvador in 2004, compared to other countries. El Salvador had more lines (13.4) per 100 inhabitants than Central American countries (except for Costa Rica with over 31.6), and was near the average for all Latin America (14.7 lines per 100 inhabitants). However, the country is still far from reaching the penetration rates of the Organization for Economic Co-operation and Development (OECD) countries, namely about 50 lines per 100 inhabitants in 2004.

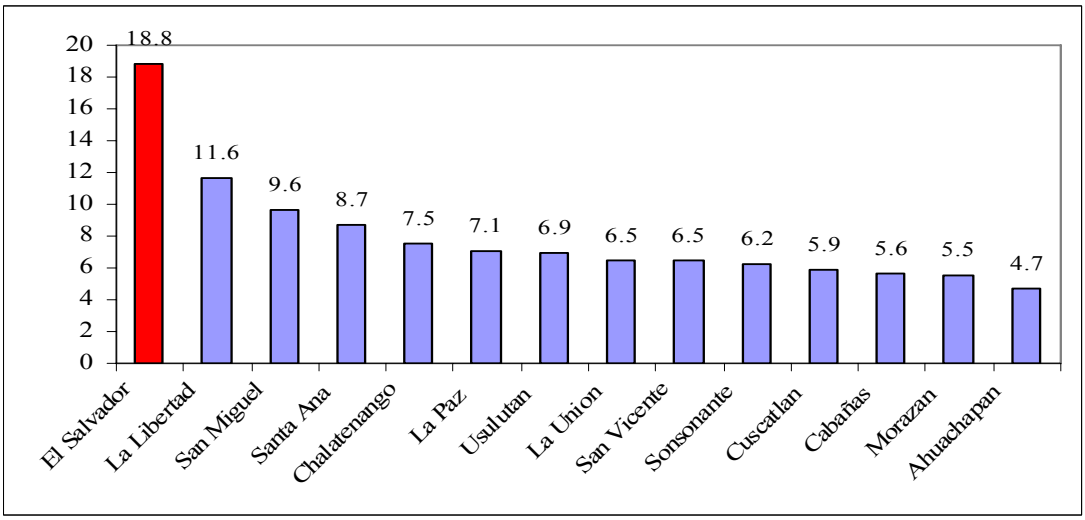
Figure 5.1: Fixed lines per 100 inhabitants (Teledensity) in 2004



Source: ITU

5.15 Teledensity is not even among the country's all 14 geographical Departments. Only four Departments (*San Salvador, La Libertad, Santa Ana, and San Miguel*) have teledensity levels above the national average. As shown in Figure 5.2, San Salvador (the capital city Department) has by far the largest concentration of telephones, while teledensity levels are below national average in more than 70 percent of all Departments. Despite the differences among Departments, El Salvador does not have a major issue regarding rural access compared to similar countries in the region.

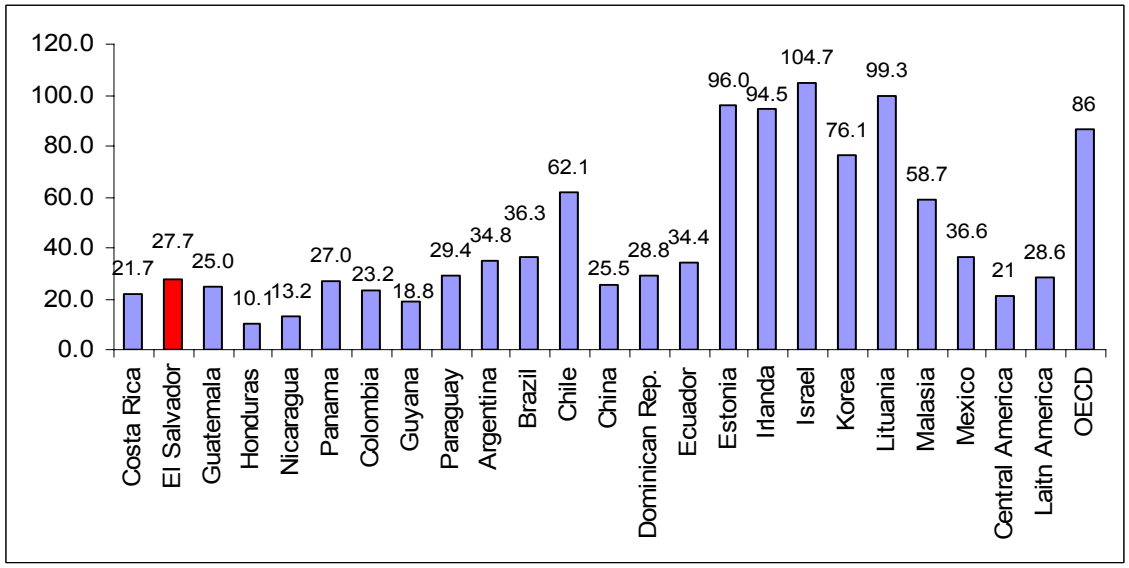
Figure 5.2: Teledensity by departments in El Salvador



Source: SIGET

5.16 *Mobile Telephony.* Mobile telephony in El Salvador has increased from 137,114 lines in 1998 to 1,832,579 lines in 2004. Figure 5.3 shows that in 2004, El Salvador had a high rate of mobile penetration (27.7) compared to that of similar countries and a higher rate than the average of Central America (21 lines/100 inhabitants). This high level of mobile penetration rate in El Salvador is the result of an efficient market competition.

Figure 5.3: Mobile penetration in 2004



Source: ITU

5.17 Table 5.1 below shows the large number of operators in the telecommunications sector. Currently there are ten operators in fixed telephony. The largest operator, CTE Telecom, dominates the market with a 90 percent market share, followed by *Telefónica* (5 percent) and *Salnet* (2 percent).

5.18 The mobile sector is made up of four mobile companies. The largest operator, Telemovil, has a share of around 42 percent of the market, followed by Telefónica (35 percent); América Movil (17 per cent); and Digicel (6 percent).

Table 5.1: ICT's operators in El Salvador

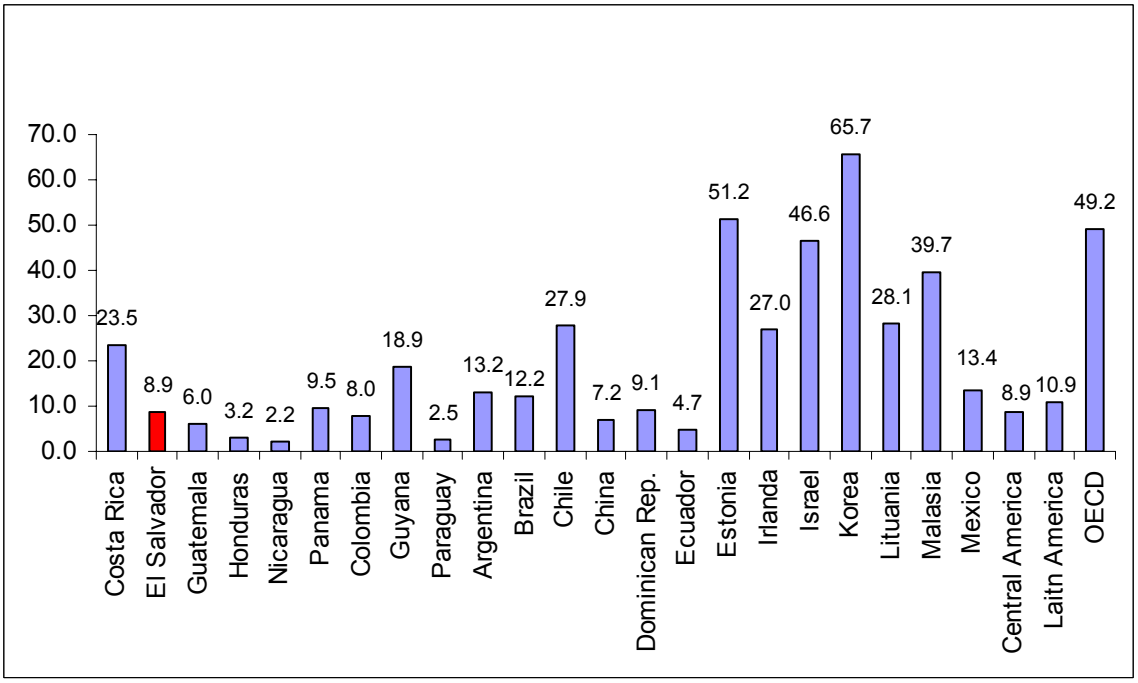
	2004
Carriers	11
Mobile	4
Fixed	10
Trunking	4
Paging	3
Internet	11

Source: SIGET

5.19 *Internet.* Although Internet usage has increased in the last years, El Salvador has not fully developed the Information and Communication Technology (ICT) sector illustrated by the number of Internet subscribers, which has increased at an annual rate of 22 percent, from 54,250 subscribers in 2000 to 117,495 in 2004. This level is relatively low compared to that of similar countries. In 2004, El Salvador had 8.9 Internet subscribers per 100 inhabitants, similar to the average of Central American countries. In OECD countries, the number of internet subscribers per 100 inhabitants was over 49 for 2004 (see Figure 5.4).

5.20 The internet sector has very few operators in El Salvador. There are only eleven Internet operators in the market. This small number of operators reflects the undeveloped Internet sector in the country which will be explained below.

Figure 5.4: Internet Subscribers per 100 inhabitants in 2004



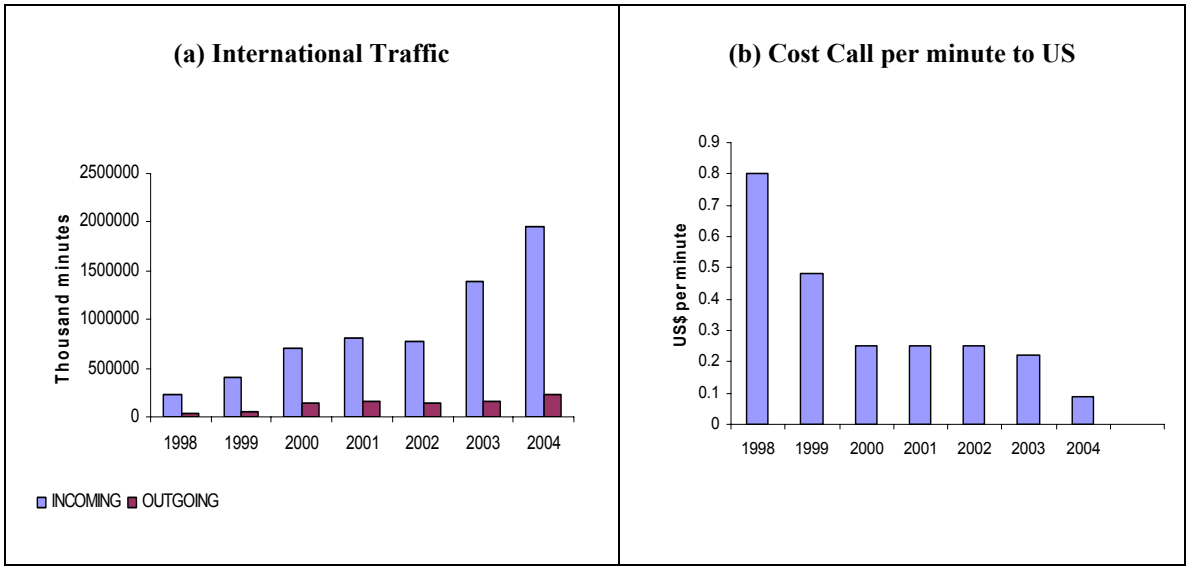
Source: ITU database.

PRICING

5.21 Local telephony prices in El Salvador are competitive compared to those of similar countries in the region (see Table 5.2 below). In 2003, residents paid on average US$22.58 monthly for local telephony, while firms paid on average US$35.28. However, residential and commercial prices are higher in El Salvador than in nearby Honduras and Costa Rica due to cross-subsidies from international service in those countries.

5.22 Since the introduction of competition in 1998, long distance prices have decreased in El Salvador. In 2004, the cost of a call to the Unites States was US$0.09 per minute, while in 1998 the cost was US$0.80 (see Figure 5.5 (b)). In addition, international long distance incoming and outgoing traffic have increased dramatically over this same period (see Figure 5.5 (a)).

Figure 5.5: Increase in international traffic and decrease in international prices



Source: SIGET

5.23 Currently, the international long distance market in El Salvador supports five operators. CTE Telecom has the largest market share (44 percent), followed by Telefonica (19 percent); Telemovil (15 percent); Americatel (15 percent); Salnet (4 percent); and Saltel (3 percent).

5.24 Compared with similar countries, El Salvador's long distance prices are low. For example, in 2003, an international long distance call to the US was US$0.22 per minute, while a national long distance call was US$0.04 per minute. Guatemala, with a comparable market structure to that of El Salvador, had similar price levels. As illustrated in Table 5.2, prices for long distances calls were higher in countries where the market was not yet liberalized such as Honduras, Nicaragua, and Costa Rica.

Table 5.2: Local and long distance prices in Central America in 2003 (U$S)

	Local (a)		Long Distance	
	Residential (600 min.)	Commercial (1000 min)	International (per min. to the US)	National (per min.)
Guatemala	16.71	28.03	0.25	0.04
El Salvador	22.58	35.28	0.22	0.04
Honduras	10.51	23.72	0.84	0.09
Nicaragua	16.84	41.83	0.87	0.08
Costa Rica	8.22	12.5	0.45	0.01

Source: author's calculations based on regulatory agencies' information.
Notes: (a) Total Basket = (installation cost/120) + (monthly rate)+ (charge p/min call*# minutes)

5.25 International accounting (or termination) rates are the charges payable to interconnecting international operators under traditional settlement arrangements for mutual termination of traffic between their networks. In most countries during the past few decades, accounting rates have been well above the cost of providing international service termination. Profits from these high

rates provided a significant source of cross-subsidies, particularly to developing countries. They also led to a major imbalance in payment of accounting rates from countries that originated more calls than they terminated. There has been strong pressure from the US and other countries with outbound accounting rate imbalances to reduce accounting rates.

5.26 Technological developments have also contributed to this reduction in accounting rates. One of the main innovations that undermines the accounting rate regime is Internet telephony, also referred to as "Voice over the Internet", or "voice over IP" (VoIP) technology. Internet telephony bypasses the accounting rate regime, and hence allows VoIP providers to price their services below those of operators of conventional PSTN networks in El Salvador.

5.27 Technological developments and pressure from countries with accouting rate imbalances have combined with international service competition to lead to significant decreases in international accounting rates. The downward trend in rates can be seen as an international form of rate rebalancing between international and national service. Thus, operators need to increase revenues from national services to offset potential losses from international settlements.

5.28 In El Salvador, the international termination rate is still US$0.19. Despite this high rate, the significant difference in the ratio of incoming vs. outgoing traffic (10 to 1) entails high settlement payments from US operators. SIGET should consider eliminating the high termination rate for international calls while rebalancing national rates. This could be done after developing a study of the market including a detailed analysis of the local and long distance rates.

5.29 The need to rebalance international and national rates has important implications for price cap regulation. For many countries, a significant amount of rate rebalancing may be both desirable and necessary. Accordingly, pricing restrictions should not deprive the operator of sufficient pricing flexibility to implement rebalancing. The potential volatility of international prices and uncertainty of customer response may make it beneficial for the regulator to implement a fixed-weights scheme for the price cap formula, at least until the majority of the rebalancing has occurred.

SECTOR CHALLENGES

5.30 *Regulatory and Institutional Issues.* Absence of a ministerial entity specifically for telecommunications policy. There is no specific authority responsible for the strategy, planning, and overall telecommunications policy in El Salvador, even though the existing regulatory agency is responsible for all telecommunications regulatory issues. The lack of leadership at the ministerial level creates uncertainty over where the sector is heading in the long run, which discourages private sector long-term investment planning in the sector, thereby hindering its development. Box 5.1 describes an ideal telecommunications structure, which could be used by the GoES and adapted to the specific needs of the sector.

Box 5.1: International regulatory organizations

Until recently, in many countries, a single Ministry or other government administrative unit performed the roles of telecommunications policy maker as well as owner and operator of the national telecommunications network. No need was perceived for a regulator in this environment. The same government officials were often involved in policy decisions, policy implementation and operation of the telephone service.

Privatization and market liberalization has led to a re-organization of the government institutions involved in the telecommunications sector. The most common institutional model used in developed market economies around the world today, is illustrated in Table 1.

The structure set out in Table 1 is compatible with the market-based supply of telecommunications services, rather than government-based supply. It also facilitates compliance with the WTO Regulation Reference Paper, in that it provides for a regulator that is separate from the telecommunications operator, and that can resolve interconnection disputes. This structure has the following features:

Government officials can set policies in the national interest, without conflicting concerns based on their role as owners, managers or employees of telecommunications operators. In particular, governments are more inclined to introduce significant competition in telecommunications markets if they do not also run the main operator.

Separate regulatory authorities can implement government policy in an objective and impartial manner. Separation from state-owned telecommunications operators increases the ability of regulators to act impartially toward all market participants, for example in matters involving competition policy or interconnection.

Market confidence in the impartiality of regulatory decisions generally increases with the degree of independence of regulators from both operators and governments. Such market confidence promotes increased foreign and domestic investment in both incumbent operators and new entrants in the sector.

Privately owned operators can make rational economic decisions about the supply of tele-communications services, without conflicting concerns arising from government ownership.

Table 1: Standard Institutional Structure in Developed Market Economies

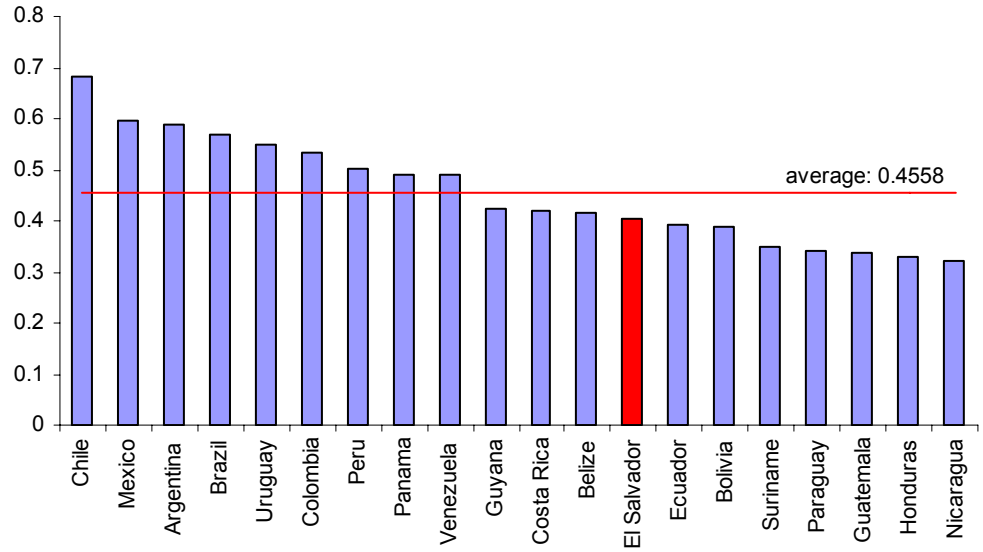
Function	Responsible Organization
Policy Development	Government Ministry or Executive Branch
Regulation	Separate Regulatory Authority
Network Operations/Service Provision	PTOs (privately or commercially operated)

For example, some public telecom companies traditionally maintained excessively large work forces for political or other non-economic reasons. This resulted in inefficiency and added costs for consumers. In most cases, privatization of telecommunications operations has increased the supply of telecommunications services and reduced costs. “Commercialization” of state-owned operators can also increase immunity from government interference, relative to traditional public telecom companies. However, the degree of immunity depends on the degree of independence granted to the “commercialized” state operators.

Source: Telecommunications Regulatory Handbook, INFODEV, 2000

5.31 Development of a solid and long-term national ICT strategy in El Salvador is essential to ensuring the country's competitiveness in a global environment. According to the UN E-Readiness Report, El Salvador's capacity and use of E-government capabilities, as part of the development of ICTs in the country, is below the average in Latin American countries (see Figure 5.6). Recently, the GoES launched an ambitious and thorough E-Government strategy with long-term objectives, through the *Secretaría Técnica*.

Figure 5.6: E-Readiness index



Source: UNITED NATIONS E-Readiness Report 2004

5.32 Enforcement of the regulatory framework. SIGET, the regulatory agency, lacks the capacity to enforce regulations and its market regulation power is limited. Interconnection and competition regulation are not clear enough to allow SIGET to intervene in case of market failure. Therefore, SIGET lacks enforcement capacity. For example, regarding interconnection, SIGET can only act as a dispute resolution agent when a party explicitly requests its intervention. Thus, SIGET does not have the legal authority to set interconnection tariffs when needed. Also, SIGET does not have enough qualified staff specially lawyers and economists to enforce the existing regulations in the case of market failure. SIGET has not been able to show leadership in the sector and among operators. This is another reason why SIGET has not been able to regulate market failures.

5.33 Radio Spectrum. The radio spectrum is a limited national resource. Efficient use is essential for the overall El Salvador economy because many businesses depend upon it either directly or indirectly. The use of the radio spectrum has been exploding over the recent years. In particular the growth of mobile telephony, which has surpassed the number of fixed users, has been robust. Further growth and new services based on third generation mobile systems and (wireless) Internet technology can be anticipated. All of these services require spectrum.

5.34 Examples of businesses directly dependent upon sufficient and clean spectrum are:

- All Mobile operators, representing a rapidly growing business.
- The Fixed operator, which is dependent upon spectrum for microwave links and Fixed Wireless Local Loop.
- All radio and TV broadcasters.
- All trunking operators providing radio communication services to companies.
- All paging operators.

5.35 Telecommunications is the third largest investment category, accounting for more than US$400 million per year and representing roughly 16 percent of the total foreign investment in El Salvador. Indirectly many more companies and organizations are dependent upon the spectrum for their communication needs:

- Many government organizations such as police, security forces, fire department, the electric company, and other utilities use private radio networks.
- The aeronautical industry uses spectrum for communication with airplanes, making clean spectrum essential for safety reasons.
- Banks frequently depend upon radio links to connect their ATM's.
- Many other businesses depend upon mobile or radio communication to coordinate their activities.

5.36 Overall, the importance of spectrum use has exploded recently and failure to manage the spectrum efficiently would have detrimental impact on the entire El Salvador economy.

5.37 To allow fair competition SIGET must manage, allocate, and monitor the spectrum given its limited availability and the crucial roll of 'clean' spectrum for the users. SIGET issues *'resoluciones'* for spectrum use, either through direct assignment or through auctions in cases where demand exceeds supply.

5.38 Yet SIGET has only limited tools and equipment to monitor the actual use of the spectrum. There is no central database for frequencies and information is distributed and fragmented over three departments. This results in inefficiencies, errors, and insufficient enforcement. As a consequence legal spectrum users do suffer from interference in their frequency band. In some popular bands illegal use is estimated to be 25 to30 percent and there has been severe damage to affected mobile operators and other radio communication systems. Automatic location finding equipment is required.

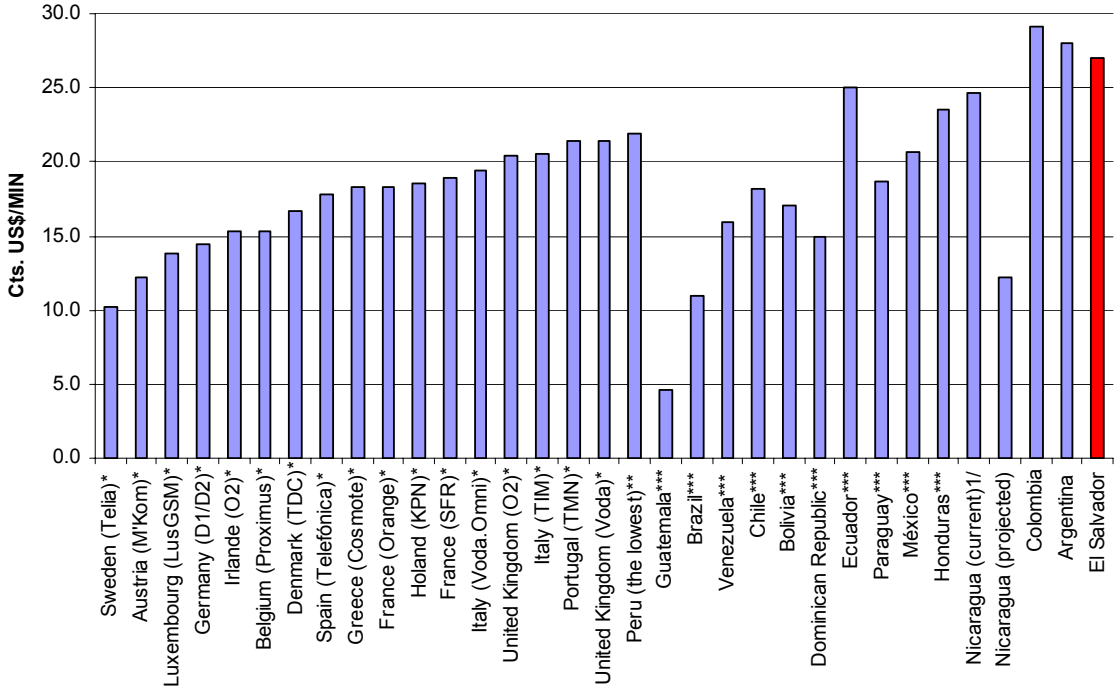
5.39 In addition, the government loses substantial revenues both from legal users not paying their annual fees as well as from illegal users not paying at all. Currently, there are no procedures resulting in 'confiscation' for illegal use and non payment of annual fees.

5.40 Fixed-to-Mobile interconnection charges. In El Salvador, fixed-to-mobile interconnection charges are high, which indicates failing competition and a market structure close

to a de facto monopoly. Currently, the interconnection charge for calls from fixed to mobile is US$ 0.27 per minute. SIGET has not intervened to have these charges reduced, in spite of the fact that not only they are transferred to the end-users, but they are also barely affordable, which significantly compromises the development of the market.

5.41 Figure 5.7 shows that mobile termination charges in El Salvador are the highest among a large set of countries, and one of the highest in all Latin America. These high charges have allowed mobile operators to secure high returns and to expand these services, while transferring these high charges to end-users.

Figure 5.7: Mobile termination charge



Source: * Australian Competition & Consume Commission. Mobile Service Review, April 2003;
** OSIPTEL, Regulation of local fixed-mobile calls, January 2004; *** APOYO Consultoría, June 2001; 1/ Webpage Regulatory Agency of Honduras; Calculated by Apoyo Consultoría

5.42 According to the USTDA report, SIGET could address the issue of fixed-to-mobile interconnection through three different approaches: (a) as a competition issue, where mobile operators apply price discrimination against fixed operators even though the same mobile infrastructure network is used; (b) as a tariff issue, where the tariff is considered a "charge for air time" and therefore is not cost-oriented; or (c) as an interconnection issue, where mobile operators argue that the "charge for air time" is to be transferred to the end-users.

5.43 Historically, regulators devoted much less attention to mobile services than fixed services. Mobile service was priced at a substantial premium to wire line service. As a result, mobile service was viewed as a discretionary or even a luxury service where consumers did not need much in the way of regulatory protection. Also, mobile service was offered competitively in many countries, with the expectation that market forces rather than regulators would be the prime

force in setting prices. Mobile operators were not perceived as possessing market power in the same way as fixed operators.

5.44 The consumer rates for mobile service have declined in both developed and developing countries. The combination of rate decreases, the fact that consumers like the flexibility of mobile service, and improvements in mobile technology (such as longer battery life) have contributed to an enormous increase in the number of mobile users. Thus, for many, mobile service is no longer a luxury – it is the prime way in which they access the PSTN.

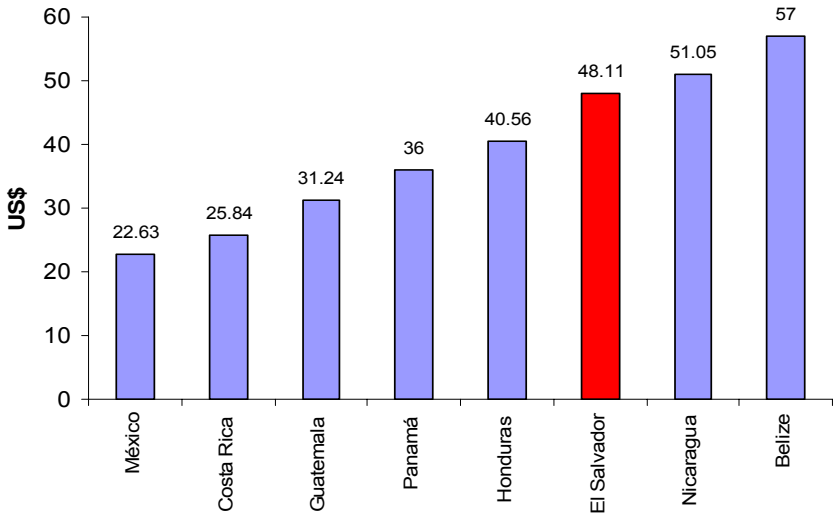
5.45 An examination of the fixed-to-mobile rates that are charged to the customers of a fixed operator leads to an examination of the interconnection charges levied by the mobile operator to the fixed operator for the termination of a call on the mobile network. Few countries have examined the costs of mobile termination and applied these costs in setting interconnection charges.

5.46 High mobile interconnection rates may be reduced by competition over time. However, as mobile services catch up with and overtake fixed networks, there is likely to be more regulatory scrutiny of high mobile termination rates, particularly where they are thought to be set at levels that are significantly above cost.

5.47 *Internet Access and Usage.* El Salvador has not fully developed its ICT sector, as illustrated by low Internet access and use. Although Internet penetration has increased in the past years, as shown above, this growth has been moderate. The main reasons why this sector lagged are: a) high Internet rates, b) lack of local content, c) lack of training and higher education programs, and d) lack of E-commerce regulatory framework.

5.48 Internet Prices. Internet prices in El Salvador are high. The price for 20 hours per month of dial-up Internet use is around US$48, against US$22 and US$ 25 in Mexico and Costa Rica respectively. This is difficult to afford for low-income households and SMEs in El Salvador. One main reason for high Internet prices is the absence of a special tariff for this service. To navigate the Internet, users must pay the price of a local call, or around US$ 0.02/minute. Of all Central American countries, only Nicaragua and Belize have higher prices for Internet services than El Salvador (see Figure 5.8).

Figure 5.8: Internet prices for 20 hours per month



Source: ITU

5.49 Lack of local content. El Salvador has few Internet websites and few private initiatives to promote the use of ICTs. As described above, El Salvador is below the Latin American average in terms of E-government readiness. Therefore, it is essential for the GoES to focus on strategies that promote the use of ICTs to position the country at a competitive level in the region.

5.50 The local telephone pricing is a disincentive to the establishment and expansion of ISPs, who create local content. This is because the incumbent offers free of charge to interconnect with its own ISP, but charges local telephone rate for the use of Internet. Therefore, no ISP can compete with the incumbent's free charges. Few ISPs means few local content, low use, and low development.

5.51 Too few ICTs training programs focused on adult population, and few higher education programs. Even though the young population is growing in an ICT environment (cyber-cafes and some schools with ICT training programs), it is important for the adult population to have access to institutions that provide this training to create an ICT environment.

5.52 Also, higher education institutions offer relatively too few programs to prepare students to ICTs-oriented technical professions. The Ministry of Education, through its vice-ministry of ICTs, is currently launching a program to promote certification courses for young adults in ICTs. This is an important effort by the GoES to increase ICT levels in the country.

5.53 E-commerce regulation. El Salvador does not have an E-commerce regulatory framework for protection and certification of online transactions. The absence of confidence in online transactions severely hinders the development of E-commerce in the country, which in turn is an obstacle to the development of its ICT sector.

RECOMMENDATIONS

5.54 *Regulatory and Institutional.* Establish a telecommunications policy authority or commission. Although there is a Vice-Ministry for ICTs under the Ministry of Education, there is no first-level authority in charge of promoting an ICT strategy in the country. Even though El Salvador has one of the most dynamic telecommunications markets in the region, it has not fully developed its ICT sector. El Salvador needs to develop a strong ICT-oriented industry to be able to compete in a global environment.

5.55 In some countries, other government ministries or agencies may play key roles in the telecommunications sector. For instance, a competition authority may be an important component of the institutional structure. Other organizations that may play a significant role in determining the overall economic environment of the telecommunications sector include ministries of finance and ministries of planning, as well as privatization and tax authorities. All of these institutions can play particularly important roles at the time of privatization. However, once privatization is completed, they often take on a more secondary role.

5.56 When new telecommunications regulators were established around the world in the 1990s, many were headed by a single director general or other official. This structure was similar to other government organizational models used in some of the countries where the new regulators were established. As with the commission model, regulators headed by a single official are usually assisted by various technical, professional, and support staff, as well as outside consultants.

5.57 The GoES should consider implementing an authority or collegial body or commission, to address the telecommunications agenda of the country. There are advantages and disadvantages to a collegial approach. Collegial bodies provide checks, balances, and collegial support for the decision-makers. Decisions can therefore be more thoroughly debated and considered. However, large collegial bodies can lead to less cohesion and consistency than small ones or a single ministry. Some countries with large collegial bodies have reduced them in size to increase decision-making efficiency.

5.58 Some collegial bodies, especially large ones, have part-time members. Such members usually find it more difficult to keep abreast of developments in rapidly changing telecommunications markets. In practice, collegial commissions often rely heavily on professional staff and consultants for fact gathering, analysis, and recommendations. Final decision on important policy matters and directions will rest with the commission.

5.59 Improve the regulatory framework to establish specific regulation for competition and interconnection issues. El Salvador has one of the most liberal telecommunications sectors in the region, along with Guatemala. Therefore, regulation should be as clear and concise as possible to provide the regulatory agency with adequate mechanisms to intervene in case of market failures, such as dealing with interconnection issues.

5.60 Should the GoES undertake a regulatory improvements, it will be crucial to notify and involve telecommunications operators early enough to allow them to prepare and adapt their own strategic planning and business models.

5.61 Strengthen the regulatory agency (SIGET). An entity with strong capacity and empowerment is needed to cope with a highly liberal telecommunications sector. SIGET needs to

be strengthened and to balance its staff range of qualifications by hiring dynamic staff, especially lawyers and economists, with good knowledge of, and broad vision for the sector.

5.62 There are many ways to organize the decision-makers, management, staff, and other advisors of a regulatory agency. No single approach is ideal. Multi-sector regulators will have different structures from single-sector regulators, since professional staff such as economists, lawyers, and accountants will deal with telecommunications issues one day, and electrical power regulation the next.

5.63 The main factors determining organizational differences are the functions and objectives of different regulatory agencies. As described above, SIGET is responsible for spectrum management, licensing of new operators, and verifying compliance with a price cap regime prescribed in a long term license. Different functions and objectives require different types and levels of professional assistance.

5.64 Some general observations include:

- Regulatory decision-making requires multidisciplinary skills. Specific types of regulatory decisions require qualified economists, engineers, lawyers, accountants, and financial analysts. However, many other decisions benefit from having a range of different professional skills and perspectives brought to bear. Where high-caliber professional skills are not immediately available within the public service, outside experts should be sought. Experts with hands-on experience with established regulators can be particularly valuable. Outside experts can be replaced as good permanent staff are hired and trained.

- The telecommunications environment is changing rapidly. Accordingly, regulatory organizations should not establish rigid hierarchies; they should be flexible and adaptable. Many effective regulatory organizations employ a "task force" or "working group" approach to staffing teams to advise on important regulatory decisions. These task forces are often selected from different branches of the regulatory organization. They are frequently brought together solely for a specific project.

- Consideration should be made to contracting out specific regulatory functions, rather than building large permanent staff organizations. For example, audit firms can monitor compliance with operating license conditions. External experts can also resolve operator disputes, leaving final decisions to the regulators. Many other examples exist.

5.65 SIGET requires Spectrum Management & Monitoring tools and legal enforcement. Various options for a Spectrum Management & Monitoring System have been reviewed. Key requirements are permanent monitoring in the larger San Salvador area as well as the capability to monitor everywhere else in El Salvador when needed. This has resulted in the following recommended monitoring network:

- 1 fixed monitoring station in San Salvador,

- 1 transportable monitoring station, permanent location San Miguel area

- 1 mobile monitoring station

- Optional: 1 transportable monitoring station, permanent location Santa Ana area

5.66 With this configuration most economically important areas can be monitored efficiently. If extensive monitoring and locating of illegal users becomes necessary in more remote areas the transportable and mobile station could be deployed in that area temporarily without affecting the permanent monitoring in San Salvador.

5.67 Besides the monitoring system a central database of all frequencies and their users should be created. This database will be the source of data for issuing new frequency assignment, monitoring actual usage, invoicing the users and collecting the fees.

5.68 On the enforcement side the procedures should be strengthened to allow 'confiscation' of equipment both in case of illegal use as well as in the case of consistent none payment of the fees.

5.69 An integrated spectrum management & monitoring system in combination with actual enforcement would bring the following benefits:

- Equips SIGET with adequate tools to manage and monitor the spectrum.
- Enables SIGET to collect the necessary legal proof against illegal users allowing more efficient enforcement.
- Enables SIGET to collect a substantially larger percent of the fees.
- Reduced interference to those telecom operators suffering from illegal users in their frequency bands.
- Reduced safety risks due to the capability to locate illegal users faster.
- Cleaning up new bands required for future (mobile) expansion. Typical examples are the bands for PCS 1900 and 3rd generation mobile services which have started to take-off all around the world. These bands do represent a high value when auctioned. Obviously investors paying a lot of money for these bands do expect them to be clean and free of illegal users. The government could expect substantial revenues from these bands directly (auctioning) and indirectly (investments, taxes, business generated by companies exploiting these new services). In the past an auction of some PCS 1900 spectrum resulted in 25 M $.
- Enables SIGET to handle international frequency coordination with neighboring countries based on the capability to actually monitor usage in the border areas.
- Improved operational efficiency of SIGET.
- Improved SIGET credibility due to successful implementation and enforcement.

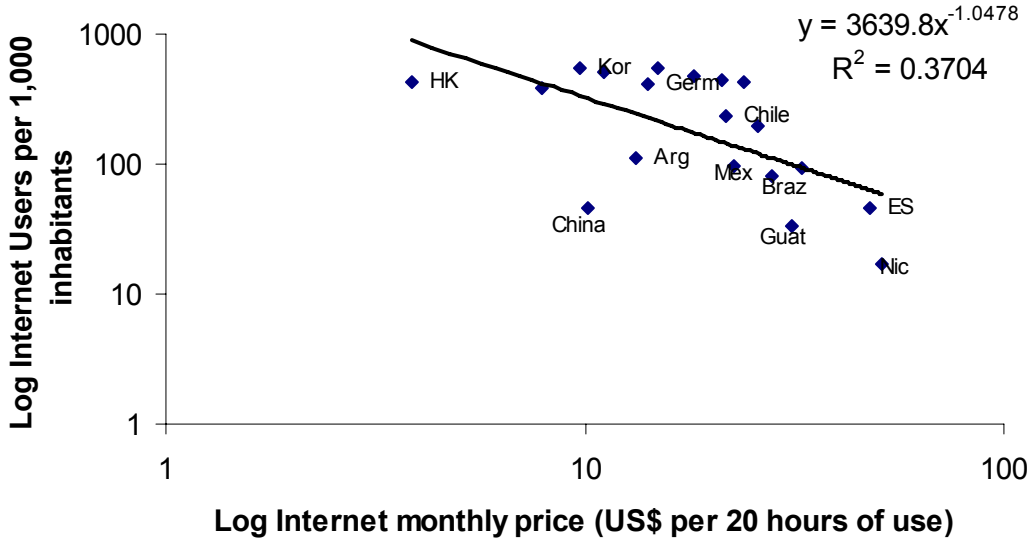
5.70 Reduce fixed-to-mobile interconnection charges. SIGET should conduct a specific study including international benchmarking to determine why current charges are so high. Based on this study, SIGET should request operators to reduce interconnection charges voluntarily. In case of refusal, SIGET should then regulate the interconnection charges using cost-oriented criteria.

5.71 If SIGET regulates interconnection charges, it is important to establish a rebalancing plan to allow operators to reassess their business models with a new reduced interconnection charge. This rebalancing plan should be established in consultation with the operators.

5.72 Annex 1 of Section II describes initiatives undertaken by a number of countries to reduce fix-to-mobile charges.

5.73 *Internet.* Establish a reduced rate for Internet access. SIGET should establish a special rate for Internet access, allowing people to use Internet services at a more affordable cost (see Annex 1.2 for alternatives). This would extend use of the service to a larger mass of population and small businesses, which could exchange emails and visit web pages. Even existing users would increase the time they spend online. As a result, El Salvador would achieve the "minimum critical mass" of users, and from this point, Internet usage would grow exponentially. As shown in Figure 5. 9, based on a large group of countries, there is a positive correlation between low Internet prices and higher Internet usage. Telephone companies would benefit from increased number of users and traffic. More companies would enter the ISP segment and develop more local content. Business productivity would improve and thus foster El Salvador's competitiveness. See Annex 2 for examples in dial-up Internet alternatives.

Figure 5.9: Internet prices and internet users



Source: Author's calculations with World Bank Indicators

5.74 Develop ICT training initiatives for adults, and improve the existing ICT training programs. More and better human resources are key elements to improve productivity in El Salvador, as the use of better technology becomes critical to increase the country's value-added exports. It is impossible to compete in higher technology without an appropriately qualified staff. This program should be driven by businesses, and tailored to suit their needs with Government support. The Government should increase training at associate Degree level (technician, programmer).

5.75 Prepare new E-commerce legislation, through public consultation with all sectors, and submit to Congress. Update the telecommunications legislation to include ICT aspects in order to integrate El Salvador into the Information Society. Box 5.2 provides recent international legal and regulatory developments in E-commerce as examples.

Box 5.2: International legal and regulatory developments in E-Commerce

Although several important legal issues such as applicable law, jurisdiction, consumer privacy, and data protection remain unresolved at the international level, a certain degree of predictability and legal certainty has been achieved by a number of developing countries that have enacted legislation recognizing the legal value of electronic means of communication and the validity of electronic signatures. Thus, legislation based on the 1996 UN Commission on International Trade Law (UNCITRAL) Model Law on Electronic Commerce, whose main objective is to offer legislators a set of internationally acceptable rules allowing some legal obstacles to be removed and a more secure legal environment to be created for e-commerce, has already been adopted by a number of developing countries. Furthermore, other developing nations, mainly in Latin America and Asia, have adopted legislation on electronic transactions and electronic signatures that provides the predictability required by business to engage in e-commerce. Unfortunately, many African countries continue to lag far behind, and several of them do not have any legislation accommodating e-commerce.

Another area requiring special attention to ensure that developing countries do not become havens for intellectual property piracy is intellectual property. Some important issues, such as the definition and scope of rights in the digital environment, and some of the challenges of online enforcement and licensing are addressed in two treaties concluded at the World Intellectual Property Organization (WIPO) in 1996: the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) (commonly referred to as the "Internet treaties"). Both treaties have been ratified by a relatively large number of developing countries. The ratification of these treaties assists in the adaptation of intellectual property laws to the digital age and provides developing-country Governments with tools to protect their national intellectual property assets.

Security is another important area where very little progress has been achieved. Thus, lack of an adequate legal framework with respect to information and infrastructure security and computer crime is currently preventing developing countries from grasping the opportunities offered by e-commerce. The Convention on Cybercrime prepared by the Council of Europe, whose main objective is to pursue a common policy to protect society against cybercrime, especially by adopting appropriate legislation and fostering international cooperation, provides a valid alternative for developing countries wishing to enact legislation.

As regards data protection and information privacy, few Governments in developing countries have enacted legislation regulating the collection, use, dissemination and protection of the personal data to which business actors have access over the Internet. The absence of regulation in this field is clearly detrimental to the national economies of many developing countries, since a large number of developed countries, in order to prevent circumvention of the law through the use of third-party countries and to protect individuals' rights over their personal data, prohibit the transfer of personal data to countries where the data are not provided a comparable or adequate level of protection. To avert the negative consequences of such restrictions, developing countries need to enact data protection legislation or adopt suitable contractual arrangements.

Source: UNCTAD, "E-Commerce and Development Report 2003", United Nations Conference on Trade and Development (UNCTAD), 2003

CHAPTER 6: WATER AND SANITATION

MARKET STRUCTURE, INSTITUTIONAL AND REGULATORY FRAMEWORK

6.1 The water and sanitation sector in El Salvador consists of a large number of diverse service providers. They include a dominant institution, ANDA, and more than a 1000 local providers in rural areas and small towns. The *Administración Nacional de Acueductos y Alcantarillados* (ANDA) provides services to 40 percent of the total population of El Salvador. ANDA is not only a self-regulated service provider, but it also has an implicit role in the regulation of other service providers, filling a legal gap. As an umbrella institution ANDA defines policies, regulates and provides services. It also provides technical assistance to decentralized service providers, assesses groundwater resources and collects groundwater abstraction charges. The legal competence on hydro resources belongs to the Ministry of Environment, which is in the process of drafting a new general water law.

6.2 ANDA is under the overall authority of a President and its day-to-day management is performed by a General Manager. The institution is governed by a board chaired by ANDA's President, who is named by the President of the Republic and has the rank of a Minister. The other Board members do not play an active role in overseeing ANDA. ANDA's budget is attached to Ministry of Public Works, its transfers are approved by the Ministry of Finance and its tariffs are approved by the Ministry of Economy.

6.3 The lack of independent regulation of the water sector in general, and ANDA in particular, manifests itself in my ways. Information and data about the water and sanitation sector are often of dubious quality particularly as they relate to performance. For example, some figures reported by ANDA about its own collection efficiency and water losses would indicate that it is performing better than any other water utility in Latin America.[7]

6.4 There is no national entity in charge of providing financing or technical assistance for water supply and sanitation in rural areas, where about 36 percent of the population lives. The rural population is basically left to its own means, operating systems through local water committees and trying to mobilize limited funding through NGOs. ANDA occasionally provides construction material on a case-by-case basis. Many of the poorest municipalities may soon see a marked expansion of service as the result of a FISDL initiative. With financing from the Inter-American Development Bank, FISDL will take the lead in rolling out water services in the 36 poorest communities of El Salvador with the means testing and implementation conducted through the *Red Solidaria* Program.

6.5 El Salvador's water resources are highly polluted, owing in part to the almost total absence of municipal wastewater treatment. In addition, the country suffers from water scarcity during the dry season and conflicts among users.

[7] For example, ANDA data shows 100 percent collection efficiency for the oriental and occidental region and only 10.1 percent non-revenue water in Greater San Salvador (ANDA, *Annual Report* 2003, p. 51, p. 54 and p. 24)

6.6 There is no coherent legal framework for the sector. Instead, the sector - including water resources management - is governed by a patchwork of 10 different laws. These laws were enacted at different times without an overall vision for the sector. In water supply and sanitation, responsibilities are fragmented among ANDA (water supply and sanitation in most urban areas), the Ministry of Economy (tariff approval), the Ministry of Finance (approval of transfers to ANDA), the Ministry of Health (monitoring of drinking water quality) and the Presidency. In water resources management, they are split between ANDA (groundwater resources assessment), the Ministry of Agriculture (irrigation), the Ministry of Environment (environmental protection), the electricity utility (water use for hydropower) and a number of other stakeholders without any coordinating entity or clear assignment of roles.

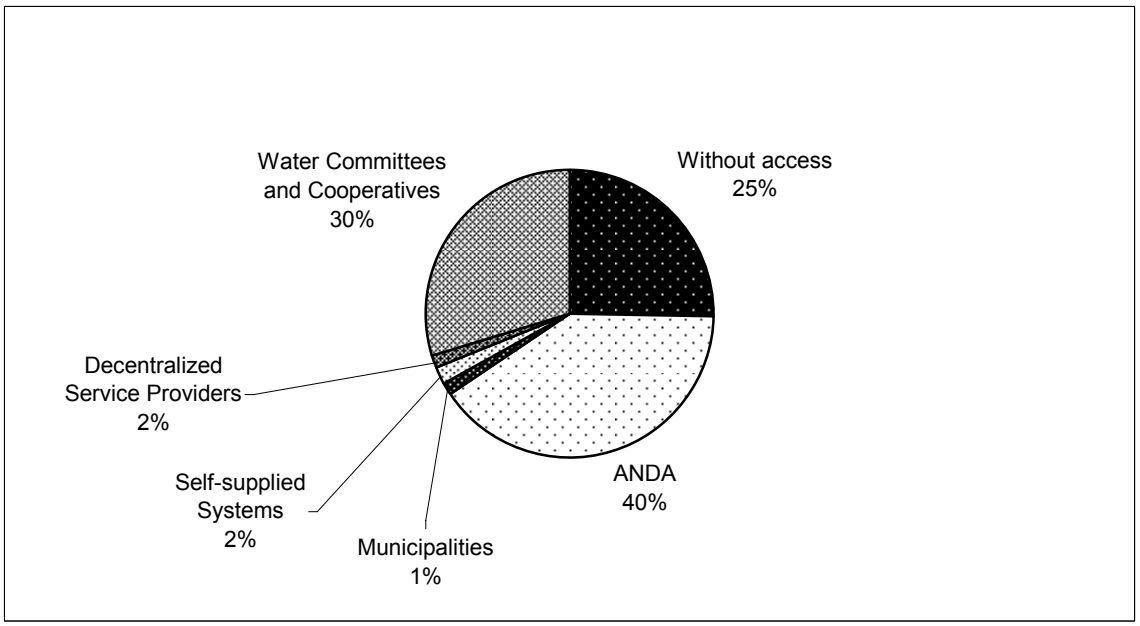
6.7 There have been various efforts to reform the water sector and to create a new legal framework over the past 10 years. The most comprehensive effort was abandoned after the 2001 earthquakes when political and reform priorities shifted. That reform package would have included the setting of tariffs based on the goal of cost recovery, the creation of a regulator and the introduction of private sector participation. At this moment, the government is considering a general water law and a water and sanitation law. According to these two projects, ANDA will become another service provider.

6.8 Over the last few years, ANDA's investment levels, outreach and performance have steadily declined. The 2003 corruption scandal at ANDA has led to the so-called "Perla effect" which has paralyzed new investments in ANDA, due to the lack of donors to entrust new important funds to ANDA and to difficulties in the acquisitions procedure. The proposed water expansion program through FISDL is the first significant new donor-sponsored program in the sector in several years.

6.9 *Brief overview of sector structure.* The water and sanitation sector in El Salvador consists of ANDA and more than 1000 local providers in rural areas and small towns. ANDA provides services to 40 percent of the population (52 percent of the population with access to an improved water source), covering 149 of 262 municipalities in El Salvador. The local service providers serving the rest of the population can be categorized as follows:

- more than 800 rural water committees and cooperatives;
- more than 100 self-supplied urban systems, mainly built by housing developers;
- 83 small municipalities that did not transfer their water systems to ANDA when the sector was centralized in 1961;
- 13 decentralized service providers which obtained the right to provide services but whose assets are still owned by ANDA.

Figure 6.1: Share of population served by different categories of water service providers



Source: World Bank, based on data in ANDA Bulletin 2004, p. 33 and EHPM 2004[8]

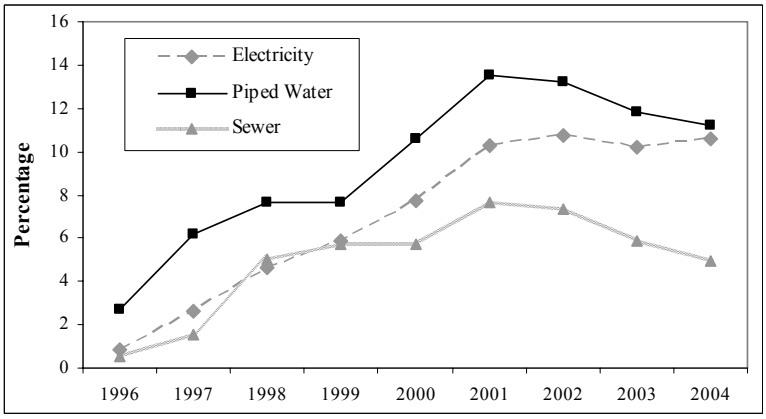
DEMAND AND COVERAGE

6.10 This section addresses coverage and environmental degradation—performance indicators that are independent of the particular service provider and for which data are available only at an aggregated or national level. Other aspects of sector performance such as service quality, tariffs and efficiency are addressed separately for each type of service provider in subsequent sections devoted to ANDA and local service providers respectively. All data have to be interpreted cautiously, since the quality of data in many cases is poor, and data are often not independently verified, as will be explained in more detail in each section.

6.11 *Coverage.* Significant progress, but problems remain. Water coverage in El Salvador increased significantly between 1990 and 2002 from 67 percent to 82 percent. However, the expansion in access to piped water and sewers has stagnated, with zero or negative growth from 2001 to 2004. Accumulating the percentage of new households connected to networks since 1995 shows that achievements in current access levels were made before 2001 (see Figure 6.2). Connection to sewer increased to 43 percent from 25 percent in 1995, but decreased slightly to 40 percent in 2004 due to the formation of new households. Expansion of access to piped water was also slow during this time period. Access to piped water grew from 47 percent in 1995 to 60 percent in 2001 but fell to 58 percent in 2004. Expansion of access to water and sewerage turned negative since 2001 corresponding with a sharp decline in infrastructure financing for the sector (as opposed to electricity, which has basically kept up with household growth).

[8] The percent of population without access to an improved water source in this figure is higher than other sources because EHPM does not includes private or common wells as an improved source.

Figure 6.2: Accumulated percentage since 1995 of households serviced in El Salvador

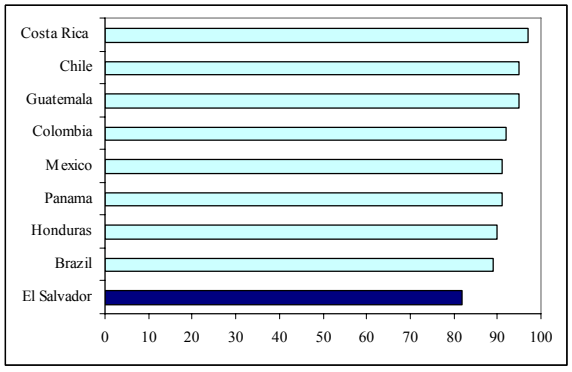


Source: FUSADES elaboration based on EHPM

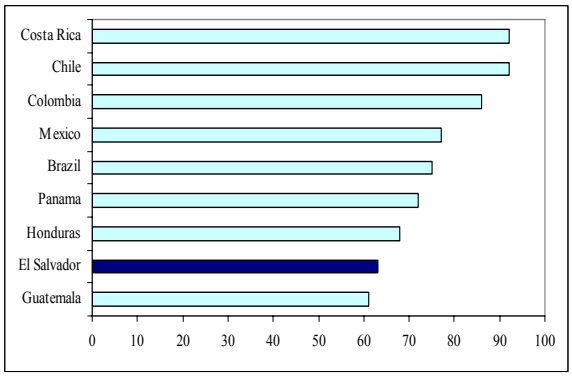
6.12 A significant gap remains between urban (91 percent) and rural areas (68 percent). Surprisingly, the rural coverage rate in El Salvador is even lower than in Guatemala and Honduras. The urban coverage rate, although higher, is lower than in Honduras and Nicaragua (92% El Salvador versus 94% Honduras and 95% Nicaragua). The overall coverage rate for water puts El Salvador at the bottom of the region even though it is more densely populated than its neighbors. Its sanitation coverage rate is slightly better than Honduras though lower than the rest of its regional matches (see Figure 6.3).

Figure 6.3: Water and sanitation coverage

(a) Access to Improved Water Source



(b) Access to Improved Sanitation



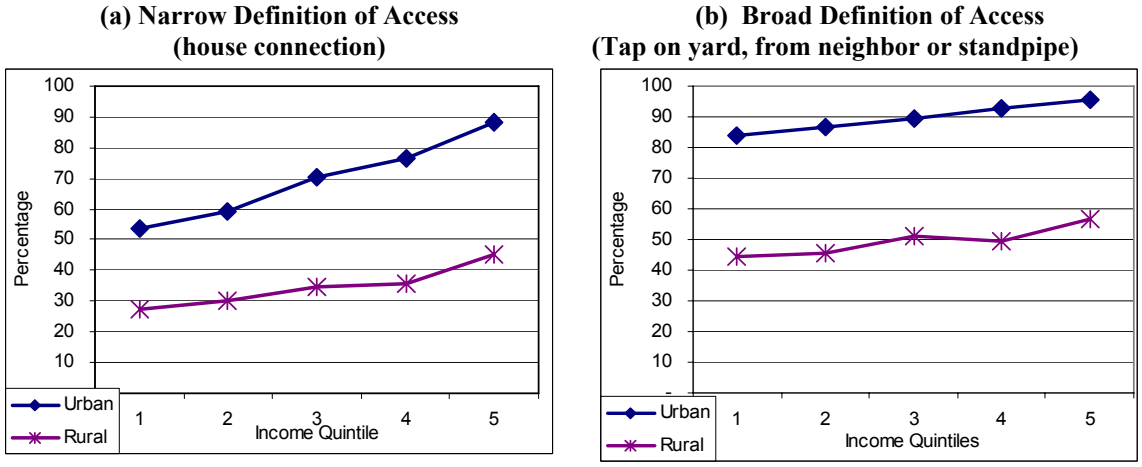
Source: World Bank, World Development Indicators, 2002 data

6.13 The lack of access to water impacts not only the quality of life of the poor, but also productivity and health. The rural poor in particular spend a significant share of their productive time collecting water. Families without household access to water spent on average 8.5 percent of their productive time fetching water, while even those with household access spent 4.9 percent of their productive time fetching water. For structural poor the difference was much higher with 13.6

percent and 7.1 percent respectively.[9] It is interesting to see that even families that supposedly have access to water spend a significant portion of their time collecting water due to intermittent supply and the frequent absence of service during the dry season.

6.14 The distribution of water access between the poor and non-poor varies significantly depending on the definition of access. As can be seen in Figure 6.4 access to household connections in the poorest quintile is much lower than the highest quintile. However, the difference is much less marked for access to water in a broader sense, including access from taps in the yard, neighbors and standpipes. The poor who do have access to piped water must generally transport that water to their households. This time and labor burden is borne especially by women and children.

Figure 6.4: Access to water by quintiles in 2004 using different definitions of access



Source: FUSADES

6.15 Despite efforts made in rural areas by NGOs, FISDL and municipalities, low coverage rates for basic infrastructure services translate into severe health problems. A lack of access to water and sanitation in rural areas has a demonstrably adverse effect on infant mortality, child mortality and stunting. The infant mortality rate among households without a connection in their dwelling is 40 per 1,000 births, compared to 30 for households with a connection. Similarly, the infant mortality rate among households without a toilet is 37, compared to 30 for households with toilets. That jump in mortality is particularly evident in post-natal children (ages 1 to 4).

6.16 Water pollution and resource degradation: a silent crisis. Water pollution in El Salvador has reached alarming levels, affecting not only the natural environment, but also sources of drinking water. It is estimated that 90 percent of the surface water bodies are contaminated. Nearly all municipal wastewater (98 percent) and 90 percent of industrial wastewater is discharged to rivers and creeks without any treatment. The highest priority for pollution abatement is estimated to be in the basins of the Río Acelhuate and Río Sucio, an area that

[9] FUSADES (2004), the survey (*Encuesta Rural FUSADES/BASIS*) was carried out in 2001 and included 451 households

supplies a third of the water supply of the Metropolitan area of San Salvador.[10] Physical and chemical pollution of water sources used for drinking water supply are frequently contaminated by aluminum, lead, manganese, iron and nitrates.

6.17 It has been estimated that the economic impact of contamination through pathogens on human health is US$89m/year, borne mainly by the poorest sections of society. This estimate does not take into account the impact of chemical contamination. While there is no systematic monitoring of water resources quality, pollution through nitrates, lead and heavy metals is reported to be severe in many regions of the country.

6.18 Over the past 20 years the yield of a sample of springs declined by 30 percent due to deforestation. This has reduced water availability for the rural population, in some cases obliging them to rely on more expensive wells pumping from aquifers whose water table has declined by as much as 1 meter per year in some localities.

6.19 Infrastructure investment is sometimes perceived as being sui generis detrimental to the environment. In the case of the Salvadoran water and sanitation sector, the opposite is much more likely to be the case: Most future investments in the sector are expected to be in sanitation, wastewater treatment and in the reduction of leakage losses, all of which have a positive environmental impact. Sanitation is well known to have a positive impact on public health; municipal wastewater treatment would considerably improve the ambient water quality in El Salvador's highly polluted streams; and leakage reduction would postpone investments that would lead to higher water abstraction.

6.20 However, certain investments could increase the pressure on the environment. For example, the government has been considering the construction of a bulk water supply system from San Andrés on the Rio Sucio at an estimated cost of US$70m to supply an additional 1-2 m3/sec (31.5-63 MCM/year) to the AMSS, corresponding to the deficit estimated by ANDA. ANDA considers that additional bulk water supply would be less expensive than leakage reduction in the AMSS.[11] However, there are no detailed studies on the level of leakage and on the costs of increased supplies compared to demand management, including through leakage reduction, universal metering and higher tariffs.

6.21 It is thus crucial to conduct proper studies on the relative costs and benefits or supply and demand management alternatives and to ensure that decisions are made on an objective basis. If this were ensured, the positive impact of investments in water supply and sanitation on the environment is likely to far outweigh any negative impacts.

SERVICE PROVIDERS

6.22 *ANDA, the dominant service provider.* The *Administración Nacional de Acueductos y Alcantarillados* (ANDA) provides services to 40 percent of the total population of El Salvador and 52 percent of population with an improved water access. As an umbrella institution ANDA defines policies, provides services, regulates service and oversees other service providers. It also provides technical assistance to decentralized service providers, assesses groundwater resources

[10] ANDA through technical studies is making efforts to recover the potential basins of Rio Sucio for the San Salvador area.
[11] Interview by Manuel Arrieta, President of ANDA, in Prensa Grafica, without date

and collects groundwater abstraction charges. ANDA's governance structure is described in more detail in the introduction to this chapter.

6.23 ANDA has faced numerous challenges in the recent past. First, its operational costs have increased substantially, mainly due to the Rio Lempa project providing bulk water to the AMSS and growing levels of water loss. Second, barely keeping pace with the increase in costs. Third, the corruption scandal has eroded the public credibility of the agency and resulted in two years (2003 and 2004) with effectively zero investment flows. In the meantime, ANDA has not been able to significantly increase its efficiency or to improve its service quality. A new management put in place after the corruption scandal in 2003 has tried to put the company back on track, but is fighting a long legacy of underinvestment, financial mismanagement and declining service quality. Some recent achievements are a large program to install meters and efforts to simplify the payment of water bills through payment in supermarkets, gas stations, via phone and the Internet; a significant reduction in the number of complaints; and the "deconcentration" of the regional offices. These efforts are steps in the right direction, although they are most likely insufficient to achieve significant improvements, as will be argued further below. As of today, ANDA continues to provide services of a quality that is below what should be expected of a country of El Salvador's income level and population density.

6.24 ANDA's financial situation and tariffs are discussed in the section on investments and financing.

6.25 Service quality. Water supply in most localities served by ANDA is intermittent, varying from 16 hours per day in some areas to less than 4 hours per day or even once every four days.[12] Most localities, however, seem to receive water at least once a day.

6.26 Microbiological quality of drinking water was insufficient, especially in areas not served by ANDA but that are in its service area. Data on compliance with these standards is contradictory. For example, one source indicates that in 53 percent of the samples taken at the national level (ANDA and not ANDA) and 13 percent of the samples taken in AMSS in 2002 water quality is deficient,[13] while ANDA states that 90.3 percent of the microbiological samples in 2003 and 84.3 percent of the samples in 2004 comply with the norms.[14] International good practice is that 99 percent of samples comply with standards. The Ministry of Health has the responsibility of monitoring water quality in systems not administered by ANDA but apparently there is no public data of water quality for these systems. Recently, points of re-chlorination have been established to comply with the norms, through distribution lines of ANDA at a national level. According to MSPAS[15], chlorination complies with the norms in a 99.06% (in line with the obtained samples). However, the key indicator is the presence of bacteria. Chlorination is a measure to ensure that water is clean of biological contamination.

[12] Salvadorian Demographic Association/*Center for Disease Control*/USAID: *Encuesta Nacional de Salud Familiar FESAL* 2002-2003: http://www.ads.fesal.org.sv/2003/informe/final/espanol/default.htm
[13] PER (2004), p. 145
[14] ANDA, Annual Report, 2003, p. 22 and Annual Report 2004, p. 24.
[15] ANDA, communication.

Box 6.1: Water service quality in greater San Salvador

A 2001 survey for the World Bank about the quality of basic services in Greater San Salvador showed that "the poor have to wait longer and incur extra costs to get a water connection". 21 percent of respondents (30 percent in the poorest quintile) said they waited more than 5 years to receive service from ANDA. The poorest reported having spent US$72 to be connected to the water network and US$69 to the sewer network, while respondents from the wealthiest quintile said they had paid only US$29 and US$11 respectively. 45 percent of users received water on an intermittent basis, 53 percent boiled their water and 50 percent bought bottled water. Households receiving water service from ANDA (92 percent) indicated paying US$10/month for water, while those being served by private networks (3 percent) said they paid only US$5/month. When they are finally connected, the majority of poor families attribute it to community action, not to the government, while the majority of wealthier families are connected by housing developers.

Source: World Bank, Urban Services Delivery and the Poor: The Case of Three Central American Cities, Vol. II City Reports, 2002.

6.27 Only 2-3 percent of total sewage is getting some type of treatment. The remainder is being dumped into rivers or creeks without any treatment.[16] The wastewater of the three largest cities is not being treated. Wastewater is mixed with natural water flow, but during the dry season the flow of some creeks consists primarily of untreated wastewater. In many cases, this flow is used for the irrigation of vegetables, some of them eaten raw, which introduces a severe health risk.

6.28 There are 16 small wastewater treatment plants in the country, the largest being located in the town of *Santísima Trinidad* and having a capacity of 3,600 m3/day. The oldest plant was built in 1980. The majority of plants are relatively new, 11 having been built after 1996. Three plants are currently out of operation, including one of the recently built ones.[17]

6.29 Efficiency. Both the efficiency of investments and operational efficiency of ANDA show room for improvement, as shown below.

6.30 Efficiency of Investments. The efficiency of capital investments can also be measured by estimating if new bulk water supply projects are least-cost alternatives, or if demand management could afford the same benefits at lower costs. A common instrument to manage demand is volumetric tariffs that reflect the marginal costs of system expansion. In 2004, 37 percent of ANDA customers did not have a functioning meter.[18] Their marginal tariff thus was zero, giving them no incentive to save water and failing to convey the opportunity cost of water or the costs of additional bulk supply to users.

6.31 Even for most metered users, marginal tariffs are far below marginal costs, thus providing inadequate signals about resource scarcity. Higher levels of metering and higher marginal tariffs would "produce" water at a lower cost than bulk water supply, in particular in the AMSS where marginal costs are the highest. For example, the cost of "producing water" through

[16] WHO/PAHO (2000), quoted in PER (2004), p. 146. As there was no investment in wastewater treatment plants since then, that situation remains unchanged.
[17] Porras (2005) based on information provided by ANDA.
[18] The rate of metering indeed declined from 74 percent in 1994 to 58 percent in 2002. Recently, it has increased again to 63 percent due to ANDA's efforts to install more customer meters.

metering - the sum of the costs of meter installation, meter reading and the loss of consumer surplus borne by previously un-metered users – is estimated at about US$0.23/m3, or half the average cost of supply of US$.46/m3 and an even smaller fraction than the marginal costs of supplying new bulk water to the AMSS.

6.32 Operational efficiency – Non-Revenue Water. Given the low level of metering and the absence of a recent non-revenue water (NRW) audit for any part of the system, it is not surprising to find widely varying estimates of "water losses." ANDA data shows average water losses of 25.9 percent for the entire service area in 2004[19] and 28.7% in 2005, levels that appear unrealistically low. For AMSS the level is given as 19.4 percent and for the remaining service area as 33.6 percent. Calculations based on ANDA data show a decline in average "water losses" for all of ANDA from 26 percent in 1996 to 10 percent in 2002.[20] The wide and inexplicable fluctuation in water losses from year to year seems to be an indication of poor data quality. The fact that the best utilities in the world barely reach NRW of less than 20 percent also makes these figures unlikely to be accurate. Finally, the low figures are improbable given the conditions under which ANDA operates: intermittent supply and the absence of programs for leakage reduction, meter replacement or regularization of illegal connections before 2003.

6.33 Efficiency – Staffing. The staffing ratio is similar to staffing levels in many other Latin American countries, although it is still higher than the level of less than 2 per 1,000 connection achieved in Chile. The number of ANDA's permanent staff per 1,000 connections has been slightly reduced from 5 to 4 since 1997, mainly as a result of an increase in the number of connections without a concomitant increase in permanent staff. ANDA expects to reduce the ratio to 3 or less by implementing a institutional gratification plan.

6.34 *Local service providers.* Local water and sanitation service providers in El Salvador include decentralized service providers (2 percent), municipalities (1 percent) and housing developers (3 percent) in urban areas, as well as water committees and cooperatives (11 percent of users) in rural areas.

6.35 Local service providers have very different relationships with ANDA. Decentralized service providers took over service only recently from ANDA which still formally owns the system and is supposed to provide them with technical assistance under service contracts. Municipal systems that predate the creation of ANDA have no formal or factual relationship with ANDA. Housing developers have a complex relationship with ANDA. Formally they are obliged to pay water abstraction and wastewater discharge fees to ANDA, but without receiving any service in return. Some of them would like to transfer system operation to ANDA, which has refused to do so. Rural service providers, finally, receive little assistance and attention from ANDA, although they are in need of technical assistance and financial support.

6.36 The experience of decentralized service providers has recently been evaluated in detail by Moncada Gross for USAID/RTI.[21] The experience of municipal service providers has been summarized in a recent study for COMURES and USAID.[22] In addition, the World Bank contracted for the REDI a study by *ESA Consultores* to assess a sample of local service providers from all four categories.[23] The following section draws heavily on these three studies.

[19] Annual Report (2004), p. 24
[20] PER (2004), p. 142
[21] Moncada (2005)
[22] COMURES (undated)
[23] ESA Consultores (2005)

6.37 Decentralized service providers. There are currently 13 small "decentralized service providers" covering 20 municipalities. These systems were formerly operated by ANDA, but beginning in 1999 operation has been delegated to decentralized service providers. However, the systems are still owned by ANDA and service providers have a limited degree of autonomy from ANDA. The systems serve about 106,000 people or 2 percent of users.

6.38 In the mid-1990s the government initiated a pilot program for decentralization, managed by a decentralization unit within ANDA. In 1997 the first municipal water company was formed and in 1999 it signed the first 5-year service contract with ANDA for the so-called Tetralogia system serving 33,000 users in 6 municipalities in the Department of Usulután. This first contract was followed by 11 smaller contracts along similar lines during the next two years. The water companies have five different legal forms: decentralized municipal companies, user associations, "micro-regional office", association of municipalities and mixed-economy companies. The process is supposed to be broadened through another 26 service contracts for systems damaged during the 2001 earthquakes as part of a project financed by the IDB. So far decentralization has been slower and more limited in scope than initially expected. This is exemplified by the fact that 10 years after the idea was introduced only 2 percent of users are served by decentralized systems.

6.39 The experience with decentralized water companies shows a mix of strong and weak results.[24] According to the most recent and comprehensive evaluation commissioned by USAID the main achievements are as follows:

- Development of human resources at the local level, resulting in a high level of professionalism, staff morale and close contact with citizens. Decentralized water companies react quickly to user complaints, usually within one or two days, while ANDA is widely perceived to be very slow in that respect;

- Decentralized water companies were able to provide water service to 6,425 new users between the date of transfer (between 1999 and 2001) and 2004, corresponding to an increase of 49 percent. In the same period the number of users served by ANDA at the national level increased by only 18 percent.

- Efforts to protect water resources, through limited reforestation activities.

6.40 However, according to the same evaluation, there are also some significant shortcomings:

- Insufficient technical resources, with technical capabilities being limited to system operation and minor repairs, but insufficient to carry out systematic preventive maintenance or to develop Master Plans;

- Insufficient financial resources for system expansion;[25]

- Substantial delays in the refunding of revenues transferred to ANDA;

[24] Summarized in Moncada (2004)

[25] Cost recovery of the decentralized service providers is slightly better than for ANDA. The average working ratio has been estimated at 0.92 in 2002 and 0.74 in 2003, comparing well to an estimated working ratio of close to 1 for ANDA.

- Absence of an adequate tariff policy and framework, since the national tariff decree is supposed to be applied, which has certain weaknesses and leaves limited flexibility to set tariffs at the levels agreed by the community;

- Old infrastructure and high operating costs;

- Absence of policies promoting efficient water use[26];

- Difficulties implementing source protection, despite a keen understanding of the problem;

- Absence of a clear regulatory framework, since there is no neutral institution that could mediate in conflicts between users, the water company and ANDA.

6.41 Since most of the above shortcomings also apply to ANDA, the strong points – better customer orientation and faster increase in coverage, despite a scarcity of investment funds – of the decentralized service providers clearly differentiate them from ANDA.

6.42 Many of the above shortcomings could be mitigated through effective technical assistance. Under the service contracts ANDA is supposed to provide such technical assistance to service providers. However, these expectations may be unrealistic. ANDA does not undertake activities for which it is supposed to provide technical assistance – Master Plans, leak detection, energy audits - in the systems that it administers directly. It currently neither has the resources, nor the internal incentives to provide such technical assistance. The technical assistance arrangements for decentralized service providers thus are clearly insufficient.

6.43 Municipal systems. 83 municipalities serving about 62,000 people did not transfer their water systems to ANDA when the sector was centralized in 1961 and continue to operate their systems independently.[27] Some municipalities have successfully improved their tariff collection systems through computerization, mobile collection units visiting rural areas, as well as joint bills for water tariffs and municipal taxes saving travel costs to users. Technical assistance has been crucial to improve levels of service quality in those cases where improvements have been documented. Such technical assistance has been provided by the Social and Local Development Fund FISDL, the Municipal Development Institute ISDEM, the Association of Municipalities COMURES and various NGOs.

6.44 According to the municipalities one of the major benefits of municipal administration is that revenues remain at the local level, while under the administration of ANDA municipalities and users do not known how much was collected, nor what the funds were being used for.

6.45 Municipalities set their own tariffs without need for any approval from other authorities. The result is a wide range in tariff levels, some being lower and some higher than ANDA tariffs. In a sample of 10 small municipalities not served by ANDA, tariffs vary between US$ 0.06/m3 and US$ 0.60/m3.[28]

[26] Since May 2005, after the cited analysis, campaigns of good use and water optimization have been developing.
[27] COMURES (2004). Other sources indicate 74 municipalities
[28] Porras (2005), quoting a study for COMURES (2004)

6.46 In a few cases, municipalities created municipal companies with their own accounting systems and their own Boards. Usually the Board consists of both elected community representatives and representatives of the municipality. Some municipalities provide water continuously and meter all connections. However, there are no figures showing the level of service quality for all municipal systems. A comparison with systems operated by ANDA thus is not possible.

6.47 Self-supplied systems. There are at least 100 self-supplied systems in urban areas[29] that sprang up as a result of the inability of ANDA to provide water and sanitation services to new housing developments, often with poor quality services. ANDA estimates that they serve about 136,000 people, although the exact number is not known and may be much higher. These investments are usually financed by housing developers who have no expertise or comparative advantage in operating and maintaining water and sanitation systems. Some housing developers provide satisfactory service levels, while others provide poor levels of service.[30] Some would like ANDA to take over service provision, but ANDA apparently has little interest in doing so. Furthermore, housing developers drill wells without good knowledge about water resources availability, which in some cases jeopardizes the resource sustainability. For example, in the Soyapango area of AMSS, 25 wells supplying housing developments ran dry. The area then had to be connected to the public network at high cost.[31]

6.48 Some housing developers have handed over the responsibility for operating water and sewer systems to owner associations, which usually have limited capacity and no experience in running these systems. Housing developers and owner associations have to pay water abstraction fees of US$0.12/m3 and wastewater discharge fees (canons) of US$ 0.17/m3 to ANDA without receiving any service in return, given that they extract water themselves and that wastewater is usually discharged into open watercourses. Housing developers complain that ANDA even denies them permits on the grounds that this does not fall within its responsibilities, without indicating whose responsibility it would be.

6.49 There is very little information about water and sewer services in self-supplied systems compared to the wealth of detailed information available on decentralized service providers and the relatively good information about municipal service provision. This is despite the fact that self-supplied systems most likely serve more people than the two other modes of local urban service provision together. The relative share of self-supplied system is also likely to increase, since the major urban centers are growing rapidly and ANDA's ability to finance investments has decreased.

6.50 Self-supplied systems should not be perceived only as a problem, but also as a part of the solution. Housing developers have provided an unknown, but significant contribution to investments in the sector, which is a welcome contribution to the achievement of the Millennium Development Goals (MDGs). However, the absence of oversight mechanisms, a clear legal framework as far as permits are concerned and the absence of technical assistance for operation of systems clearly prevent self-supplied systems from making their full contribution to provide water and sanitation services.

6.51 Water committees and cooperatives. There are more than 800 rural water committees (Juntas de Agua) and cooperatives (*Asociaciones de Desarrollo Comunal* or ADESCOs) which

[29] Henao (2004), p. 8
[30] ESA Consultores (2005), p. 17
[31] Interview to Mr. Arrieta in La Prensa Grafica.

serve at least 576,000 people in rural areas. The actual numbers may be higher, since there is no central information system on rural water supply systems. Water committees usually have an informal character and are dedicated only to water supply and sanitation, while ADESCOs are formally registered and usually deal with a variety of sectors, including health and education.

6.52 The construction of some rural water systems was initiated by the government at the time of the PLANSABAR (see below), while in other cases communities took action by themselves without external assistance. The communities who took action on their own are often suspicious of the government and reluctant to believe that promises of assistance are sincere.

6.53 Tariffs paid by water users in rural areas, which are usually not volumetric, do recover financial operating costs, since no direct subsidies are available. They are often much higher than tariffs paid by ANDA customers. In a small sample of systems visited by ESA Consultores tariffs varied between US$4 and US$8 per month, which is much higher than the US$3/month charged by ANDA to residential users with a consumption of 20m3/month. Rural water users in pumped systems receive a subsidy through the *Fondo de Inversión Nacional en Electricidad y Telefonía* (FINET), which subsidizes electricity tariffs so that rural water service providers do not pay a higher electricity tariff than ANDA pays.[32] Reportedly this was equivalent to a 41 percent subsidy in 2005. Without this tariff many rural water tariffs would have to be much higher than they currently are. Since FINET was initially funded by the proceeds of the telecommunications and electricity privatization, rural service providers and users are worried about the future availability of funding for electricity subsidies. Moreover, local service providers that are not formally registered are not entitled to the subsidy, which excludes an unknown but potentially large share of the poorest. Some water committees even indicated not being aware of the existence of such a subsidy and paid the full electricity price.

6.54 The National Association for the Defense, Development and Distribution of Rural Water (ANDAR), an umbrella organization of 152 water committees, has been very active in drawing attention to the plight of rural water users. The organization was formed in 1998 to alleviate the impact of increase electricity tariffs on rural water users when the electricity sector was liberalized, coinciding with a retreat of ANDA from rural water supply. It has recently submitted a draft rural water law to Congress through a mechanism for citizen participation. At the same time, ANDA and ANDAR, signed a cooperation agreement to provide technical assistance and training to rural communities that manage their own systems.

INVESTMENT AND PRICING

6.55 The current financial situation of service providers does not provide for self-financing of investments. Investments are financed primarily by donors. In order to achieve the Millennium Development Goals (MDGs) investment levels have to increase at least fivefold and all sources of financing need to be tapped: increased self-financing, commercial financing, as well as subsidies from the government's own resources as well as donors. A new financial framework for the sector has to include tariff reform, as well as mechanisms to channel remaining subsidies in a way that provide incentives to improve performance and to better target the poor.

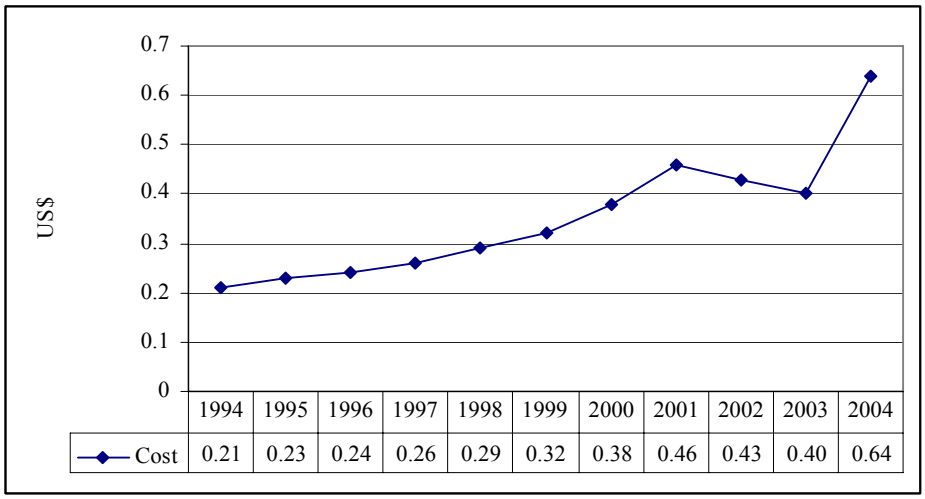
6.56 Financial situation of ANDA. ANDA's working ratio is close to 1, indicating that the company barely covers its operating and routine maintenance costs. In the last four years the Ministry of Finance has suspended financial assistance to compensate for institutional investment

[32] Article 5, National Electric and Telecommunication Investment Fund, FINET, 1998

projects. However, in 2004, ANDA has received assistance for $9 millions to develop projects in San Salvador metropolitan area.

6.57 The unit costs of ANDA increased significantly from US$0.21/m3 in 1994 to US$0.46/m3 in 2001, and US$0.63/m3 in 2004. The reason for the important increase of the unit cost in 2004 is not clear but there is a possibility that the energy-intensive Río Lempa system began its operations. The energy cost stipulated for 2006, represents 45% of ANDA revenues.

Figure 6.5: Unit costs of ANDA 1994-2004



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Cost	0.21	0.23	0.24	0.26	0.29	0.32	0.38	0.46	0.43	0.40	0.64

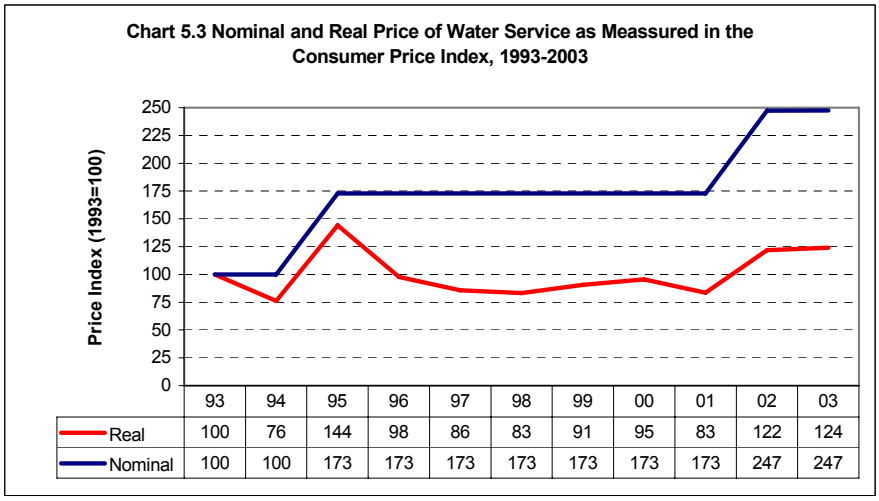
Source: ANDA, Annual Report 2004, p. 47.

6.58 It is estimated that the budgetary transfers to ANDA ultimately benefit the population of the AMSS and not the population in the rest of ANDA's service area, not to mention those without access to piped water or those served by local service providers (see background paper). If regional tariffs were set to better reflect the regional structure of costs, water users in AMSS would have to pay higher tariffs, since their costs of supply are higher than in smaller towns.

6.59 Because of the political nature of tariff adjustments in a sector without independent economic regulation, tariff adjustments have been infrequent. During the last 12 years urban tariffs were only adjusted twice, in 1994 and 2001. The nominal increases were considerable, but the real tariff increased only slightly because of the infrequency of the adjustments.[33]

[33] PER (2004), p. 142

Figure 6.6: Nominal and real price of water service as measured in the consumer price index, 1993-2003



Source: World Bank (2004) PER

6.60 Tariffs. A well-designed water tariff system should be designed to respond to the following criteria: financial sustainability, economic efficiency, social equity and transparency. The tariffs currently applied by ANDA do not fulfill any of these criteria. The same applies to tariffs by local service providers, which are in many cases equally low (with some notable exceptions of tariffs in rural systems being much higher than ANDA tariffs) and are often not on a volumetric basis.

6.61 Efficiency, equity and transparency of ANDA tariffs are discussed in more detail below.

6.62 Economic efficiency. ANDA tariffs are well below marginal costs and thus send inappropriate economic signals. There are no available estimates as to the marginal costs of system expansion. However, given the need to tap ever more remote sources, marginal costs are expected to be well above average costs. Tariffs thus fail to convey the message that continued high water use imposes high costs not only on the environment, but also substantial economic costs. These costs are borne mostly by the government in the form of subsidies.

6.63 ANDA tariffs average US$ 0.30/m3 and are well below levels found in many other countries, as shown in Table 6.1.

Table 6.1: Average water tariffs in Latin American cities

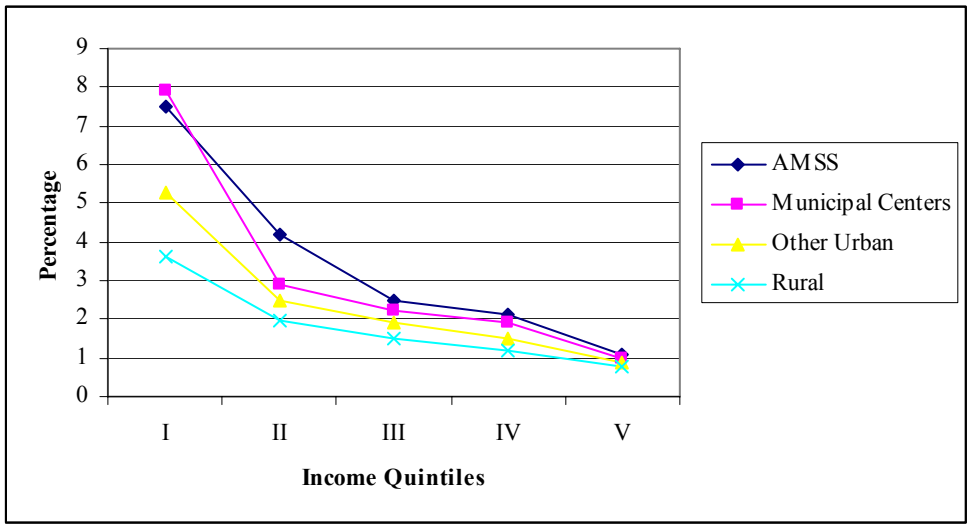
	Residential
	2003
Average tariffs (US$/m3)	
Arequipa	0.22
Bogotá	1.16
Cali	0.76
Cochabamba	0.32
Costa Rica	0.34
La Paz	0.22
Lima	0.32
Managua	0.31
Medellín	0.78
Pernambuco	0.51
Santa Cruz	0.59
Trujillo	0.38
Uruguay	0.72
Average	0.51
Median	0.38
Minimum	0.22
Maximum	1.16
ANDA Average Tariff	0.30
ANDA Average Cost	0.46
Cost recovery (% cases)	
Partial capital costs	46
Partial O&M costs	54
Nil	0

Source: ADERASA

6.64 Equity. ANDA tariffs are not socially equitable. First, users without access to the network – which are usually the poorest – do not receive the consumption subsidy. Second, users served by other providers than ANDA do not receive a subsidy for consumption. Third, among users that have ANDA service, the poor receive fewer subsidies than the non-poor as a consequence of the tariff structure. As in the rest of the world, ANDA's tariff is based in consumption by cubic meter for consumers that have meters. Given the fact that tariffs increase in block with consumption, even blocks of high consumption still receive a subsidy. This means that substantial subsidies accrue to high-volume users, many of which are better off (see analysis in the social and poverty section). In fact, studies for El Salvador and other countries show that subsidies through increasing-block tariffs are roughly unequally distributed through income groups.[34] This means that the subsidies are not targeted and are distributed randomly to the public, rich or poor. As a result of the lack of adequate targeting of consumption subsidies, households in the poorest quintile pay almost 8 percent of income in the majority or urban areas, and almost 4 percent in rural areas, which is high by regional standards. In contrast, water users in the richest quintile pay only about 1 percent of their income for their water bill.

[34] See Walker et al. (2000), p. 9, citing data on El Salvador, Panama, Nicaragua and Venezuela

Figure 6.7: Share of water bill in household expenditure 2004



Source: FUSADES, based on data from the 2004 Multi-Purpose Household Survey

6.65 Tariffs are for both water and sewer services. As a result, there is a cross-subsidy from users without sewer connection to those with a sewer connection who are usually better off.

6.66 There is only one positive feature of the current tariff structure from a social point of view. This is the special low rate applied to marginal communities.

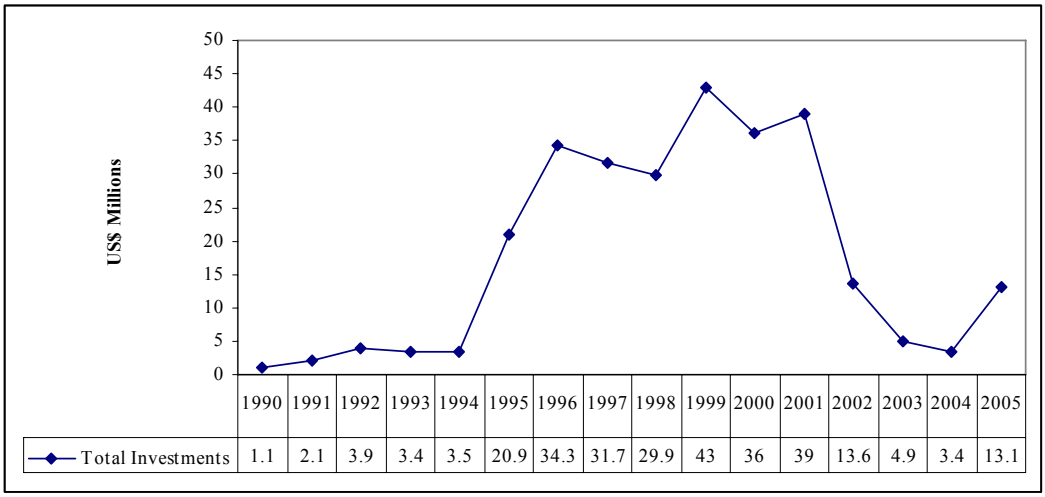
6.67 Transparency. ANDA tariffs are not very transparent to the average user. The ANDA tariff formula is complex and unlikely to be well understood by most users. For example, the tariff increases in a large step as soon as consumption increases above 20m3/month/connection, which leads to frequent consumer complaints because of large monthly disparities in bills despite minor changes in consumption levels. The lack of transparency is compounded by billing errors. Tariffs by other service providers, which are usually flat monthly tariffs, are transparent and easily understood.

6.68 Investments. Investment levels in water and sanitation in El Salvador stood at about US$20-40m/year from 1995-2001, but declined significantly to less than US$10m/year in 2003-04,[35] compared to annual investment needs of US$50-100m.[36]

[35] PER (2004), p. 135

[36] An unknown amount is invested by housing developers using their own resources and by municipalities using FODES. Also, in 2006 FISDL will also begin investing in rural water and sanitation using resources from the IDB.

Figure 6.8: ANDA's total investments 1990-2005



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total Investments	1.1	2.1	3.9	3.4	3.5	20.9	34.3	31.7	29.9	43	36	39	13.6	4.9	3.4	13.1

Source: ANDA and Ministry of Finance, quoted in World Bank (2005) PER

6.69 Delays in the availability of donor funding and a reluctance to commit new funds to be administered by ANDA after the Perla corruption crisis probably contributed to the decline in investments after 2001. Another factor contributing to the decline is the reduced self-financing capacity of ANDA.

6.70 Estimates of the investment needs in water supply and sanitation necessary to reach the coverage targets under the MDGs, to improve service quality and increase the share of wastewater treatment vary between US$30m and US$100m per year (see background report).

6.71 One estimate puts the investment needs at US$578m for 2004-2015 or at about US$50m per year, excluding costs to increase service quality and with a moderate target of 30 percent coverage for wastewater treatment. Another estimate puts the water and sanitation investment needs for 2000-2010 at US$ 1,143m, or roughly twice the amount than the first estimate per annum.[37] According to that study the annual investment needs would be more than US$100m.

6.72 It is thus evident that much higher levels of financing have to be reached to provide better levels of service.

6.73 Investment Financing. In 1990-2002, 63 percent of investments were financed through international loans and grants, 21 percent through self-financing by ANDA, 16 percent with government resources and 0 percent through commercial financing. The high share of donor funding cannot be maintained in the future, given the need to increase overall investment levels and the fact that El Salvador is a middle-income country and as such will have less access to concessionary lending. The government is trying to obtain funds from donors to increase the investment levels.

6.74 There is no financing of public investments on commercial terms from Banks or the domestic capital market. The *Fondo de Desarrollo Económico y Social* (FODES), which channels central government transfers to municipalities, is barely used for water and sanitation since in most municipalities ANDA is in charge of service provision.

[37] Gomez, quoted in Henao (2004), p. 11

6.75 Government transfers to ANDA are not granted based on objective criteria, or linked to the achievement of goals in terms of poverty targeting or improved efficiency. There is no legal framework for subsidies, which are apparently granted on an ad-hoc basis to bail out ANDA if its financial situation becomes untenable.

6.76 The sources of financing will have to change dramatically. Donor funds for the sector have dried up since 2001. More recently, there are signs of a return to the sector, for example through the IDB/WB *Red Solidaria* project, which foresees investments of US$42m in rural water supply and sanitation through FISDL. However, even if donor funding should increase, it is not likely to reach the level of the past without major institutional reforms. ANDA's self-financing capacity has been eroded to zero in recent years. This must be restored, but the resources that ANDA or other service providers can mobilize internally will inevitably fall far short of investment needs. There is a role for government to continue to finance investments, but the way these contributions are channeled has to be thoroughly reviewed. In particular, the government's contributions should provide incentives for higher efficiency, be targeted at the poor and complement commercial financing. Also, municipalities may want to consider using a higher share of resources from the *Fondo de Desarrollo Económico y Social* (FODES) for water supply and sanitation, an option that would become more relevant if the role of municipalities in the sector would increase, for example as shareholders of regional water and sanitation companies.

6.77 Commercial financing of public utilities probably provides the only realistic hope to raise sufficient financing to achieve the MDGs in El Salvador. Commercial financing through long-term credits or bonds is the primary source of financing for public utilities in developed countries. It thus is perfectly compatible with public management.

6.78 Build-Operate-Transfer (BOT) contracts for wastewater treatment could only be a realistic prospect in the short term if they were backstopped with sovereign or multilateral off-take guarantees. Such arrangements may "spread out" treatment plant financing costs that would otherwise bundle under one or two fiscal years, but they effectively transfer the commercial risk from the private to the public sector and thus constitute substantial contingent liabilities for the public sector.

6.79 A promising mechanism to attract commercial financing to the sector is the pooling of public and private financing and the use of risk mitigating mechanisms. This could be achieved through second-tier financial institutions providing liquidity to commercial Banks through credit lines targeted at water supply and sanitation, while requiring that the banks bear the commercial risk. Water funds or broader infrastructure funds could also be created, including an unremunerated government equity contribution ("subordinated equity") to reduce the costs to the borrowers. Honduras is piloting a municipal infrastructure fund that can be used for water and sanitation investments as part of the World Bank's Barrio-Ciudad project, implemented by the *Banco Hondureño para Producción y Vivienda* (BANHPROVI) in partnership with commercial banks.

6.80 To complement commercial financing, a subsidy scheme that pays service providers, be they public or private, for the treatment of wastewater could also be envisaged. Payments would be made over a number of years after the project is commissioned, instead of providing input-based subsidies during construction. Such a system of performance-based transfers has been successfully applied in Brazil (see background paper).

SECTOR CHALLENGES

6.81 While El Salvador has made considerable progress in reforming key infrastructure sectors such as telecommunications, energy and roads, the water sector has remained largely untouched by these efforts. There has been no shortage of reform proposals over the last ten years but none of these has gained sufficient support to be submitted to Congress.

6.82 The current administration, which took office in June 2004, has an opportunity to reform the water sector, responding to the considerable challenges the sector faces which remained unresolved during previous administrations.

6.83 The government has not yet developed a comprehensive reform agenda for the sector, although water does receive considerable attention at the highest level of government. Nor has it been able to mobilize the resources necessary to achieve its objectives. Current reform efforts are largely led by ANDA. But international experience shows that, while some ownership for reforms from within sector institutions is important, comprehensive reforms should not be led by sector institutions themselves ("self-reform"). Instead, in order to be successful, they require determined political leadership from outside the sector, in tandem with support by professionals within the sector institutions.

6.84 ANDA's *Plan Hidro* 2009, covering the term of the new government, is on the right lines, but does not go far enough due to lack of resources. The intentions, objectives and components of the *Plan Hidro* 2009 (see Box 6.2) are entirely appropriate given the challenges faced by the sector. However, the Plan apparently lacks the means to achieve its objectives. Furthermore, it does not clearly define indicators through which progress can be easily monitored.[38] The plan does not include a list of specific projects that will be undertaken to achieve its objectives. Nor does it include an estimate of the costs of achieving its objectives or explain how the plan will be funded.[39]

6.85 Furthermore, the Plan's component covering "modern and updated legislation" may not be comprehensive enough to achieve the government's objectives. For example, the shortcomings of the decentralization process – limited transfer or responsibilities in small systems only - are not mentioned. The limitations of the proposed water and sanitation law, which does not fundamentally change the structure of the sector, are not mentioned either. Last but not least details of the draft law are not available, which is difficult to reconcile with the stated objective of citizen participation.

[38] Given that the population of El Salvador grows by about 120,000 every year, providing water services to 50,000 Salvadorians every year would actually decrease coverage.

[39] It seems that there is an unpublished investment program for 2004-2009 estimating investment needs for ANDA at US$294m, of which US$198m (67%) had no financing secured in early 2005.

Box 6.2: The pillars of ANDA's Plan Hidro 2009

System rehabilitation and extension: Extend water coverage to 95 percent in urban areas and 55 percent in rural areas, and extend sanitation coverage to 93 percent in urban areas and 95 percent in rural areas. Overall, 50,000 Salvadorians will receive new water services every year.
Modern and updated legislation: Pass a new water resources law as well as a new water and sanitation law, while continuing to pursue the decentralization process.
Citizen participation: Conduct awareness campaigns for water users, and create a Citizen Water Committee to draw up a comprehensive, long-term water plan.
Water Conservation: Protect water resources through reforestation and wastewater treatment plants.
Customer Service: Improve response to complaints by existing users; extend services to new users, in particular the poor and in rural areas; and share information on groundwater resource availability with housing developers and industries.

RECOMMENDATIONS

6.86 There are some basic functions that need to be performed in any water sector, and the institutions charged with performing them need to be properly staffed, trained, funded and regulated.

- Policy formulation: This includes the determination of the basic sector structure, allocation of functions among institutions, the setting of broad policy objectives, defining responsibilities for monitoring results, approving service standards, setting cost recovery rules, determining the overall amount of subsidies available to the sector and broad rules for the allocation of subsidies.

- Regulation: Regulatory functions can vary substantially. They can include monitoring results, administering cost recovery rules, recommending or setting tariffs, administering subsidies to service providers, recommending service standards, and reviewing complaints.

- Technical assistance: This function, though often neglected, is crucial in particular for small service providers in rural areas. It needs to be properly funded and of good quality, preferably by contracting out services to NGOs and consulting firms.

- Service provision.

6.87 While these roles are usually separated, this is not the case in the Salvadoran water sector. Moreover, some functions are not clearly assigned to any institution and are thus not being performed adequately. Three gaps are particularly obvious: there is no separate institution to regulate water supply and sanitation; there is none that regulates water resource management; and there is no entity in charge of coordinating and leveraging technical assistance.

6.88 To modernize the Salvadoran water sector, these functions need to be properly assigned. Good practice suggests that, at a minimum, service provision on the one hand should be separated from policy formulation, regulation and technical assistance on the other. Additional important design questions are discussed in the background paper.

6.89 If the government chooses to undertake a comprehensive reform, incorporating the lessons from the past, it will require strong political will and commitment. This includes leadership from the President and the creation of a strong reform commission and/or unit reporting to the President.

6.90 The reform could be undertaken in three phases over a period that may stretch out over five years: (i) consensus building about the reform, including all major stakeholders at the central, local and non-governmental level, under the leadership of a Presidential Commission; (ii) passing of a new comprehensive Water and Sanitation Law by Congress; (iii) creation of the new sector institutions and gradual transfer of responsibilities, personnel and assets from the existing to the new institutions. A fourth stage, private participation in the operations and/or investment of regional companies could be considered as well.

6.91 Reform efforts could draw on a number of positive elements from the earlier draft Framework Law of the Water and Sanitation Sub-Sector, the Water and Sanitation Tariff Law and the Water and Sanitation Subsidy Law. However, it would have to go beyond these draft laws by addressing the future of ANDA, the role of local government, technical assistance to local service providers, as well as by developing a financing policy for the sector.

6.92 If a fundamental reform is not politically feasible or desirable, Annex 3 provides a summary table of micro-level measures to improve sector performance concerning local service providers.[40] The summary table indicates the priority and the expected degree of difficulty in implementing each measure. These measures are desirable no matter whether broader reforms are undertaken or not. However, the impact of these measures is expected to be higher in parallel with broader reforms.

[40] These recommendations were elaborated by *ESA Consultores* in a report for the World Bank.

CHAPTER 7: TRANSPORT INFRASTRUCTURE AND SERVICES

MARKET STRUCTURE, INSTITUTIONAL AND REGULATORY FRAMEWORK

7.1 A country's transport system (infrastructure and services) is the skeleton that supports the pursuit of all productive and social activities. It thus contributes to the economic development of the country and to improving the quality of life of its citizens. Without accessible and viable highways and roads, producers cannot get their goods to market. Without cargo handling services, transporting goods is more difficult and expensive, and firms incur extra costs from delays and deterioration of merchandise. The supply chains survey for this study found that for the sample of textile, chemical and food producers indicated that delays due to the transportation system can represent up to 18% of sales.

7.2 The particular geography of El Salvador, with no outlet to the Atlantic Ocean, and the structure of its foreign trade, with the United States as its most important trade partner, implies intensive use of the ports of Guatemala and Honduras for El Salvador's international trade. This adds to the strategic importance for the country of the land phase of the logistics chain, and of border crossings. Moreover, the performance of El Salvador's airports and Pacific ports in moving cargo becomes more critical, because of this dependence on them.

7.3 The transportation (infrastructure and services) sector contributes more than 11% of GDP, from activities related to the construction and management of infrastructure and the operation of services. In addition, it generates approximately 240,000 jobs, directly and indirectly. The sector is of vital importance in the Salvadorian economy.

7.4 The size of the country, the rehabilitation of highways in the last five years and the decision of the government to invest in the construction of a new port at La Unión have provided a foundation for the proposal of a strategy for national development, based on the development of logistics activities and transportation - which places the transportation and logistics sector at the nerve center of the national development strategy.

7.5 The transportation infrastructure sector is comprised of a network of highways, the existing port of Acajutla and the port La Unión (under construction), the International Airport El Salvador and the domestic and military airport of Ilopango, as well as a railway network that is not now in service.

7.6 The infrastructure sector has historically been the responsibility of the Ministry of Public Works (MOP) which, together with its three Vice-Ministries - Public Works, Transport and Housing and Urban Planning – was directly in charge of policymaking and planning for the whole sector, as well as of construction and maintenance of infrastructure.

7.7 Later, with the construction of Acajutla, the Executive Autonomous Port Authority (CEPA) was created and given responsibility for building, operating and maintaining the port. It was gradually given the responsibility of building, administering and operating all ports, and

airports.[41] CEPA is a public sector legal entity with its own capital base. A representative of the Ministry of Public Works sits on its board, while the President of the Republic appoints its President.

7.8 The ministry theoretically has responsibility for the policymaking and the planning of all sectors but, in reality, CEPA plans the investments and operations of the subsectors under its control. The coordination or policy of integrated planning that should exist does not.

7.9 The MOP has itself evolved through implementing a significant institutional reform in the Public Works Vice-Ministry (VMOP), reorganizing it to focus only on policymaking, rule-setting and planning in the road infrastructure sector and creating the Road Conservation Fund (FOVIAL) to assume the maintenance and conservation of the priority highway network. Thus the VMOP does not seek to build, maintain and administer infrastructure, tasks which it delegates to the private sector directly or through FOVIAL.

7.10 The Road Conservation Fund is headed by an executive director and a board composed of consumers, trade groups and the Minister of Public Works. FOVIAL's budget comes from a sales tax on fuel, via the Ministry of the Treasury. But the MOP has no influence over the allocation of this budget or in the operation of FOVIAL. Coordination takes place in economic evaluation and the prioritization of activities, which MOP specialists take part in.

7.11 The most recent steps in El Salvador's institutional development include the creation of the Maritime Port Authority (AMP), through the Maritime Ports General Law, which has assumed regulatory and oversight responsibility for port and maritime activities[42].

7.12 Similarly, the Civil Aviation Authority (AAC) was created, through the Civil Aviation Law. It is responsible for rule-setting and supervision for airport and aviation activities.

7.13 The structure of the land transportation sector is established by the Land Transport, Traffic and Road Safety Law, the Highways Law and the Road Fund Law. The Transport Vice-Ministry is the rulemaking and oversight body for the laws and rules that apply to land transportation. The Highways Law has become obsolete in its treatment of various aspects relating to administration of rights of way, as well as development, urban planning and housing, leaving gaps, as regards the responsibilities of the MOP in relation to the municipalities, and as to the legal instruments for pursuing certain activities.

7.14 The great effort that has gone into institutional and legal reorganization is apparent, and significant progress has been made. The current structure, from the institutional and legal standpoint, is quite well established by sector. The MOP clearly undertakes the development of

[41] Even though the Organic Law of CEPA grants it the responsibility of building, administering, and operating the railways, in practice there are other laws that prevent CEPA from investing in railway infrastructure, since its owner is not CEPA but the government of El Salvador.

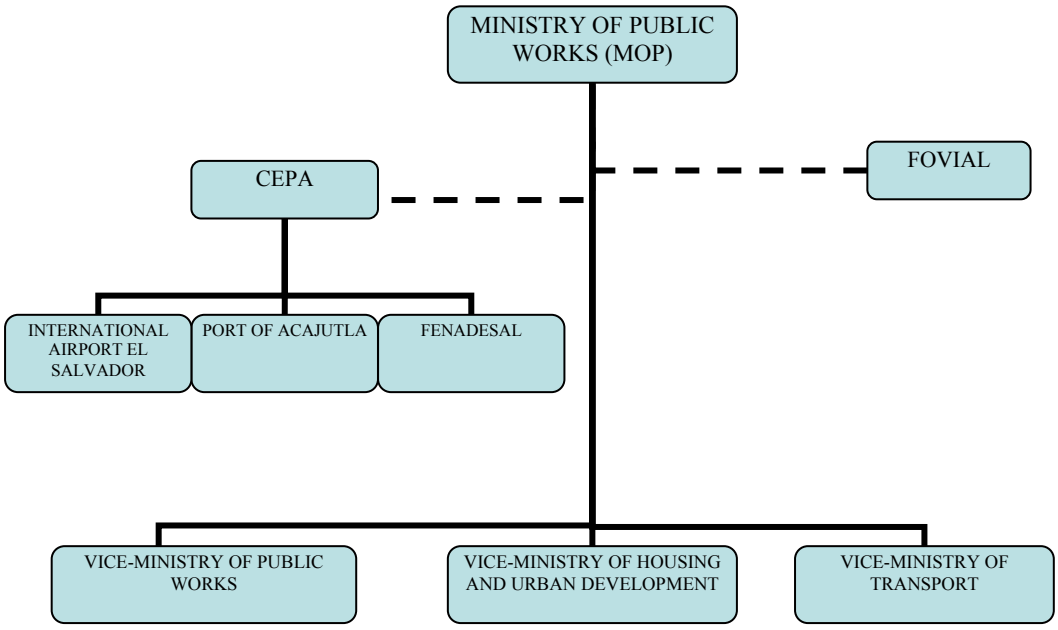
[42] The Maritime Port Authority (AMP) is in a transition process and therefore does not fulfill all the responsibilities assigned to it in the Maritime Port General Law (LGMP). Article 243 of this law reads that "until the AMP is fully functioning, its competencies and functions will be executed by the *Ente Rector*. *Ente Rector* is the Ministry of Public Works, Transport and Housing, and Urban Development; which through the Viceministry of Transport is the agency that will formulate, promote, and control, the compliance with the transport policy, execute the national transport planning, and establish the legal framework to make effective this policy and planning." However, since the *Ente Rector* has not defined a transport policy for maritime transport and ports, this has generated a legal vacuum.

policies, planning and rule-setting, and FOVIAL and the private sector build and maintain infrastructure and operate services.

7.15 In the ports and airports sectors, it is CEPA that operates, builds and maintains, whether directly or through contracts with third parties, while the AMP and AAC set rules and supervise. However, there is a gap in the law with regard to policymaking and sector planning, a role that CEPA has always filled. Nevertheless, its organization has been primarily operational, which does not facilitate the development of multi-sector policymaking and planning in CEPA. And this is institutionally impossible in the highways sector.

7.16 This institutional difficulty is evident from the absence of an integrated multi-sector policy with respect to private participation in the infrastructure sector, and also makes impossible an integrated focus that would optimize the use of transportation modes in a complementary way, and thus optimize the use of resources. Until now, this has not been a major problem for El Salvador, but in the future, and with the construction of La Unión port, this institutional void becomes more of an issue.

Figure 7.1: Institutional structure of the transportation sector of El Salvador



QUALITY AND QUALITY OF INFRASTRUCTURE

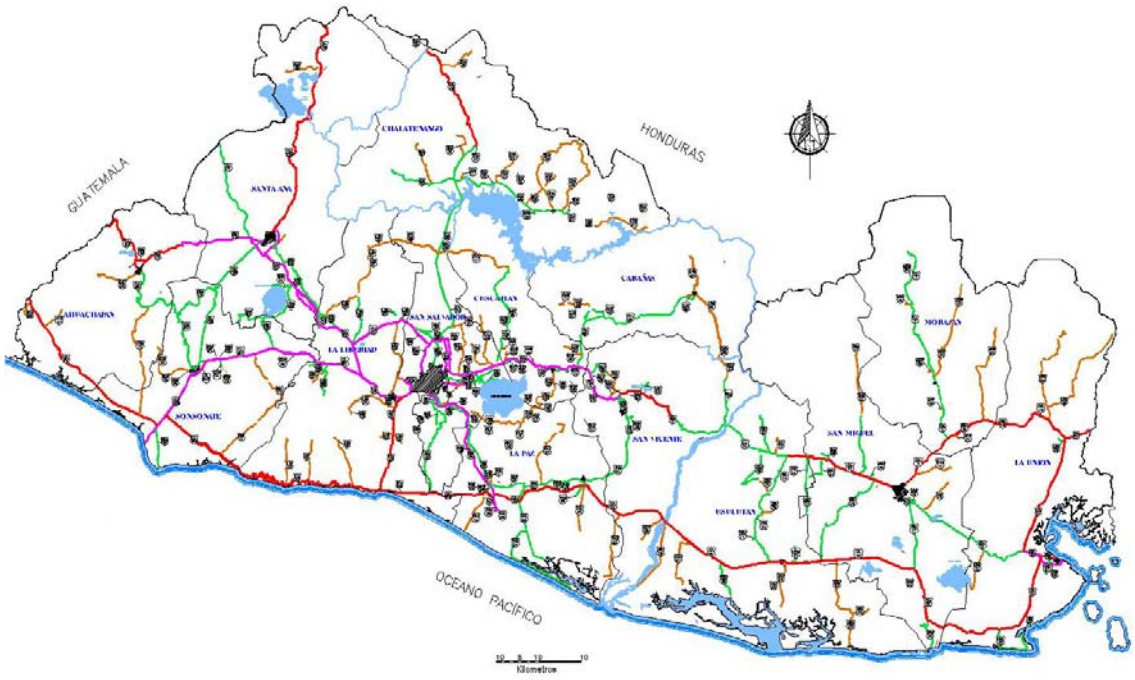
7.17 In the last five years, the sectoral institutional and regulatory reforms were accompanied by investment to upgrade infrastructure. Chief among the improvements have been the reconstruction and rehabilitation of existing infrastructure and equipment, primarily for highways, and a reorganization of operations to improve the efficiency of existing infrastructure.

7.18 In the case of highways, the change with the greatest impact has been the improvement in the efficiency of highway maintenance which, along with the rehabilitation of almost all road

surfaces and the expansion of the paved network in rural areas, has increased the quality and scope of the network, gradually over time. More than 1,466 km of principal highways have been upgraded, 162 bridges reconstructed or improved, and 826 km of rural roads have been paved or repaved. On the urban network, three overpasses were built, along with 10 km of roads, and a new 26.76-km beltway for San Salvador. The whole priority road network, which extends for 5,966.47 km (48% paved and 52% unpaved), was able to undergo maintenance, while the condition of the paved road network improved in comparison with 1999. The percentage of the paved network in very good condition went from 25% in 1999 to 51% in 2004, and the percentage of the network in bad condition went from 37% in 1999 to 15% in 2004.

7.19 Despite its good condition, the road network has serious deficiencies in its design and as regards the integrated management of rights-of-way, which are facing pressure as traffic and population increase, which represents the greatest future challenge for the country. Ultimately, population density and traffic conditions, added to the focus on developing the country's logistic activities imply a more integrated approach with regard to the road network, aimed at optimizing what already exists, through preserving the functionality of the network through close monitoring. Projects of traffic decongestion, by-passes, separation of traffic flow and management of demand will be necessary before network expansion continues in the future.

Figure 7.2: Paved highway network of El Salvador as of December 2004



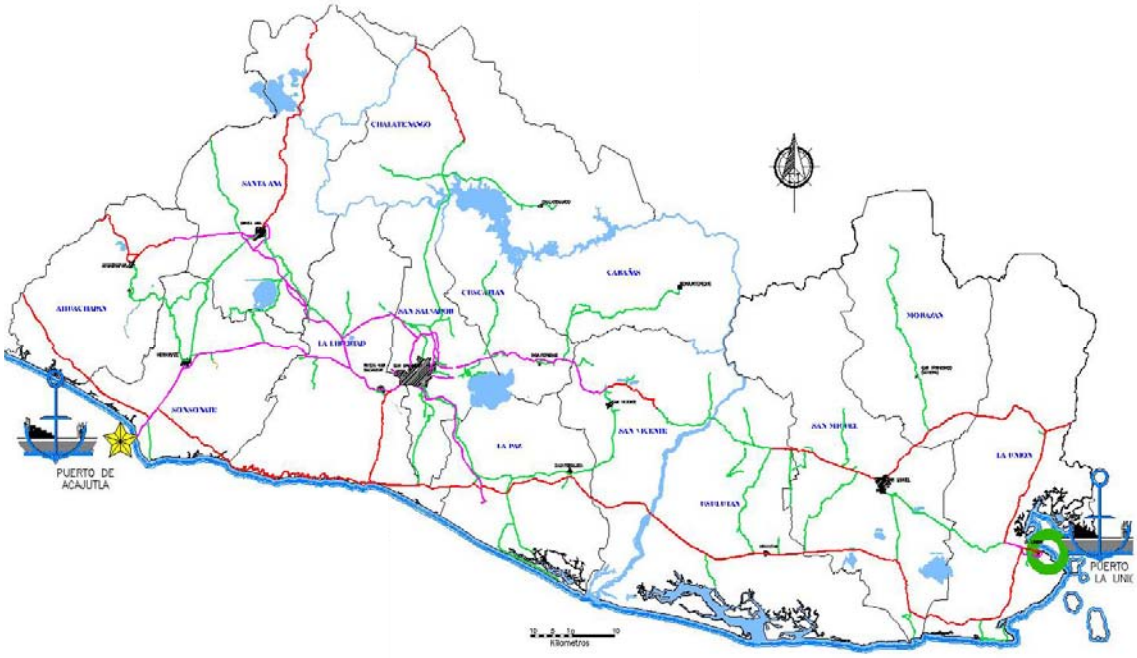
Source: UPV- MPW, Prepared in-house

7.20 In the ports sector, the only commercial port of El Salvador - the port of Acajutla - is a multi-purpose port, specializing in bulk goods, of breakwater type. It started operating in 1964 and covers 163 blocks with three piers, and was in a critical situation prior to the reform, with cargo volumes declining for several years. As a result of the reform, the volume of cargo

increased from an average of 2.72 million tons per year in the last five years to a total of 3.195 million tons in 2004. The volume of container cargo has grown strongly in recent years, as a result of the operating changes made since the February 2002 reforms. Between 2000 and 2004, the handling of containers increased by 527%, to 92,857 TEUs in 2004. These changes had a positive impact by attracting back the largest shipping lines, such as APL, Maersk-Sealand, NYK and P&O. Port performance indicators have shown significant improvement in the average recorded number of boat hours in port of 24.76, versus 55.9 in 2000. The efficiency improvements resulted in a profit of $4.7 million in 2004, up from a loss of $6.3 million in 2002

7.21 The port of Acajutla is naturally a mixed and bulk cargo port, despite the recent expansion in container cargo, as it faces physical restrictions on future expansion of container traffic: the shipyard is 2 km from the piers and the bearing capacity and width of the piers make container handling difficult. However, its total physical capacity will be sufficient for future scenarios without expansion, provided that the new port of La Unión is built, as the Government of El Salvador (GOES) has decided to do.

Figure 7.3: Maritime ports system of El Salvador as of December 2004



7.22 The port of La Unión has natural physical advantages due to its sheltered bay and 14-m water depth. The decision to build a new port came about with the aim of setting as a priority the development of logistic activities in the country, and given the restrictions faced by Acajutla for container cargo.

7.23 In the airport sector, El Salvador currently has two airports that have international runways. The International Airport El Salvador - one of the principal airports of Central America - is the only one to receive commercial air traffic. The other, the Airport of Ilopango, is used as a military and civil airport. Its infrastructure includes a 3,200-m runway, which runs East-West

(0725) and is 60 meters wide with hard shoulders measuring 7.5 m on either side. It was designed for 727-200 aircraft. For the geometrical characteristics of this runway, the International Airport El Salvador is classified 4E according to the International Civil Aviation Association (ICAO) out of a maximum of 4F, making this the airport with the best classification in all Central America. As a result of the modernization process conducted over the past five years, the use indicators of hours/airplane platform have improved for commercial airlines. From 2002, there was a downward trend compared to 2000-2001 by 23.8% and 52.47% respectively. In 2004, the International Airport of El Salvador moved a total of 1.92 million passengers, of which 37% were incoming passengers, 39% outgoing passengers and the remaining 24% were passengers in transit and transfer. The movement of cargo over the past five years has experienced continued downward fluctuations compared to 2000. For 2004, the International Airport El Salvador moved a total of 31,083 tons of cargo. Comparing the total cargo between the years 2000 and 2004, including that of export and import, a reduction of 4.3% was experienced. With regard to 2003, the movement of imported cargo increased by 7.43% and exported cargo increased by 9.90%. In terms of profitability, the International Airport of El Salvador is self-sustaining, generating profits in 2004 of $9.3 million and is currently one of the sources of income of the central government.

7.24 An analysis of future capacities and current problem areas has shown that the Terminal and some areas in the passenger terminal quickly fill up during peak hours. The main hurdles of the International Airport of El Salvador (AIES) to meeting demand are: an obsolete cargo terminal operating system (there is no provision for the use of bar codes and there is no connection to customs in order to increase the rotation of cargo and lastly, the dynamic capacity of the terminal); reduced space in the cargo terminal for meeting the projected demand since it is currently being used at 120% of its design rate, reduced area for checking in passengers and the area intended for the passenger send-off area, reduced Migration and Customs area and problems of access from the second floor of the passenger terminal building (steps and low-capacity escalator) that results in long lines of passengers and delays during rush hours.

QUALITY OF FREIGHT TRANSPORT SERVICES

7.25 The final result of the transportation activity is a combination of the services provided and the quality of the infrastructure that supports them. The first link of all transportation chain is land freight transport, which is provided by a large number of private companies in El Salvador. Maritime transport service is provided by 25 international shipping companies that currently serve El Salvador. The air cargo transport services are provided by air passenger and air cargo companies. In El Salvador, three specialized air cargo companies provide more than 60% of the cargo handling and 13 air passenger transportation companies provide the cargo service, of which TACA and COPA are the most important.

7.26 Freight transport services are significant for different reasons; (a) land transport is necessary in all (or almost all) supply chains. It is even more important for El Salvador that makes intensive use of the ports of neighboring countries; (ii) maritime transport service in terms of direct (out-of-pocket) costs is generally the most important item in the chain; (iii) the air transport services have a small portion of the transportation market but its importance is generally high according to the types of product or companies for which the other modes are not a viable alternative.

7.27 Transport services affect the competitiveness of clients through the direct cost of shipping and also by the indirect or hidden costs imposed through delays, losses, damage of goods, theft,

etc. According to the survey on companies conducted in the textile, chemical products and food sectors, it is estimated that delays resulting from transportation services are responsible for almost 14.5% of their sales.

7.28 It is estimated that there are approximately 10,000 cargo handling operators, 1,112 of which are members of the labor union *Asociación Salvadoreña de Empresarios de Transporte de Carga* (ASETCA - Association of El Salvadoran Cargo Handling Companies). The road transportation sector is divided into two areas: (i) formal companies that have fleets of more than 20 vehicles - 12 of these companies have exclusive contracts with shipping lines and take care of 70% of the ship cargo, and 50 others transport a variety of cargo within El Salvador or internationally; and (ii) small operators with generally one or two vehicles, that make up 80% of the market.

7.29 There is evidence of a tremendous over-supply of land freight transport services which has led to a savage competition among the small operators, that accordingly operate below cost, and sacrifice maintenance and renovation of equipment, payment of contributions and insurance. As a result, they provide a cheap but very poor quality transport services with a high levels of informality and unreliability that are passed on to the client to such an extent that the client must himself insure the cargo while it is in the possession of the shipper as the latter would be unable to cover any loss with his own assets. A situation has arisen in which the system's inefficiencies are directly borne by the client. However, the client is free to choose his carrier and could choose an alternative that would have a higher direct cost (shipping price) and lower hidden/indirect costs (delay, losses, damage). The fact that clients do not may be an indication of their needs – i.e. they can live with the unreliability and need the reduced direct cost - or more likely they have little knowledge of the extent of the potential hidden/indirect costs. In any case, it is the responsibility of the private operator to make these decisions. However, the system tends to favor informality and a number of operators do not pay taxes or contributions, thereby contributing to the deterioration and generating unfair competition with those that do pay contributions, and external effects to third parties through congestion due to the over supply of vehicles, contamination, deterioration of the roads due to overload, rate of accidents, etc. These costs are borne by third parties without choosing to. Regulators are responsible for correcting these distortions and ensuring fair competition in the sector and conditions in which operations are financially sustainable in the long term.

7.30 Accordingly, and as this service is the basis of any logistical platform, it is crucial for the government of El Salvador (GOES) to immediately develop a serious and effective policy to correct the distortions of this market if it wants sophisticated transportation initiatives to develop.

7.31 Maritime and air cargo services are provided by a few companies that argue about the low cargo level and lack of economies of scale to justify the high cost of the fleets. It is to be hoped that with the growth of the economy and the construction of the port of La Unión, there will be increased cargo volumes and a reduced maritime fleet; in any case, the AMP and AAC should monitor the shipping costs to prevent collusion since the level of competition in both sectors is reduced.

RECOMMENDATIONS

7.32 El Salvador has set its sights on a large investment in the sector to develop one aspect of its economy based on infrastructure services. This investment, which is constituted of the Port of

La Unión, must go hand-in-hand with a long-term vision that will implement complementary actions and policies to ensure the optimization of resources.

7.33 In the roads sector, the possibilities of expanding roads are limited if the existing network is not previously optimized. El Salvador has a limited territory and there have been significant signs that the functionality and congestion of highways roads have been reduced on recently rehabilitated or newly-built highways. A strategy should be developed that will assist the country to see highways in an integral manner in order to manage demand. In turn, road distribution is uneven throughout the territory, which results in reduced accessibility to production centers and equipment for some citizens.

7.34 The strategy for the future must consider: (i) the identification and development of logistical corridors; and (ii) improvement of the distribution and connectivity of the highway network. This strategy supposes the definition of a limited number of logistical corridors for which investment and monitoring programs must be developed, some of which exist and others would have to be developed. The objective is to ensure the quality, functionality and conditions of the corridor over time for the traffic of goods at a high and constant commercial speed in conditions of safety both day and night.

7.35 In the port sector, the main decisions have been made; now it is a question of optimizing both ports through concessions to the private sector to facilitate the programming of investments with respect to the evolution of the demand. The Government of El Salvador (GOES) should ensure the proper transition from the institutional and regulatory framework to foster the concession process and the monitoring thereof, modifying the role played by the CEPA.

7.36 In the airport sector, the deficiencies of the airport can be corrected with a small investment and are not as critical as in the other sectors. However, the development of a more aggressive commercial vision could mean more revenue in the future. The GOES is studying the possibility of involving a broader commercial vision for the administration of the airport.

7.37 This section has introduced four chapters that describe the present current situation in El Salvador. Three chapters refer to the highway, airport and port infrastructures. In each, an investigation of the current condition is studied and a corresponding analysis that covers the institutional framework, the legal and regulatory framework, the infrastructure in terms of its quality, and coverage, the quality of the operations that operate in this infrastructure, and the proceeds income, costs and budgets of investment and maintenance of said infrastructures. Based on this, the current development policies were analyzed of the GOES and some recommendations were presented.

7.38 The fourth chapter offers an analysis on the freight transport, as ultimately, they are services that closely impact the user and it is their relationship with each other and their interaction with the infrastructure that supports them that determines the quality of service received by the user. This chapter includes air transport, maritime transport and land transport services. Each of the chapters analyzes the characteristics and organization of the market, the legal and regulatory framework, the quality of the service, the government's strategy for developing the service, and recommendations to improve the services.

Ports

7.39 *Overview of the sector.* El Salvador's only commercial port at present is the port of Acajutla. Currently a second port is under construction (the Port of La Unión) that will serve as a regional distribution and logistics center providing greater transport opportunities in the region.

7.40 The Port Authority Commission (CEPA), a public entity with its own legal identity and assets, is the institution responsible for the administration and operation of the Port of Acajutla. By law, it is overseen by the Ministry of Public Works (MPW), which also represents it before the legislature. However, in practice, the MPW no longer exerts any real influence over the CEPA.

7.41 The modernization of the transportation sector that took place over the past five years resulted in the enactment of the Maritime Law that created the Maritime Authority, now responsible for the standards and monitoring of the port and maritime operations. CEPA has remained in sole charge of operations, construction, and maintenance, which it performs directly or through contracts. However, the Organic Law of CEPA does not grant it the ability to award concession or other type of contracts.

7.42 There is no integrated planning or formulation of strategic policies for the entire port sector. Ultimately, the planning and development of the port sector is carried out by CEPA with a view to optimizing operations rather than developing a strategic view of national transportation in accordance with its Organic Law, which does not determine its responsibility in the strategic planning and formulation of sector-wide policy. The role of the MPW is also unclear in this regard.

7.43 Accordingly, to consolidate the modernization of the sector, the Organic Law and role of CEPA must be reconsidered in light of the modernization of the sector, specifically, the construction of a second port now underway that will increase the need to adopt a more integrated vision and planning of the sector.

7.44 The Port of Acajutla is located in the Departamento de Sonsonate in the western zone of El Salvador, 85 km south-west by road from San Salvador. There is a private system of buoys for mooring oil tankers on the water surface southeast of the port.

7.45 The port has three docks consisting of piers of varying width, whose draft varies from 10 to 14 meters across from the mooring screens and with an approximate total length of 1,290 m. Multi-purpose dock A is designed to transfer cargo using only cranes from the boats, since its current structure does not allow the use of heavy equipment. Additional surfaces were created on Dock A, after eliminating the warehousing area. Dock B - geared to solid bulk ships - is designed to service ships in a mechanized manner, through a loading and unloading unit with an output of approximately 450 tons/hour. Dock C has greater water depth than the two other docks, and is used to start the unloading of large bulk ships that then are serviced at Dock B.

7.46 For the effective execution of operations, the Port of Acajutla has a conveyor belt system that includes a loading and unloading unit operating from the boat to the various warehousing plants and vice versa.

7.47 The general cargo warehousing facilities are composed of four roofed areas that cover a total of 22,600 m2 and two roofed modules with 6,122 m2 for the same purpose. It also has a vehicle warehousing yard measuring 36,000 m2, a 30,000 m2 yard for containers, within which

there are refrigerated warehousing containers, a store especially designed for the warehousing of solid export bulk with a capacity of 12,000 TM and one of 18,000 TM for import solid bulk.

7.48 In addition, there are 24,000 m2 that are not roofed, between storerooms used for protecting storable goods from bad weather, and a piping system interconnected with the various private warehousing plants away from the port enclosure for the transfer of import and export liquid bulk.

7.49 The average tonnage moved over the past five years was 2.72 million tons. The average rose from 2.49 million tons of cargo in 2000 to 3.20 million in 2004. The percentage of imports went down from 82% of the total in 2000, to 79% in 2004, while exports increased from 18% to 21%. Solid bulk represented 47% of the total for all of 2004, while liquid bulk represented 22% and the remaining 31% was general cargo.

7.50 The volume of container cargo has experienced strong growth in the past years, as a result of the operating changes made by reforms carried out in February 2002. These changes made it possible to attract the most important shipping companies such as APL, Maersk-Sealand, NYK, and P&O. Container traffic between 2000 and 2004 increased by 527% to 92,857 TEUs (twenty-foot equivalency units) of which 47,541 were import and the remaining 45,316 were export. For 2005, over 100,000 TEUs will be handled.

7.51 The reforms also led to an increase in ship traffic. In 2004, the Port of Acajutla received a total of 509 ships, which was a 53.77% increase over 2000, when 331 were received. The increase in the total per-year tonnage moved explains this increase of ships serviced.

7.52 Ultimately, the port reform - through the labor reform and conversion of former public sector employees into employees of private companies that provide port services - resulted in significant gains in efficiency. This new management model (port operations carried out by enterprises formed by previous port employees) was temporarily adopted, while attempts were made to convert the port into a concession.

7.53 However, the concession attempt failed due to a lack of offers. Analyses of the process indicate that, in spite of Acajutla's good financial health, a surfeit of requirements, rigidly specified in the concession decree contract, along with the uncertainty of the impact and dimensions of the Port of La Unión, may have contributed to the failure of the bid process.

7.54 In El Salvador, there exists little in the way of legal and regulatory framework for concessions: indeed Salvadoran law makes it necessary to create a specific law for every concession contract. Each process accordingly has to go to the Legislative Assembly and each specification and requirement for the concessionaire are discussed, which complicates the bureaucratic process and tends to make bidder requirements overly rigid.

7.55 There should be an attempt to develop a general concessions law to facilitate the process. It is necessary, meanwhile, to continue with the bid process, as desired by the Government of El Salvador (GOES), but lessons learned from the previous bid should clearly be incorporated, and in particular requirements imposed on bidders should be loosened or made more flexible.

7.56 Theoretically, the physical infrastructure of Acajutla has 50% available capacity of its docks, but restrictions with regard to containerized cargo are greater due to the nature of the port.

7.57 The size of the container yard has reached its limit, but discussions are underway to resolve the issue of yard extension. The physical size and limited capacities of the docks are an obstacle to efficiency: due to the narrowness of the docks and the lack of capacity to support the weight of a container-carrying crane, it is impossible to stow containers, making it necessary for all operations to be performed with direct transfer to the yards, which in turn delays operations.

7.58 Moreover, in the particular case of dock "B" the situation becomes even more complicated due to the Automated Cargo Unit (ACU) which hinders the passage of containers and the solid bulk conveyor belts located there. In turn, the container yard is 2 km from the docks, which slows down operations.

7.59 With regard to the cargo in general, there are no limits to physical capacity that require larger investments, but there are restrictions that limit short-term efficiency, such as the lack of scales, and restricted access roads that are narrow anyway, limiting the movement of heavy vehicles. In the long term, the reduced depth of the two docks makes it necessary to use the deeper dock and cargo transfers that slow down the entire operation.

7.60 According to a growth scenario of the base demand (a scenario using an annual GDP growth of 1.5%), no expansion of the capacity of Acajutla should be needed before the year 2020, since the cargo would go from 2,195,741 tons/year in 2004 to 6,017,449 tons/year in 2020 (+88.3%). This means that the capacity of the Port of Acajutla, estimated at 6,520,504 tons/year, would suffice until 2017 to meet the cargo demand of the base scenario if an adequate maintenance program is carried out and no catastrophic or events occur.

7.61 If the US-Central America Free Trade Agreement (CAFTA) is approved, its impact would generate a 3.5% growth of the GDP after an initial peak of 4.6%. With the initial impetus of CAFTA (which would ease over time) cargo demand increases from 3,195,741 tons/year in 2004 to 9,152,465 tons/year in 2020 (+186.4%), leading to an insufficient capacity of Port of Acajutla to meet the cargo demand derived from CAFTA starting in 2015.

7.62 Under the CAFTA scenario plus the Regional Distribution Center, the economy will grow 1.5% in 2005 and, conservatively, at 4.5% per year from 2006 to 2020. The total cargo demand including oil from the CAFTA scenario plus Regional Distribution Center (See chart 1.16) would rise from 3,195,741 tons/year in 2004 to 14,027,392 tons/year in 2020 (+199.4%). The cargo of 2020 in this scenario would be 1.5 times the cargo of the CAFTA Scenario (9,152,465 tons/year) and 1.9 times that of the Base Scenario (7,440,072 tons/year). It is presumed in this very optimistic scenario that the Port of La Unión will attract the majority of container cargo, and it would accordingly be necessary to consider expansion of the its capacity. Therefore, consideration should be given, in the event a concession is granted for the port of Acajutla, that the investment requirements for its expansion be limited or null.

7.63 The GOES has decided to build a new modern port in La Unión and to focus the development of its hinterland with processing and logistics activities. The worldwide growth of containerized cargo movement and the growth in the port of Acajutla of the container movement and its own limitations in this type of cargo were the reasons that resulted in this investment. Analyzing the infrastructure capacities, geographic location, and potential demand of both ports, it could be concluded that each port has a different purpose. Acajutla is a port specializing in the handling of solid and liquid bulk, and the new Port of La Unión would specialize more in the handling of containers. This conclusion leads to the idea that both port infrastructures could work in a complementary manner to support the growth and commercial development of El Salvador and the region.

7.64 The implications of the scenario above makes it obvious that CEPA should adopt the strategy of having two complementary ports and internalize this strategy in the design of the concession of Acajutla, and that of La Unión. Moreover, this strategy should be incorporated in the marketing process of the Acajutla concession, to attract operators without La Unión being seen as competition for the same resources and infrastructure of the country.

7.65 *Recommendations for improving port operation and infrastructure.* The GOES, aware of the importance of port infrastructure in the economic competitiveness of the country, has been making significant progress in the reform of the sector and in the improvement of the operation of the port of Acajutla. It has implemented an important modernization of the legal framework of the sector with the Maritime Law, and from the institutional standpoint, with the creation of the Maritime Authority. Moreover, the reforms made in Acajutla have resulted in enormous improvements of efficiency that turned a port with constant losses into a port that has annual profits in the order of $4.5 million.

7.66 In this period, the basic guidelines for developing the maritime sector, set down in the National Plan, are focused on the construction of the new Port La Unión and the development of the hinterland with logistics development and related activities. Moreover, the continued improvement in the efficiency of the port of Acajutla is continuing with the focus of guiding the country to logistics type activities.

7.67 The strategies that have been implemented to date have generally given satisfactory results. However, there are still activities that require more infrastructure and better levels of efficiency and technology. There are also institutional and legal issues that need attention. Combined with the large investment of the Port of La Unión and the development of the anticipated cargo movement, the institutional, legal and infrastructure constraints are more relevant and urgent. The following section considers the current constraints and challenges, and presents some recommendations for resolving them.

7.68 Institutional and legal framework. The creation of the CEPA as an operating entity and the Organic Law that institutionalizes its responsibilities in the operation, construction, and maintenance of ports has resulted in a relatively effective institution, particularly after the modernization of the sector.

7.69 However, CEPA does not have the authority to formulate policy of the sector and plan anything in a broader sense that does not relate to its operations. As long as there is only one port, there do not appear to be any problems. However, when there are two commercial ports and possibly private ports, there will be an institutional vacuum with regard to which entity defines long-term policies and sector-wide strategies integrated with the other modes of transportation. This institutional vacuum could result in continued improvements and investments in each subsector in competition with each other, which might be desirable as far as their individual operations are concerned, since it could tend to promote greater efficiency. With regard to investment, however, it could lead to over-investment and unnecessary spending.

7.70 The Organic Law of CEPA urgently needs to define responsibilities with regard to the formulation of policy and planning, by filling the aforementioned institutional void. The ideal in terms of planning would be a greater integration of these activities with the MPW. It is also important to define the future role of CEPA within the framework of the concession of the port operations, which is being handled by the authorities.

7.71 Secondly, there are areas of the Organic Law of CEPA that could lead to interpretation problems in the future with the Maritime Law due to lack of definitions in the former and confusion *vis a vis* the respective powers of CEPA and Port and Maritime Authority (AMP).

7.72 Accordingly, the responsibilities of the CEPA should be clearly stipulated in the Law of CEPA with regard to planning, construction, reconstruction, repair, maintenance, expansion, extension and improvement of the port infrastructure, the direction of the anchoring, the service of sea pilots, the maneuvers of mooring and unberthing, lashing and unlashing of the ships that enter or leave the ports, and the tow boats that are used to serve, help or supply them and the formulation of the port tariffs for approval by the AMP. In this aspect, CEPA is working in a strategic plan that will delimit the new role of CEPA and will define new modifications to the Organic Law.

7.73 Constitutional-level provisions in El Salvador make it necessary to create a specific law for each private sector concession sought in the operation of public docks, railroads, canals and other public works. This procedure involves going to the Legislative Assembly on each occasion, which causes delays and makes the process difficult. Moreover, when discussing the details of the concession conditions in the assembly, there is a tendency to reduce flexibility which can be counterproductive. In this regard, CEPA is working on a strategic plan that will delimit the new role of CEPA and will contain new amendments to the Organic Law.

7.74 For a multi-sector general discussion to take place, at least at the sector-wide transportation level, it is imperative to propose a legal framework for public work concessions. Together MPW and CEPA should write legislation or reactivate past legislative projects to be able to prepare conditions for future concessions.

7.75 Concession of Acajutla. The failed concession of Acajutla makes it possible to discern strengths and weaknesses that can be overcome, with respect to the structure of the concession model created by CEPA. The strengths mainly correspond to the sector-wide reform in institutional and regulatory terms with the Maritime Law. The identified weaknesses include technical specifications that do not correspond to market reality, particularly in terms of high costs for the concessionaire in the form of advance payment, the shared capital requirement, royalty fee, AMP contribution and reduction of port tariffs.

7.76 These lessons should strengthen the position of CEPA and in particular the preparation of the concession process and documents corresponding more to market reality and to the actual investment needs of Acajutla.

7.77 The Concession of the Port of Acajutla continues to be a real and effective option in accordance with the policies established by the current government, particularly a means to generate social benefits. In accordance with the experiences of the bid process for the Port of Acajutla concession, the following recommendations should be taken into account:

- Do not isolate the conclusions of the technical and economic studies from market reality. The acceptance of the market should be measured before the implementation of any model.

- If the concession is launched again, direct approaches should be made to interested parties and their observations should be taken into account to determine the final scheme. Moreover, the participation of local investors should be aggressively pursued.

- If a new decree is necessary in the future, it should be formulated flexibly to facilitate adjustments to the process, through the bid documents, such as the Reference terms and the Contract.

- The objectives that CEPA wishes to reach should be clearly defined and correlated to the market conditions and the nature of the infrastructure to be granted in concession. The institution must be very realistic when establishing technical and financial requirements.

- Promote the port as a multi-purpose port with its own identity as bulk port and do not attempt to make it compete with the Port of La Unión.

- Promote local private participation and principally that of those sectors with interests in the sector.

- Seek partners among the local groups and regional operators to facilitate and guarantee the operation of the port and transfer of technology

- Evaluate each of the risk factors considered at the start of this section in order to convert them into strengths.

7.78 The Port of Acajutla is currently a state port that operates under a model that was not designed to be permanent. Even though it has operated well, there is still the threat of strong regional competition. In the short term, the ports of La Unión and Quetzal could have Acajutla repeat the history of other state ports that became useless and ended up as small-scale fishing and trade centers.

7.79 Accordingly, it is important for the Government of El Salvador and CEPA to confirm the concession process and accelerate its execution. It is crucial to maintain a tactical approach with the local and regional sectors that might be interested in the port.

7.80 Port of Acajutla versus Port of La Unión. The Port of Acajutla was built under a pier-type port design, facing inward, in a location lacking protection with regard to the effects of nature, to meet the commercial needs of the country at the time (the 1960s), that are characterized by the import and export of mostly bulk and bag cargo and goods. This is evidenced by the existence of private infrastructure on land adjacent to the port which was built for the specialized handling of solid and liquid bulk and the fact that the container yard was built more than 2 km away from the docks. A third example is the warehouses for general cargo that have been vacant for more than eight years due to the increasing global trend toward cargo containerization.

7.81 In addition, it is important to point out that in spite of the efforts made by CEPA in maintaining the entire infrastructure and equipment of Acajutla over the past 45 years, this port has certain physical and structural limitations that restrict cargo operations, particularly container operations. Examples of these limitations are the narrowness of the docks, the shallow depths that do not allow the mooring of panamax-type boats, and the one-way access of the land portion of the port to the docks that does not allow for 2-way traffic.

7.82 According to feasibility estimates, the Port of La Unión would attract 50% of containerized cargo of Acajutla, and would attract cargo from Guatemala, Honduras and Nicaragua and certain volumes of transshipment cargo. The same projections contemplate a considerable Ro-Ro-type cargo, which is why a specialized dock would be built for this activity and a certain volume of bulk cargo. At the beginning, it is estimated that it will handle 120

thousand TEUs and then 950 thousand TEUs after 20 years. The demand estimates are always indicative of an uncertain future. However, it is clear that the expansion capacities of Acajutla to receive containers are restricted. An expansion would only make general cargo difficult to handle. Accordingly, its chief purpose should be a bulk and domestic port.

7.83 On the other hand, La Unión will have a considerable advantage with containerized cargo compared to Acajutla and neighboring ports, which would help it attract clients.

7.84 Accordingly, the GOES should treat both ports as complementary infrastructures: one specialized in general cargo and bulk mostly for the domestic market and the other specialized in containerized cargo with participation in regional cargo. The adoption of this strategy should become internalized at the GOES level as far as possible since ultimately, the market and the concessionaires will define the true purpose of each port. However, it is possible to try to grant a concession for the Port of Acajutla as soon as possible, probably to a regional operator. And an attempt could be made to attract an international operator for La Unión.

7.85 When a concession is granted for La Unión with the construction of the container terminal completed, there would be no immediate competition in mixed and bulk cargo for Acajutla. In any case, an attempt should be made to involve different port operators not connected to shipping companies so the competition can attract cargo and help reduce the maritime fleet, which is the most important component of the logistics chain for El Salvador in terms of direct costs.

Air Transport

7.86 *Overview of the sector.* El Salvador currently has two airports, one of which – the International Airport of El Salvador - has international runways where there is commercial air traffic and one of the main airports of Central America. The other Airport of Ilopango is used as a military and civil airport.

7.87 Due to the size of the territory and the improvement in the conditions of the country's highway network, demand for domestic fights that operated as air taxis has completely stopped, with no flights since 2001.

7.88 The administration of the International Airport of El Salvador is the responsibility of the Port Authority Commission (CEPA), an autonomous institution that in the past years has undergone a modernization process. It has carried out initiatives that have resulted in the International Airport of El Salvador being converted into one of the hubs of the principal airline of Central America, thereby giving significant growth momentum to the airport.

7.89 It is estimated that by the end of 2005, the annual volume of passengers moved through the airport will be approximately 2 million. Over the past five years, the demand of passengers in transit has grown by 51% and the number of passengers going to El Salvador has grown by 16%.

7.90 In terms of profitability, the International Airport of El Salvador is self-sustaining. It generated profits in 2004 of US $9.3 million and is currently one of the sources of revenue of the central government. As for the infrastructure, it has the most modern airport infrastructure in Central America; it has a landing runway 3,200 m long, oriented east/west (0725) 60 m wide, and 7.50-m wide shoulders on each side of the runway. It was designed for 727-200 Boeings. Regarding the geometrical characteristics of this runway, the International Airport is classified 4E in accordance with the International Civil Aviation Association (ICAO) and a maximum of 4F,

making it the airport with the best classification in all of Central America. Among other facilities, the airport has 17 gates, 3 for private planes, 14 for commercial aircraft.

7.91 The International Airport of El Salvador completed a total of 29,313 commercial landing and takeoff, national and general operations in 2004, an increase of 4.54% over 2003, reversing a downward trend from the previous years. This trend was due to the losses of profitability experienced by the airlines at the global level, at the same time that the principal airline of Central America overhauled its air fleet with larger capacity planes and restructured its routes. However, this reduction was experienced to a lesser degree in El Salvador. When the average number of daily landings of commercial airlines is compared to other countries, El Salvador experienced a slight reduction from an average of 42 daily landings in 2000 to 39 in 2004.

7.92 General aviation showed the same downward trend between 2000 and 2003 with a reversal of the trend in 2004, showing a slight increase of 11.2%. Domestic aviation (official and army flights) showed a downward trend throughout the period.

7.93 As a result of the modernization process carried out over the past five years, the hour/airplane platform use indicators have improved for commercial airlines. Starting in 2002, there was a downward trend compared to 2000 and 2001, the reduction experienced was 23.8% and 52.47% respectively.

7.94 In 2004, the International Airport of El Salvador (AIES) moved a total of 1.92 million passengers, 37% of whom were incoming passengers, 39% outgoing passengers and the remaining 24% were passengers in transit and transfer. For this year (2004), the total number of passengers moved has increased by 20% compared to 2000, and the number of incoming and outgoing passengers has experienced a growth of 16% over 2000.

7.95 Compared with 2003, in 2004 the incoming passenger traffic experienced a growth of 10.50% reaching 714,649 passengers; still compared to 2003, the number of outgoing passengers in 2004 was 745,004 which was an increase of 11.82%.

7.96 Cargo movement over the past five years has experienced downward fluctuations with regard to 2000. For the year 2004, the International Airport of El Salvador moved a total of 31,083.23 tons of cargo: 17,650.9 (57%) tons were import cargo and the remaining 43% - equal to 13,431.94 tons - were export. Comparing the total cargo between the years 2000 and 2004, including that of export and import, a reduction of 4.3% was observed. Compared to 2003, the movement of cargo imported increased by 7.43%, and exported cargo increased by 9.90%.

CEPA's development strategies include that of consolidating the leadership position that the AIES has currently with regard to the rest of the region's airports according to various criteria: quality of the infrastructure, quality of the aeronautical and commercial services, geographic location and safety; and the fact it continues to be an operations hub of one of the main airlines in Latin America. All of the above will work in its favor to drive it through incorporation processes of the private sector until the CEPA can become an institution that is a proprietor of infrastructure and administrator of concessions.

7.97 Even though the management model being implemented has generally given satisfactory results, there are still activities that require more investment, higher levels of efficiency and a higher technological level. This is the case of the current Cargo Terminal, where the state of the equipment, technology and infrastructure has not been the focus of major investments during the operating life of the airport. This makes it a perfect candidate for implementing a concession

program. An attempt was made at privatization in 2003, which was declared null the same year, in spite of the participation of more than six national companies that formed a consortium and three international companies. Even when the process was technically and legally handled in a transparent manner, it was necessary to declare it void due to the fact that economic evaluation of offers found that all the participating companies justified the investments they were to make to meet the levels of efficiency required in the bid documents through significant increases in the tariffs charged to users, which ran counter to the bid's objectives. At present, the administration of the airport is preparing a feasibility study to evaluate alternatives of private participation in the operation of the Cargo Terminal.

7.98 *Recommendations for improving the operation of the airport infrastructure.* The Port Authority Commission (CEPA) has developed strategies for consolidating the leadership position that the AIES currently has, compared to the other airports in the region according to various criteria: quality of the infrastructure, quality of the aeronautical and commercial services, and geographic location and safety. All of the above will contribute favorably to the improvement of airport operations and incorporation of the private sector, until CEPA can become an institution that is a proprietor of infrastructure and administrator of concessions. Other strategies of the air sector are the implementation of a business development plan for AIES that includes its industrial, commercial and tourist zone with tax enclosures in the area next to the airport, and updating the Master Plan.

7.99 The basic development guidelines for the airport sector are included in the National Plan. According to this plan, the development of plans to increase exports requires improving the infrastructure supporting the country's export capacity in order to provide for its development and competitiveness, through stimulating airport efficiency and competitiveness of the country. Concretely, it would be necessary to make the cargo operations of the AIES more efficient and to modernize and streamline their administration and operation.

7.100 The strategies being implemented have generally been satisfactory. But there are still activities that require more investment and better levels of efficiency and technology. There are also institutional and legal issues that require attention. This section will consider the current constraints, challenges and alternatives for dealing with them.

7.101 Legal, regulatory and institutional framework. The performance of sector entities requires an additional drive to enhance their role to the fullest and not be mere rubber stamps for licenses or permits. They must also exercise their authority to issue appropriate technical standards based on qualitative and quantitative output indicators, that clearly establish the performance expected of the private sector. As a result, infrastructure development should not be distorted in favor of only larger agents and operators, as has been the case to date. Rather, clear and transparent criteria of efficiency and output should be developed.

7.102 CEPA. The Organic Law of CEPA has governed the administration of the International Airport of El Salvador for almost 30 years since it was enacted, and it is increasingly necessary to modify and update the content of this law so it can more closely adhere to the processes of change affecting the institution in the past, present and future.

7.103 CEPA versus AAC. In order to adequately develop and use to the fullest extent the "domestic" airport infrastructure and the services related to this infrastructure, a reform to the Law of CEPA is necessary whereby its functions and powers are set down with regard to the national airport infrastructure and aeronautical services, so there can be neither objections with

regard to the practical or legal aspects nor duplicitous or arbitrary interpretation of the functions, jurisdiction competency and scopes of CEPA versus AAC.

7.104 As CEPA is the owner of the airport infrastructure of the AIES and provider of regulated and unregulated airport services, it carries out a series of activities not contemplated in the Law which created it and that are applied through the interpretation and reference made to other laws. These laws include the Law of the Construction, Administration and Operation of the New International Airport of El Salvador as well as some articles of the Organic Civil Aviation Law, such as the article that assigns to the CEPA the obligation for the control and direction of the support services to air navigation, as applicable to the air traffic services, aeronautical information, weather services, aeronautical communications, radio aids, dispatch and flights, and other air navigation services. CEPA must further contribute with an effective operation and provide the personnel, infrastructure and equipment required, which for practical purposes, it has left a certain degree of confusion about regarding the authority over the control of said services between CEPA and AAC. The same situation currently applies to aspects regarding the implementation of civil works in AIES facilities. Finally, one of the most important aspects is that it is nowhere defined who would be responsible for the administration and operation of other airport infrastructures that are built in the future with State funds.

7.105 Need for a better business strategy. The vision and commercial activity currently being implemented by the administration is concentrated mainly on attending to users' needs (operating with more of a reactive instead of a proactive attitude). Accordingly, it is necessary to develop a more integrated and aggressive business plan within which a series of alternatives are considered: the implementation of a sliding tariff scale according to hours of operation and provision of the services; alliances with airlines, hotel companies, logistics operators, etc. that make it possible to maximize the infrastructure and availability of existing land and increase the level of revenue and profitability of the operations, as in other international airports, where business revenue represents over 60% of the total income, surpassing the revenue generated by aeronautical services by a fairly large margin.

7.106 Human Resources. According to a study presented in the master plan of the airport, the various departments that comprise the organization that operates and administers the Airport were evaluated. As far as the capacity is concerned, it was concluded that it has the ideal number of personnel to efficiently perform all functions, and it was observed that the department of Administration appears to have more personnel than necessary.

7.107 The number of personnel needed to operate the air traffic control in the area of development and review of instrument approach procedures and evaluation of obstructions, is currently too small. This situation could negatively affect the safety of the systems.

7.108 The CEPA, through the Office of the AIES, does an acceptable job as far as the administration and operation of the airport are concerned. However, an alternative that should be considered is the creation of a specialized department that is responsible for the air traffic control services. This department would manage aspects related to these services including the responsibility not only of the operation but also of the maintenance of the systems.

7.109 Currently, the airport has trained and specialized personnel in the two areas indicated above, but the maintenance area is not under the air traffic office, but rather the general maintenance department of the airport. It is important that the maintenance of the navigation, communications and flight protection systems be under the air traffic office and not under separate offices, since they can have very different priorities. Moreover, the specialized personnel

are more directly involved in their daily jobs with the operating aspects of the air traffic control system than with the general maintenance of the airport.

7.110 Legal framework for private participation. It is important to note that the Law of Procurement and Contracting by the Public Administration (LACAP) is currently the only legal instrument through which the private sector can participate in the construction, maintenance and operation of public infrastructure. LACAP is also a law for the procurement of goods and services for the public sector. But there is a loophole in this law regarding procedures to hold international bids to the standards of international law: requirements such as the submission of documents, the qualification processes, representation of international bidders and dispute resolution are not covered, therefore procedures that would permit by means of international bids the participation of economic and technological investment needed for the modernization of the infrastructure guarantee that gaps in quality occur.

7.111 The performance of sector entities appears to be very limited under this contracting law, which is really geared toward the procurement of goods and services and that does not adequately cover the methods and procedures of private sector participation under methods and procedures other than concession, leaving the entities few options for said purposes. In addition to considering the process of enacting a specific law, it is recommended that the LACAP be amended along these lines or even better that the regulation of private sector participation be separated into a different legal body that would have a direct influence on the performance of the sector's entities as facilitators of this private sector participation.

7.112 International cooperation. It is recommended that Open Sky agreements be implemented, by means of an aggressive policy of signing of bilateral agreements with other countries outside the region (the one with USA was signed in 1997) or unilaterally with no restrictions as Guatemala has done.

7.113 *Airport infrastructure.* The development policies of the AIES are focused mainly on the following areas: air field, the passenger terminal and the air cargo area. The air field includes the extension of the runway length.

7.114 Air Field. The landing runway does not constitute a constraint due to the fact that it is only used to 30% of its design capacity. However, there is a plan to extend the length of the runway by 200 m, to allow fully loaded transatlantic airplanes to land, to attract new airlines and allow new destinations.

7.115 Passenger Terminal. The passenger terminal in general is used to 75% of its design capacity, but the commercial and check-in area already exceed their capacity, which turns them into constraints. There are plans to extend the hall across from the counters toward the access road which is contemplated in the immediate Action Plan for expanding the Terminal Building. It has been recommended to study the possibility of using a system to resolve congestion problems at the airlines' check-in counters.

7.116 Aspects that require more attention and investment in this area of the airport are:

- The need to expand the passenger check-in area as well as the area for passengers leaving the country.

- The need to install a new elevator with more capacity between the various levels of the ETP (Passenger Terminal Building?)

- The need to expand the Migration and Customs area and facilitate access to it.

7.117 Cargo Terminal. The critical point as far as capacity is concerned – and the priority for development – is the cargo terminal, which is currently being used at 120% capacity, endangering the normal operation of the terminal. Its enlargement or the construction of a new cargo terminal is currently under discussion. The condition of the equipment, technology, and infrastructure have not been the focus of major investments since the airport opened, which makes it a perfect candidate for implementing a process of concession for Terminal operations. The feasibility of operating the Cargo Terminal through concession will be determined by the "Feasibility Study of Cargo at the International Airport El Salvador", as well as by the "Development Master Plan of the International Airport El Salvador."

7.118 Currently, the airport administration is working to launch a new concession process for Terminal operation, taking advantage of the experiences gained in the previous process, in order to achieve its main objective of improving the quality of the services, but without increasing the cost to users. It is extremely important to continue the efforts at granting the concession of the Terminal to an experienced operator, since there are still aspects and procedures that need to be modernized, such as the need to streamline manual procedures that are currently used for the handling, clearing and dispatch of the goods by means of the latest advanced technology such as bar code scanners or other systems.

7.119 Moreover, the concession should be considered in order to make the necessary improvements to the quality and quantity of infrastructure of the Terminal. For the export and import of perishable goods, it should consider the possibility of installing a refrigerated area that keeps the ideal conditions for refrigerated products, whose quality could be affected when exposed to sudden temperature changes.

7.120 In the longer term, the construction of a second terminal is recommended.

Roads

7.121 *Overview of the sector.* One of the sectors that has evolved the most over the past five years in El Salvador is the Highway sector. After a period of crisis due to the armed conflict in the eighties, this sector has regained importance within the national economy. The institutional modernization and restructuring process - that led to the elimination of redundant structures and the decentralization of activities - resulted in the creation of the Highway Conservation Fund (FOVIAL) in May 2002, an institution that is currently responsible for maintaining the highway network of the country. This institutional change resulted in greater optimization of the public resources. In 1999, 90% of the budget allocated to the MPW was used for spending and the remaining 10% for investment. In 2004, 96% was intended for investment and 4% for spending. This change over the past five years has allowed the reconstruction and rehabilitation of more than 1,466 km of main roads, the reconstruction and/or improvement of 162 bridges, the paving/repaving of 826 km of rural roads. In the urban network, 3 overpasses were built and 10 km of highway streets were built; the metropolitan San Salvador integration project, known as the New Highway System, was executed includes 26.76 km.

7.122 With the creation of FOVIAL, the priority highway network of the country totaling 5,996.47 km (48% paved and 52% non-paved) was able to receive maintenance in its entirety, when the condition of the paved highway network is compared in comparison to the year 1999. The percentage of the paved network in very good conditions went from 25% in 1999 to 51% in

2004 and the percentage of network in poor condition went down from 37% in 1999 to 15% in 2004.

7.123 For the years 1995-1999, the investment in infrastructure totaled US $500.97 million, with an annual average of US $100.19 million dedicated to reconstruction. During the five-year period 2000-2004, due to an increased effort in investment in construction, extension and improvement of the highway infrastructure, there was an investment total of US $712.41 million, constituting on average US $142.48 million per year which represented an increase of 42% with respect to the previous five-year period. The increase was a fundamental part of the five-year government plan, with the years of 2001 through 2003 representing the greatest investment period. Public investment in the transport sector will continue to be strategic for the economic development of El Salvador.

7.124 The investment program for the period 2004-2009 is US $1,201.5 million. The 2004 – 2009 investment plan supposes a large investment effort that cannot be expected to be covered wholly by the Administration due to macroeconomic constraints. As a result, the financing and management of works - under the concept of the private sector as a complement to the financing of the public infrastructure - will be sought as a key mechanism for the execution of various projects, such as the beltway of San Salvador, bypasses in regional corridors, in the cities of *Usulután, La Libertad, San Miguel*, indispensable for the country achieving adequate regional competitiveness.

7.125 *Recommendation for Improving the Highway infrastructure.* The modernization process of the sector over the past five years resulted in greater optimization of public resources. In 1999, 90% of the budget assigned for the MPW, was earmarked for spending and the remaining 10% for investment. By contrast, in 2004, 96% was intended for investment and 4% for spending. This change made it possible to reconstruct and overhaul more than 1,466 km, of the main highways, reconstruct and/or improve 162 bridges, pave/repave 826 km. of rural roads, in the urban network, 3 overpasses were built and 10 km of urban highways were built; the integration of the Greater San Salvador system was performed and became known as the New Highway System which includes an extension of 26.76 km. As a result, El Salvador now has one of the best highway networks in Latin America.

7.126 Paradoxically, the challenges that the MPW faces now are greater than those of the past. In terms of works, the easiest has been done and the true challenges remain. These consist not only of conserving the condition of the road network but also ensuring that the function for which the infrastructure was built is also maintained on time. This involves challenges on the future designs and modifications of the existing network in critical points, the integral handling of the rights-of-way, and the coordination and planning of settlements along the roads, and an adequate legal framework for the handling of these issues.

7.127 The challenge is two-fold since it is necessary to focus on the network in its entirety with this philosophy: (i) to ensure that the large road investments last over time and to stabilize conditions for users in time; (ii) to continue improving the distribution of the network in an equitable manner in the country to bring development to the most needy. This section considers the constraints and current challenges, and presents a strategy to resolve them.

7.128 Legal and regulatory framework. The Highways and Local Roads Law delegates to the MPW the coordination, planning, construction and maintenance of the highways and roads, and their use and the areas next to the public roadways. It does not specify the powers of the MPW in this regard, which has created confusion of territorial jurisdiction with the municipality for the

authorization of urban development versus the development of the highway infrastructure. Given that the Highways and Local Roads Law dates from 1969 and no longer corresponds to reality, these issues are not addressed adequately by the Law It is necessary to reform it by including powers that allow the MPW to coordinate the development of the infrastructure.

7.129 As far as obtaining the ownership of the rights-of-way, loopholes have been found in the Highways and Local Roads Law as well as the Law of Expropriation and Occupation of Assets by the State that in practice affect the processes for obtaining rights-of-way due to the following irregularities: 1) the property has no known owners; 2) the owner was incapable of defining the extent of his property; 3) there are rights in favor of third parties such as Guarantees, Leases, etc.; and 4) there is no title registered in favor of the owner or the title is defective.

7.130 Though the Law of Expropriation and Assets by the State applies the rules of common law with regard to these cases, in reality it involves extremely long legal procedures in the processing thereof, which has become an obstacle in the execution of infrastructure works and has created an atmosphere of legal insecurity for developers since they cannot know the result of this process when starting the works, and even during their execution. If the outcome were in the end unfavorable, this could imply the modification of segments or parts of the design that affect the project.

7.131 Regarding the protection of the rights-of-way: mayors of towns and municipalities have been seen granting building permits for informal buildings generally intended for the sale of food, which turn out to be an obstacle in the free flow of traffic. Moreover, the building of residential developments has been authorized, without there being the corresponding deceleration lane or a by-pass to a secondary road, and direct access to highways has been built denaturing the original function of the highway as these accesses multiply. Moreover, institutional hierarchy problems arise, since they have not been properly covered in the legal framework of the sector, when the MPW tries to prevent construction in the rights-of-way and on property immediately alongside the highways.

7.132 A new Highways Law must be drafted that includes the modern principles of planning, construction and maintenance of highways and roads, their use and the areas immediately adjacent to public roads. The law should clearly specify the powers of the MPW as delegate of this activity and enable it to adequately coordinate the zoning of the territory. Loopholes should be filled regarding obtaining and protecting the rights-of-way, administrative processes should be designed that - without violating due process - adequately facilitate obtaining and protecting of the rights-of-way, for which the Law of Expropriation and Occupation of Assets of the State must also be harmonized and updated to allow the performance of these processes to no longer be constraints from the legal standpoint for the development of the infrastructure in the highway sector.

7.133 The Highways and Local Roads Law includes monetary sanctions that are negligible with regard to their worth and that ultimately do not deter the violators. The law does not give the MPW the necessary tools to deter the abuse on the occupation and use of the highways. These sanctions should be adjusted to current values and should add another type of sanction, such as the cancellation of construction permits whereby an effective control is exercised on the use of the highway infrastructure. Moreover, monitoring should be considered with help from the law enforcement authorities who would enforce sanctions, a situation that to date has not occurred, which results in the constant abuse of the capacities and conditions of the highway infrastructure.

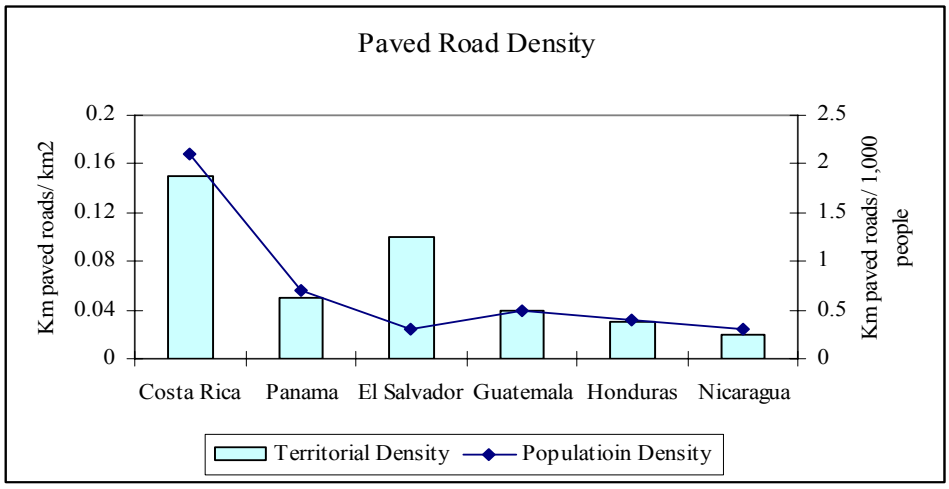
7.134 The sanctioning capacity of the sector's entities has been supported by only a few provisions that have been difficult to enforce. This is one of the most important criteria for the proper performance of the sector entities. As a result they must make reforms or issue laws that provide for adequate sanctions without being a deterrent to investment. This would guarantee the investor that its rights and investments are being supported by an institutional structure that will enforce its ability to control the sector and help it to grow.

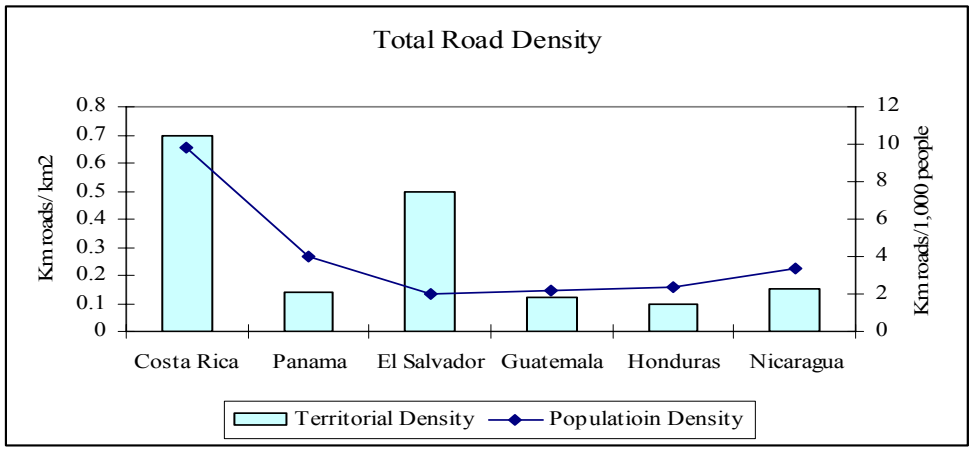
7.135 Lastly, the performance of the sector entities is very limited when there is a procurement law that is geared to the procurement of goods and services but does not adequately cover the means and procedures of private sector participation under other methods different from the concession, leaving the entities with few options. Moreover, given the effort and paperwork involved in obtaining an ad-hoc law for each project with private sector participation in roads, a reform of the procurement law should be carried out or, even better, the separation of the private sector participation into a different legal body should be considered. This would have a direct impact on the performance of the sector entities as facilitators of this private sector participation.

7.136 Highway Development Strategy. The priority highway network of El Salvador includes approximately 5,966 km. It includes special, primary, secondary, tertiary and rural roads that have been determined as being priority. The priority given to this network is supported by the entire program of the FOVIAL - i.e., it is the network highway in El Salvador that can be maintained. The rest of the national network – a total of 4,500 km of local roads – is considered as low use, not easily accessible and not all paved.

7.137 The territorial density of the priority network is 283 km/1000 km2 and 0.88 km/1000 inhabitants, placing El Salvador only behind Costa Rica in terms of territorial density with respect to the population. The priority highway network has indicators of 137 km/1000 km2 and 0.48 km/1000 inhabitants, situating it behind Costa Rica and in last place in terms of density with respect to population.

Figure 7.4: Highway road density





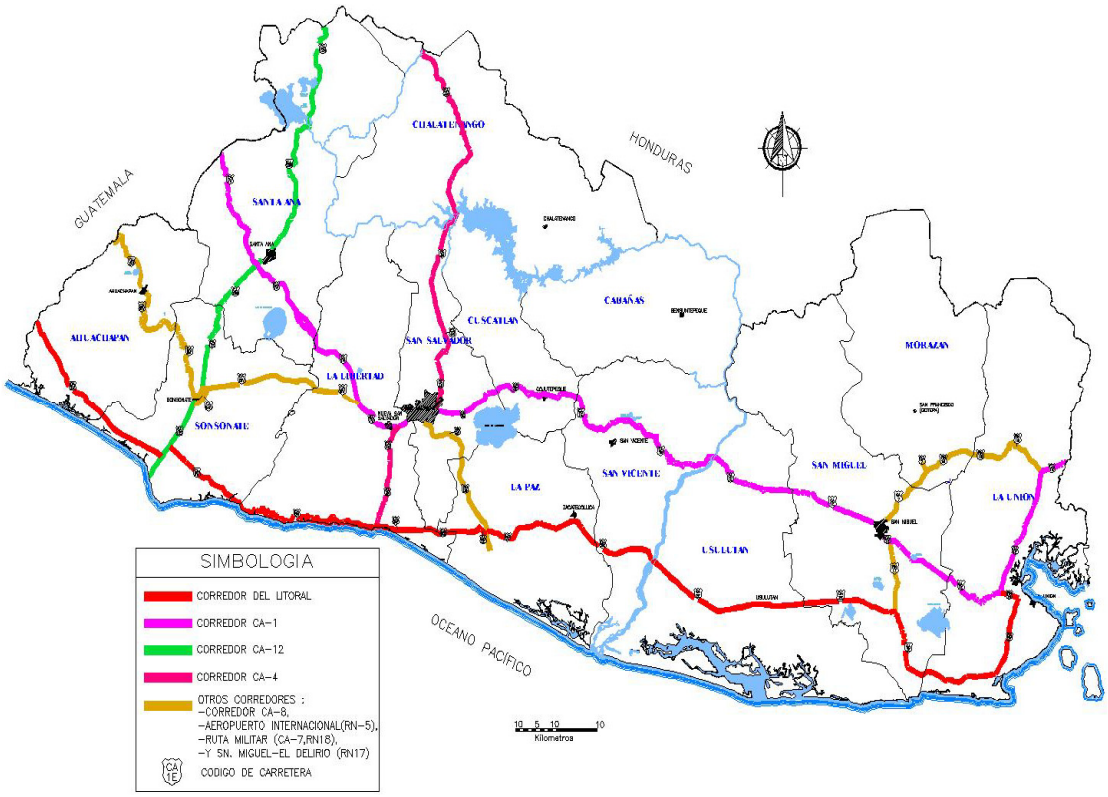
7.138 In both cases it is the population density of the country that constitutes the greatest difficulty for the efficient operation of the national highway network. If this is combined with the vertiginous growth in the number of vehicles, it is easy to understand that the problem facing El Salvador in the future is the optimization of the infrastructure and management of demand.

Table 7.1: Indicators of vehicles 2000-2004

Indicator	2000	2001	2002	2003	2004
No. of vehicles	532,970	559,212	599,776	636,120	679,798
Vehicles x 100Inhabitants	8.5	8.7	9.2	9.6	10.1
Vehicles x km of priority highway network	104.8	102.3	104.0	109.0	113.9
Vehicles x km of paved highway network	244.7	244.7	228.2	219.6	237.5

7.139 Main highway network (international priority corridors). The main highway network is a subset of the priority highway network and mainly includes the Central American highway network (RICAM) and some main routes such as RN-17, RN-18 and RN-5 that constitute the fundamental backbone of the highway network for transporting goods and international connections. This network is in very good condition since it was the recipient of much of the highway network rehabilitation and improvement effort.

Figure 7.5: Principal corridors of El Salvador as of December 2004



7.140 This network crosses the main cities of the departments of San Salvador, San Miguel, Santa Ana, Usulutlán, La Libertad and Sonsonate, and connects the ports of Acajutla, La Unión and the Airport of Comalapa and the main border passes of La Tachadura, El Amatillo, El Poy and Las Chinamas. Its objective is to integrate the national territory, provide connecting routes to the neighboring countries and provide a network for transporting goods. This justified the attention and investment provided over the past years. However, though the design of the roadway has generally been adequate, the overall design of the network is far from achieving its objectives. There are inconsistencies between the design, the management of rights-of-way, and the development that has grown up alongside the network which contradicts its intended function,

7.141 The rights-of-way have been improperly managed, with in many cases illegal occupation being observed, which has resulted in pedestrian activity on the highway or the shoulders. Moreover, residential and industrial complexes have been developed with direct access from the highway network, the design and angle of penetration of which have been poorly designed which reduces highway flow and will cause accidents in the medium-term. If these situations continue and proliferate, they will reduce the original function of the highway to a road of urban character with corresponding congestion and reduced speed.

7.142 These failures are noted in: (i) an inadequate design of the highway, and the number and design of its accesses, (ii) an inadequate original acquisition of rights-of-way for the level of highway that it is intended to be, and as a consequence the deterioration of the functionality thereof, (iii) inadequate handling, regulation and control of the illegal occupation of the rights-of-

way; (iv) inadequate control, handling, regulation, planning of the urban, residential and industrial development of the areas adjacent to the highways, resulting in a disorderly development with future negative impacts on the functionality of the highway; (v) incomplete highway projects that have not maintained connectivity with existing communities at a proper level, obliging the population to use the highway in its length to connect with neighboring communities or to cross it at inadequate points, reducing the functionality of the highway and increasing the rate of accidents.

7.143 On the other hand, the existence of the principal urban areas, ports, airports, and border passes on the network indicates that there will be bottlenecks and congestion - like in any system - in these points first. In other words, the future challenges regarding this network will be foremost in the access, exit and bypass of these areas. It is already the case that a driver of a heavy vehicle on the Pan-American Highway (CA-1) has to drastically reduce his speed and comfort when crossing San Miguel, for example. With the future developments, these constraints will be exacerbated.

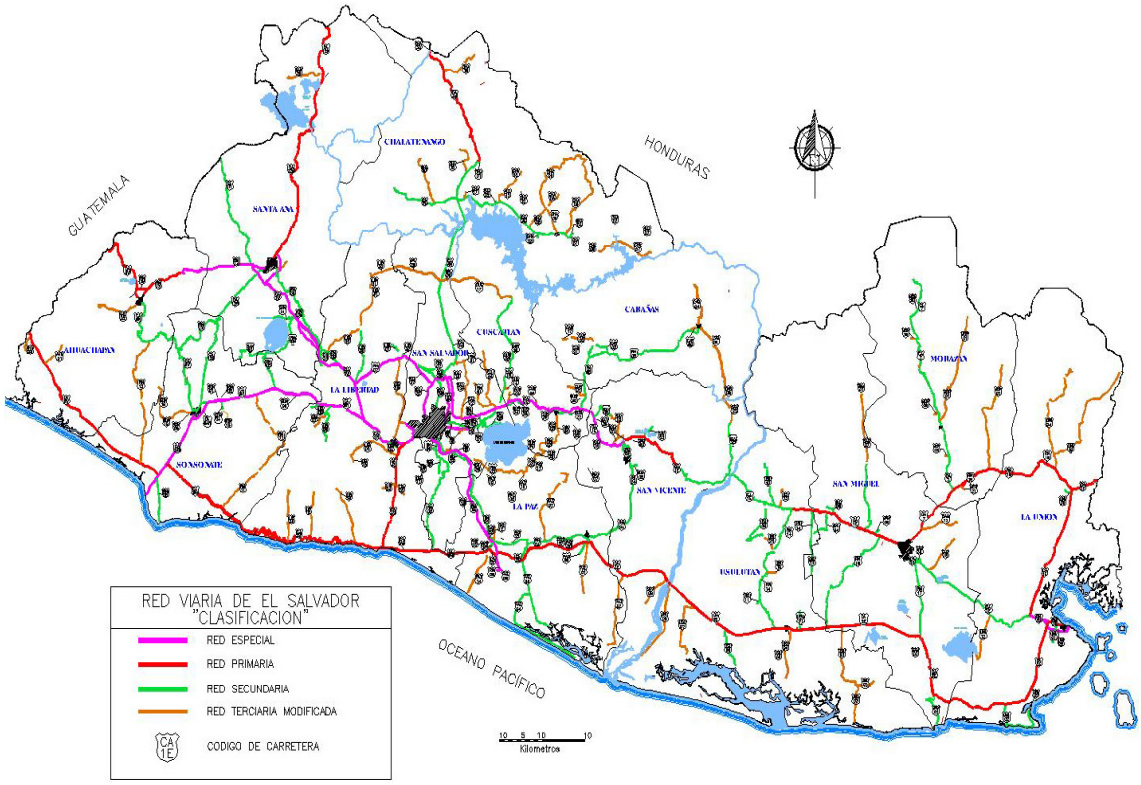
7.144 Main highway network (corridors of national importance). The corridors of national importance include the entire priority highway network with the exception of the aforementioned international network. It includes the paved and unpaved highway network.

7.145 The main paved highway network is in good condition. But it is not uniformly distributed throughout the territory which reflects the proportionate importance of the production centers, as in any country. In the case of El Salvador, however, this also reflects the aftermath of the armed conflict, since it is the departments of Cabañas, La Union and Morazán that have the least amount of paved highway. Their densities are 75 km/1000 km2, 99 km/1000 km2 and 90 km/1000 km2 respectively, versus 307 km/1000 km2 for the Department of San Salvador.

7.146 The main challenge for the country with regard to this network does not involve improving its territorial distribution, but implementing the appropriate level of distribution. Though it is necessary to increase connectivity and access in the departments of the north, the same level of the highways or roads should correspond to their intended needs and functions.

7.147 The unpaved portions of the priority highway network have been very much improved over the past years, with only 1% still in poor condition, and almost 65% in very good and good condition. The departments of Chalatenango and Cabañas have 21% of the entire priority network of the country that is not paved, once again reflecting the disparity in the territorial distribution of the paved or improved network. Though it is certain that the condition of the network has improved to offset territorial disparities, improvement or paving efforts should be concentrated in the departments of Chalatenango, Cabañas, Morazán and la Unión in the next ten years.

Figure 7.6: Paved highway network of El Salvador as of December 2004



7.148 Maintenance. Highway maintenance of the priority network (5966 km) has been carried out by the Highway Conservation Fund (FOVIAL) since 2002, as a result of institutional reform of the highway sector.

7.149 Consequently, the highway maintenance budget has risen from $32 million in 1999 to $80 million in 2004 (today's dollars). Maintenance spending has gone from 27% of total spending of the highway sector in 1999 to 36% in 2004, with a peak in 2003 of 49%. This spending structure - as shown by experience - is the best for ensuring that the highway is maintained in good condition. Moreover, the FOVIAL has been able to maintain remarkable levels of efficiency, only 2% of its budget is dedicated to administrative expenses.

7.150 The spending structure of FOVIAL, however, suffers from two apparent deficiencies that require more analysis and investigation: (i) routine maintenance costs between $5,400 and $6,500 per km/year are in the high range of what is observed in Latin America[43]; (ii) periodic maintenance costs are in the high range and have significantly changed in the years that the FOVIAL has been in operation; (iii) the current and historic budget does not appear to be sufficient for the level of maintenance being provided.

7.151 If FOVIAL sets a goal of being able to perform routine maintenance at the average level in Latin America, or around $4,000 per km/year, a minimum annual budget of $24 million is

[43] In Brazil in 2003, $4500 per km/year, in Bolivia $2100 per km/year, average data in Latin America $3975 per km/year for paved roads, $4275 per km/year for unpaved roads

needed for the routine maintenance of the network. This does not include emergency work that still must be budgeted for and for which it is difficult to establish goals.

7.152 If FOVIAL sets a goal of being able to perform periodic maintenance at the average level in Latin America, or around $120,000 per km/every 5 years, for the paved network and $50,000 per km/every 5 years for the unpaved network, a minimum annual budget of $102 million is needed for the periodic maintenance of the network. That does not include rehabilitation of structures (bridges, etc.) which still must be budgeted for.

7.153 With a gradual increase in the costs of FOVIAL, the minimum maintenance budget for the current network is $126 million per year.

7.154 To guarantee the effectiveness of FOVIAL, serious thought needs to be given to the budget of FOVIAL and its evolution and to the emergency activities and how to finance them. In the medium term, FOVIAL could begin a gradual experiment with performance-based maintenance mechanisms at a level adequate for the possible spending and the required results.

7.155 Highway strategy for the future. Having come up with a diagnosis and identified the constraints, and taken into account the country's focus on the development of logistics activities, it is crucial to clearly develop the strategy that has been set out, define the goals and prioritize the actions and projects that will help to achieve these goals.

7.156 The national strategy and the deficiencies in the highway network indicate that a possible strategy is two-pronged: (i) identification and development of logistics corridors; (ii) improvement of the distribution and connectivity of the highway network.

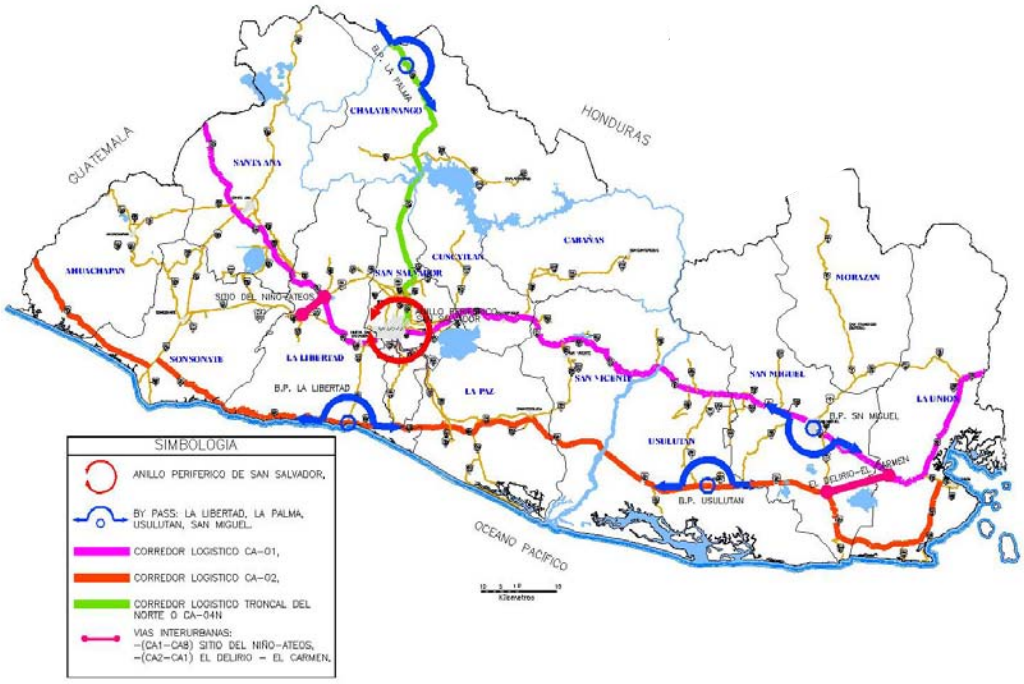
7.157 The strategy supposes the definition of a limited number of logistics corridors for which a series of investment and monitoring programs are to be developed, some of which exist and others will have to be developed. The objective is to ensure the quality, functionality and conditions of the corridor over time for the transport of goods and at a high and constant speed in conditions of safety both day and night.

7.158 This objective means defining: (i) an investment program in infrastructure to optimize the proposed corridors and improve the existing ones, which means improving and creating by-passes and beltways; (ii) an integral improvement and conservation program of the functionality of the corridor, which implies various subprograms (a) acquisition, management and improvement of the right-of-way and improving safety aspects and reducing operation; (b) physical and geometrical improvement of accesses: reduce the number of accesses, organize them to reduce interference with regional traffic and improve angles of access; (c) improvement of signaling, lighting and auxiliary works to improve day and night safety. (iii) an integral medium- and long-term program to separate international traffic from local traffic. This must involve the development of a local network away from the logistics corridor highways to avoid its unnecessary use by local and pedestrian traffic; (iv) a long-term program for improving standards and designs; (v) develop the capacity of institutional planning and inter-institutional coordination to limit and organize development along the logistics corridors; (vi) development of legal, institutional and control instruments to develop a maintenance policy of the operability of the highways

7.159 The MPW has identified projects that focus on the direction of this strategy, but there are no programs that are crucial for ensuring the optimization and conservation of the corridors. The development of these programs will require time, capacities and significant investment that has

not even been contemplated. The execution of the investment projects without the proposed programs will not give the expected results. In turn, the level of total investment may be high, as a result of which the MPW must analyze the entire situation and decide on priorities before executing the investment program in an isolated manner.

Figure 7.7: Logistics corridor and required investment programs



Notes: Bypass: La Libertad, La Palma, Usulutan, San Miguel Logistics corridor CA-01
Branch logistics corridor of the north Intercity highways: - (CA1-CA8) Niño Ateos; - (CA1-CA2) El Delirio – El Carmen

7.160 The objective of the second strategy proposed is to reduce the disparity of coverage of the paved highway network in the departments of the north of the country by improving their accessibility to the Pan American highway and by establishing a highway density equal to the national average. The goal accordingly is the national average in terms of paving.

7.161 To reach this objective, it is necessary to: (i) continue with the rural road programs; (ii) in the mid term, develop the north longitudinal as a secondary road.

Figure 7.8: Highway accessibility to the North of El Salvador

Note: North longitudinal Main highway network of El Salvador

Service to Land Transport

7.162 *Overview of the sector.* Transport and logistics services represent a fundamental instrument of the policies of economic development and integration of the territory, as they are crucial elements for the development of the economic and social activity and are an important sector of the national economy.

7.163 The trucking sector of El Salvador is estimated as being comprised of 10,000 companies, of which 1,112 are members of the labor union *Asociación Salvadoreña de Empresarios de Transporte de Carga* (ASETCA - Association of El Salvadoran Freight Transport Companies), with 6,000 registered units. The remaining 8,900 micro businesses that are not associated have a total of 12,000 units.

7.164 Of the 250,000 vehicles registered as trucking vehicles, only 24,000, or 9.5% of this total, are intended exclusively for transporting cargo by highway. It should be noted that only 1% of the fleet is between 0 – 5 years old, which indicates that these services are provided by a relatively old fleet.

7.165 According to its size and operability, the companies that provide transport services by highway can be classified into two types: there are approximately 100 large transport companies, with fleets between 20 and 150 units including crossheads, skid shoes, vans, hogheads, Lowboys, containers and chassis, that are subdivided into: container carrying companies of which there are approximately 12 that invest in equipment, infrastructure and organization, with which they

provide an efficient service to shipping companies in the handling of their containers; and the large domestic and international cargo handling companies, made up of 90 companies and the small individual carriers who represent more than 85% of the market, in terms of people as well as vehicles.

7.166 Trucking services are controlled and regulated by the Bureau of Land Transport (DGTT) which is under the Office of Land Transport (VMT). Highway traffic is regulated by the Law of Land Transport, Traffic and Highway Safety. This law imposes restrictions on the weight and dimension of vehicles, established in the Central American Agreement on Highway Transport, in effect since June 10, 1958.

7.167 Due to the lack of a framework that regulates trucking services, shipping companies are obliged to demand certain standards according to their own criteria.

7.168 To set their prices, carriers are influenced by the operating cost of the vehicle (COV) which includes: (i) the cost of fuel and lubricants, the cost of tires and the cost of maintenance and repair to the vehicle; (ii) the time invested in moving cargo from one point to another; (iii) one-way carriage.

7.169 The main problems affecting the sector include: a dispersed market, too little organization among the individual companies, the lack of a legal framework to regulate the operation of the services based on technical requirements, the relatively old fleet and the lack of highway safety. Accordingly, rules need to be approved that would make it possible to establish a foundation with integrated, efficient and competitive transport, aimed at reducing the number of "men/truck" or "units," facilitating means, guarantees and incentives so the individual carriers can form an association and work together with other carriers. Professional training is indispensable to keep up with the current changes and to create a framework that will truly regulate the operation and condition of the units and the professional development of the sector.

7.170 *Recommendations.* Ultimately, this situation of oversupply in a segment and a concentrated demand results in the price of the land freight not covering the actual costs. Service is frequently provided for a price below total costs. Operators tend then to not cover fixed costs and only cover variable operating costs, which results in the nonpayment of taxes and social security contributions, deterioration of the units due to lack of maintenance, nonpayment of credits on vehicles, no depreciation of vehicles, etc. Finally, this leads to increased informality and an unsustainable situation for trucking operators. International cargo trucking companies tend to be more formal and not to have this situation to such a degree because they provide services to a limited number of clients that ensure them exclusive contracts for a segment with limited competition.

7.171 The improvement of sector performance requires the development of a policy for the trucking service industry that without regulating prices, makes it possible to:

- Establish sustainable conditions of trucking service provision;
- Establish conditions of legal competition among carriers;
- Establish conditions of traffic safety, limiting external factors.

7.172 The development of this policy could make it possible for price levels of the fleet to increase to a reasonable level with regard to the cost, for conditions of fair competition to be

developed, for tax collection and social security contributions to increase and safety conditions in the traffic of heavy vehicles improved.

7.173 The increase in the trucking freight transport cost will not mean a loss for the senders since they clearly pay hidden costs due to the lack of reliability and informality of the carriers, and resulting delays, losses and damages. The result of this policy would be a transfer of costs or internalization between hidden costs to the direct service costs paid for the land transport freight.

7.174 The proposed strategy includes three principal axes: (i) minimum quality, safety and control regulations; (ii) incentives; and (iii) development of capacities.

7.175 The strategy will be implemented over time and its own development will depend on the accumulation of capacities in the sector to go to successive phases.

7.176 Regulations and control. The land transport sector lacks a legal framework that addresses the profession rather than one that just grants licenses or permits. It also does not have a law that regulates the operation of vehicles on the basis of technical evaluation of the vehicles. There are no standards related to how long a driver can be on the road and how long he must rest, which affects his safety and that of the equipment and the products he is carrying.

7.177 The difficulty with regulations is to what extent the authority can actually control them, on the one hand and on the other whether they correspond to real market distortions and are not solely for imposing preferences that do not correspond to market dynamics. Accordingly, the proposed regulations will evolve with the capacity of the regulating entity, in this case, the VMT.

7.178 Legal. It is proposed that the same regulations for entering the market of international cargo trucking services be adopted for the domestic market in the initial phase. At a minimum, the presentation of a tax payer and tax solvency certificate. And proceed with the harmonization.

7.179 In a second phase in the medium-term, the goal would be the formation of all operators into companies and a minimum share capital requirement. The corresponding regulation would be introduced, when appropriate, along with an incentive indicated below.

7.180 Technical/operational. A maximum vehicle age should immediately be required for entry into the market. This variable should be broad at the beginning and become stricter with the evolution of the sector.

7.181 In the second phase, a maximum age should be imposed to the circulation fleet and the application of the minimum safety conditions to all vehicles.

7.182 Safety. The operating requirements for safety of the vehicles should include minimum safety characteristics such as new tires, satisfactory technical service, etc., and should be imposed immediately upon entry to the market and be randomly checked as soon as it is possible to do so and there is a program of incentives.

7.183 The negative external factors should be limited, and progress should be made toward sector formalization.

7.184 Development of qualifications. Technical qualifications should be improved in the sector for operators and in regulation and control. To this end, the following is proposed:

7.185 The Office of Land Transport (VMT):

- Acquires more personnel and capacity in this sector;

- Develops an indicative table of land freight transport prices based on a vehicle considered to be the ideal for the sector and taking into account formal business practices, payment of tax and social security contributions, preventive maintenance, vehicle depreciation, payment of credits, payment of insurance, insurance on the transported cargo. This table should be published on the webpage of the VMT with access to all those involved, indicating that this would be the average transport freight price that could be charged in ideal conditions. This information has been used in other countries as a goal for the transport operators and as indication to clients.

- Develops capacity gradually to effectively control the entry into the market.

- Works with Public Works to make the weighing scales work properly, particularly on the logistics corridors.

7.186 Operators:

- The government, with the Chambers of Commerce, Chamber of Carriers, should continue to promote training and information development activities on topics of transport operation.

- The VMT, with the Chamber of Carriers and/or the Chamber of Commerce, could create a program to support the small carriers to help them improve their competitiveness – through the training up to the formations of companies, training on operating costs, training in the legal and regulatory framework.

7.187 Incentives. The reduction of external factors and the sustainability of the trucking industry require a balance of supply and demand. When trying to formalize the activities of all those involved, an internalization of costs should result in less efficient operators dropping out. However, the lack of alternatives to selling or liquidating an old fleet limits this outflow. Accordingly, the GOES could develop a program whereby the oldest and/or least safe vehicles are scrapped, which would be accompanied by an intensification in the control of these characteristics. The program should contemplate the seizure and immediate destruction of vehicles that are considered as not meeting the minimum limits established, or their purchase. More detailed studies should be conducted to determine this mechanism more specifically.

7.188 Secondly, a small business program should be developed that helps small carriers formalize their business with the aforementioned training workshops and a support program that helps them with business procedures.

7.189 This program should be accompanied by an incentive such as tax exemption (VAT for example) for companies or individuals that are current with their tax obligations and tax registry. Another specific study, with discussion with those involved should be held to determine the most appropriate incentive mechanism.

7.190 In any case, the definition of the incentives should be within a framework of compensating formal and efficient operating practices, and not use incentives that perpetuate inefficiency. It is therefore recommended not to finance or facilitate the purchase of vehicles for

the private sector; this has produced negative effects in many countries and tends to compensate inefficiency.

Urban Transport

7.191 *Overview of the sector.* This report delivers a vision of the transport system of the metropolitan area of San Salvador. The purpose of this study is to analyze the conditions of sector performance and evaluate its developments within the framework of its ability to improve the competitiveness of the city and its distributive impacts.

7.192 With regard to the performance of the urban transport sector and in particular the public transport service, there is a high rate of impact on the population's quality of life and on the social and economic access the lower income population has to job and social opportunities. This sector is probably a very accurate reflection of conditions of urban life, social fairness and progress.

7.193 The study also presents a review of the performance of the public transport sector in other cities to evaluate and compare the performance in San Salvador. The conclusion from this analysis and the data gathered on sector performance is extremely mixed insofar as the quality of social insertion and urban competitiveness are concerned.

7.194 Indeed, from the social accessibility standpoint, it has been observed that the public transport system of San Salvador is highly accessible to city residents who depend on this service to get around. Prices are reasonably accessible for users and are particularly inexpensive for Latin America.

7.195 However, this accessibility comes at the price of a very low quality of service, even by Latin American standards, which negatively impacts the operation of the city and its quality of life, making it uncompetitive at the regional level.

7.196 Moreover, this imbalance can be costly in the mid- and long-term. Though the rates make it possible for lower-income users to access the service, the condition of deterioration and urban impacts can end up causing a higher level of inequality. The symptoms detected do indicate that gaps in these forms of transport are widening, with lower-income sectors depending on a cheap, but poor quality service, while medium- and upper-income levels increasingly use the automobile. In 1995, there were 120,000 private cars, while in 2004, that have been reports of 320,000, which represents a definite increase and a high level of migration from public transport by those who can pay for a car; car use has gone up from 21% to 29% in this period, while use of the bus public bus has dropped from 75% to 69%.[44]

7.197 In these conditions, the circuits of the individual car and public transport are differentiating themselves even in intra-city use. While the downtown and eastern areas evidence a high level of deterioration and poverty, the south/west has experienced a concentration of high-income and new residential and business development, increasingly more dynamic and autonomous. The risk of a city split in two will end up creating costs for everyone, due to the deterioration of the environment, loss of competitiveness and due to an increasingly marked segregation that is not functional and does not foster economic growth.

[44] 2004 data of the Municipality of San Salvador, reported in "Transport and Municipality", World Bank/Municipality of Santiago, Santiago, 1995

7.198 Competitiveness and Social Issues. This analysis shows that the public transport system of San Salvador is caught between the search for a system accessible to the population and a regular, higher quality service, resulting in economic and financial balance for the operators.

7.199 This situation is the result of an authority that on one hand, seeks to contain fare increases at all costs, assuming problems that accumulate in the medium- and long-term through growth of external factors such as congestion, contamination, lack of safety and urban deterioration.

7.200 On the other hand, the transport business is at a subsistence level for the operators, who are continually concerned about the prospect of losing their source of income or its profitability, which makes them highly conservative with regard to their activity and how they exert pressure on the authority.

7.201 Accordingly, the only solution for which there is a consensus is that the activity should be supported without criticism, i.e., without making changes in the operation and management. The contemporary experience in Latin America shows that there are prospects for improvement, even without changes being made in the transport operator identity as took place in Bogotá and in Quito and as projected in various other cities of the region with strong acceptance and participation of the traditional operators. However, this requires delicate political maneuvers on the part of the authorities of El Salvador, who up to now have shown no inclination in this regard.

7.202 Faced with this situation, the spontaneous reaction of the most dynamic sectors of the city is to create better living conditions to support their business through new urban developments, that they are trying to separate from the degraded reality offered by a public transport system that can operate with a low level of revenue, but is of poor quality and a symbol of the deteriorated quality of life.

7.203 The actual loss of certain areas in the city is an attack on urban and economic stability and efficiency. In addition to the costs brought about by the poor transport and the congestion that is generated, the split circuits generate other problems for the city: citizen safety, economic stability and urban efficiency appear to be problems that cannot be resolved without an adequate treatment of the transport sector.

7.204 As has been seen, there have been various projects for public transport, with specific proposals for improvement that appear to focus on the correction of some essential aspects of the problem. However, for various reasons, none of them have been able to materialize and there are no prospects of this happening unless there is a change in the political will of the authorities and operators.

7.205 The city needs a radical transformation of the system that does not leave out the current operators, but one that inspires trust with regard to its implementation and saves political costs. This, however, will require various central issues being resolved.

7.206 First, it is necessary to create clear rules in the sector, that inspire trust in the current operators and that invite new entrepreneurs to contribute their administrative expertise to this activity. To this end, contract forms should be prepared that are sufficiently clear with regard to the duties and rights of the operators and the authority; the object of the contract and the negotiation must be adequately identified, in order not to lose sight of the central activity for which stability and favorable conditions are being created (e.g., in the time of the gas subsidy, the main business for the operators was to collect subsidies and not necessarily provide a good service).

7.207 Secondly, it is necessary to develop clear selection mechanisms so that there is no arbitrariness or risks of losing the negotiation for reasons not related to the operations. These rules should at the same time introduce adequate incentives that objectively recognize the entrepreneurial initiative in the selection of operators: preference for formal companies over precarious organizations; preference for newer fleets, for larger vehicles, for larger organization and formality in the service provided, etc.

7.208 Lastly, it is necessary to again take up the major management topics: conditions should be created so administrative efficiency is promoted versus pressure on authority; efficiency should be implemented to reduce costs over demands to increase fares; collaboration and complementarity should be pursued among companies rather than competition between operators; over the precariousness of contracts the objective determination of their duration, and the amortization of the investments with their appropriate profitability should be considered; and lastly, the objectivity of regulations and explicit contracts and strong institutional support should be placed over arbitrary regulation.

7.209 In any case, these aspects are implicit in the proposals formulated in different projects. It would appear that the government has failed to make the decisions to bring about the necessary changes that at these levels are known and proven in Latin American cities.

7.210 *Recommendations.* The analysis conducted herein has made it possible to identify some lines of action for the future. This mainly means management steps that require minimum investments and that are part of various proposals that have been set forth with respect to the sector under examination and previous projects.

7.211 The aspects that have been selected are those that could be feasibly implemented due to their simplicity, that can generate positive results in the short-term and that can be a condition for generating opportunities for further improvements.

7.212 Geared toward working out the transportation problems of the city, we propose cutting back some of the collective transport that through an operational upgrade would enable an improvement and qualification of the downtown area, clearing up congestion on the roadways of downtown areas of the city, intervening on its principal corridors.

7.213 The starting point of this intervention involves creating and consolidating the transportation terminals: a system of intermediate stops by public transport vehicles will limit entries of buses to the downtown area. Starting with these terminals, which in the past have been barriers to the free flow of traffic in the downtown area, it is proposed to turn some of the downtown routes into public transport corridors through their improvement. For entrance into this sector, the authority must grant additional “premium”-type concessions to those operators that voluntarily wish to have access to this more profitable operation, for a limited period, provided they meet the extra requirements for the improvement of the service, of the type of quality of vehicles, method of operation and adhesion to the standardized rates among operators.

7.214 The terminals proposal consists of building different types of facilities around the downtown area, with characteristics adapted to each type of service in order to limit the number of buses that traditionally enter the area. First, facilities shall be identified and built for stops of routes that have an end within the downtown area; routes should be reconfigured to avoid going into the downtown area and locate their end outside of it. Secondly, stations where it is possible to change modes of transportation shall be qualified for interurban services that travel and go

around the city with no stop. Lastly, traditional terminals should be identified and authorized for service to other departments.

7.215 Each of these types of facilities will have specific and clear standards for their installation, with regard to operating standards and the regulations of location and construction. Care shall be given to their proper location, design to ensure efficiency during operation and safety for the users of the transport and on the roadway and have associated a method of integration, i.e., of correspondence with its network of transport services of the AMSS.

7.216 Based on the location of these terminals, some of the streets of the downtown area would be identified, where special travel conditions would be implemented for buses, with priority over the rest of the traffic, and in some cases with segregated lanes. A priority network of public transport would result, north/south and east/west within the downtown area, connected with the terminals. This priority network would be subject to an improvement through interventions in the pavement, the sidewalks and the crossings. In addition, within said network, improved bus stops with a design and quality adequate to the improved services would be added.

7.217 The downtown priority and improved network would be operated by the services that voluntarily sign the Premium contracts, with fixed-time concessions (5 years) subject to conditions of improvement in the quality of the services. These contracts are not opposed to the traditional for the entire sector. A condition to access the Premium contracts to have a traditional concession contract and fulfill certain additional requirements with regard to the rolling equipment (maximum age of the fleet not over 10 years, large-size buses, periodical technical inspection system) method of operation (services with integrated rates, respect of the stops, speeds controlled of traffic, service hours and frequencies established and respected) and entrepreneurial organization (entities with executive control and total of the fleet committed, independently of the ownership). In exchange for this, these operators will have better operating conditions with higher profitability, more speed, ensured demand and guarantee of non-entry of other operators.

7.218 The facilities to be built, the terminals and the bus stops in the stopping points may be implemented under a scheme of concessions to the private sector, that shall build, operate and finance said facilities, obtaining its income from charging for the operation and to the operation and the additional businesses that may be allowed (commerce, publicity, services, etc.).

ANNEX 1

Initiatives to Reduce Fix-to-Mobile Charges:

In July 2003, the European Commission promulgated guidelines for its member-countries to initiate a review of the status of competition in their telecommunications market. Partly as an answer to these guidelines, some of the EU countries started reviewing their mobile telephony market. The United-Kingdom, France, Italy, the Netherlands and Portugal opted for a reduction of the termination charges over their mobile network, through an RPI-X-type regulation. By contrast with those countries, Germany decided not to impose reductions to that same charge in a close future. In Latin America, Peru, after reviewing the fix-to-mobile termination charges, agreed with the operators to a reduction of these charges in exchange for not imposing a specific regulation to the sector. In Colombia, recently, the regulatory agency promulgated a document in which they reviewed the fix-to-mobile charges and proposed mechanisms to improve information to users as well as proof of allegations, as a first remedy to the high level of said charges.

Below is described how some countries have approached the termination over mobile networks issues.

United Kingdom
In 1998, the then Commission of Monopolies and Mergings (today called the Competency Commission) found that the charges for call termination over Vodavone's and Cellnet's networks (hereafter called O2), the two major mobile operators in the country, were too high in relation to its costs, and that this situation was against public interest. In 1999, OFTEL, United Kingdom's regulatory entity, imposed a control through price caps with a discount rate for productivity of 9% annually, to be applied until March 2002.

Between 2000 and 2001, OFTEL conducted a review of the controls executed on Vodafone and O2 and of the general level of competition in the call termination over mobile network market. At the end of this study, OFTEL proposed that the termination charges of the four mobiles operators (Vodafone, O2, Orange and T-Mobile) be reduced by a discount rate of 12% annually until March 2006. This was rejected by the mobile operators, and the matter was brought before the Competency Commission in January 2002 for consideration.

In January 2003, the Competency Commission presented a report with the following conclusions:
- the charges for call termination by the four mobile operators are against public interest,
- current charges for call termination are 30 to 40% over sensible rates,
- consumers pay too much for fix-to-mobile and mobile-to-mobile calls,
- high charges for call termination discourage consumers to make calls to mobile phones,
- consumers calling to a mobile phone from a fix network or another mobile network are unfairly subsidizing other subscribers who mainly receive calls or make calls to subscribers of their same network.

Therefore, in the above mentioned report, the Commission recommended that:
- each mobile operator reduce its termination charge by 15% until before July 25 this year.

- O2 and Vodafone's charges be subject to price caps regulations with a discount factor of 15% annually between 25 July 2003 and March 2006.

Orange and T-Mobile be subject to price caps regulation with a discount factor of 14% annually from July 25, 2003 to March 2006.

France

In November 2001, ART, France's telecommunications regulatory entity, imposed a mandatory reduction on fix-to-mobile call termination; Orange and SFP were the firms who had to meet with this measure. ART also considered that these operators had significant market power in terms of interconnection processes.

Orange and SFP were forced to reduce their charges for fixed-to-mobile termination by a rate of 40% over three years. Until January 1st, 2004, the said charge was to decrease to an average of 14.94 cents of an Euro. In September 2002, Orange and SFP sent their proposals about their prices planned for 2003, which ART deemed satisfactory.

Italy

In March 2003, Autorita per Garanzie nelle Comunicazioni, Italy's telecommunications regulatory authority, announced its decision to establish a maximum charge for termination of fixed-to-mobile calls. Telecom Italia Mobile and Vodafone Omnitel, who operates 1st and 2nd generation, were to meet the measure.

The top cap for call termination was fixed to 14.95 cents of an Euro per minute. This top cap was to become effective in the next 30 days after adoption of the decision by the Italian regulator. The fixed operator, Telecom Italia Mobile, was to inform its consumers about the new tariff for fixed-to-mobile communications within the next 30 days after the effective reduction of the termination charges.

The Netherlands

In March 20025, OPTA, the Netherlands' regulatory authority, issued its policy guidelines on termination charges for calls on mobiles networks. Based on these guidelines, it was decided that mobile operators should reduce charges down to level equivalent to those of the best European tariffs.

This reference tariff is obtained by calculating an average of the termination charges of the most prominent mobile European operators, not subject to cost-oriented regulation. This tariff reduction should be implemented around April 2003.

Portugal

In May 2002, Anacom, Portugal's telecommunications regulatory entity, decided to intervene in the termination-over-mobile-network market, fixing a maximum rate intended to become a basis for interconnection contracts between mobile operators.

The maximum price for mobile-to-mobile call termination charges was set up at 18.7 cents of an Euro per minute, and entered into force on June 30, 2002. This amount was calculated based on the average of mobile-to-mobile termination charges of firms from the European Union countries. Mobile operators were forced to execute agreements on their termination charges in the next 10 days following the announcement of the measure.

Peru
In 2000, the regulatory entity OSIPTEL established, based on an international benchmarking of mobile termination charges, a maximum charge for termination over mobile network of USD 0.186 per minute, including calls originated on a local fixed network. This maximum charge, planned to enter into force on 1st January 2001, was immediately reevaluated by the regulatory entity to be finally established at USD 0.2053 per minute. Additionally, its area of application as mobile termination was restricted to only long distance and local calls originated on fixed-network public phones. This way, the fixed-to-mobile charge was freely established by mobile operators.

Recently, at the end of August 2004, OSIPTEL published the document "Regulations for Fixed-to-Mobile Calls", in order to evaluate how mobile operators establish charges and tariffs for fixed-to-mobile. This document contains a new benchmarking of fixed-to-mobile charges and tariffs, and it was proposed to reduce tariffs from USD 0.0069 per second to 0.0049 per second, sales tax included. To reach this objective, OSIPTEL considered a gradual procedure of tariff reduction including three phases of six months each. To date, the first phase is completed.

It is important to note that OSIPTEL warned mobile operators that if the industry didn't execute voluntarily this reduction of the fixed-to-mobile tariffs, OSIPTEL would enforce a direct regulation of this tariff.

Colombia
Recently, the regulatory entity of Colombia, CRT (Telecommunications Regulatory Commission), published the document "Analysis of the fixed-to-mobile communications market". In this document, CRT proposed the following as a first step to the reduction of the fixed-to-mobile tariffs:

i) increase available information about fixed-to-mobile tariffs to both fixed and mobile subscribers, and
ii) complement the previous instrument (information) through imposition of a charge for mobile termination estimated between USD0.07937 and 0.1237 per minute.

A second step proposed, to enter into force in case none of the above would result in a tariffs reduction, would be direct regulation based on:
i) direct regulation of the charges for mobile termination, and
ii) direct regulation of the fixed-to-mobile tariff, that should stay closed to USD 0.1661 per minute, according to CRT estimations.

Sources: (1) Australian Competition & Consumer Commission, Mobile Service Review 2003, Australia, April 2003; (2) Telecommunications Regulatory Commission, Analysis of the fixed-to-mobile market, Colombia, March 2005; (3) OSIPTEL. Regulation of fixed-to-mobile local calls, Peru 2004

ANNEX 2

Dial-Up Internet Access Alternatives

Internet dial-up modalities in Latin America vary from being considered in some countries as a value-added service not subject to regulation, to being treated in other countries as a fixed telecommunication service subject to a general top cap regime or special tariff regime.

According to AHCIET (Hispano American Association of Investigation Centers and Telecommunications Enterprises), the following models of dial-up Internet access can be found in Latin America:

(a) Without specific regulatory consideration
This refers to a set of countries in which there is no specific regulation regarding dial-up Internet access service, or where this service is simply considered as a value-added service and therefore, from the perspective of the use of the Public Switched Telephone Network (PSTN), it corresponds to a deregulated service using the telephone communication as a transportation: there is no differentiated PSTN tariffs, no special numbering, general interconnection conditions apply and the IP traffic is not differentiated on the network. This model is found in Bolivia, Brasil, Costa Rica, Cuba, Ecuador, El Salvador and Paraguay.

(b) Considered a value-added service within an overall environment of flat rates
This is the model chosen by Puerto Rico, country that follows the federal regulation of the USA, and therefore, the general principles into force are those of the FCC (Federal Communications Commission), namely dial-up Internet is considered an information service, not subject to specific regulations. The peculiarity of this model is the treatment as local user given to the ISP, which is why the traffic generated by users to access the Internet is not subject to any other additional charge, but is part of the local traffic covered by the flat rate. In this model, only the ISPs with a presence in the users local area can be accessed, (that is, those with a local Point of Presence).

(c) "Free ISPs" Model
In this model, the Internet access service is remunerated with part of the telephone service tariff, and no additional charge is paid, hence the name of "free ISP".

This model emerges when the voice interconnection model is applied to remunerate the termination of IP traffic, in the case of ISPs connected to operators others than the one of the telephone user who originates the call. As the ISP's connection to the network of the destination operator may not request a loop, there is less consumption of network elements. Therefore, the access charge charged by the destination operator is enough to remunerate both the destination network operator and the ISP. This way, since the ISP already received its remuneration from the destination operator, it may not charge to the final user the quota corresponding to the ISP (though the final user must pay the rate for telephone traffic he generated). This functions at local access level. This model is fairly developed in Argentina and Chile.

(d) Voluntary discount to final users in telephone traffic used to access ISPs

The most illustrative model could be Argentina's 0610. This is a model voluntarily proposed by the incumbents, aiming to offer discount to the end-user (namely around 50%) on dial-up Internet access. This model consists basically in a special number identifying participating ISPs. This way, the IP traffic generated can be identified and transported in a different way than vocal communications, which allows a more efficient management of the network and a lesser use of technical resources. It applies only to ISPs with a local presence and connected to the network of the operator offering the discount. Therefore, there is no interconnection of operators for IP traffic, excepting the "Multiple Area" of Buenos Aires. There were two operators in this city at the time this model was implemented (with separated service areas), and they came to an agreement through which a user of either of them can access an ISP connected to the other operator. Since there is presumption of symmetric traffic, there no liquidation of IP traffic between the operators. Additionally, up to a certain level of traffic, the cost of transit is not transferred to the end user, nor to the other operator. This can also apply to Venezuela, with its model of access under flat rate (quota independent of generated traffic, that is, of the length of connection to the Internet) for ISPs connected to their own networks. If an ISP connected to another operator wants to benefit from a similar plan, the end user must pay the flat rate plus the cost of terminating call on the network of the operator connected to the ISP (number of minutes for the access charge).

(e) Colombian model of special conditions of access imposed by the Regulator

In this case, the regulator imposed reduced tariffs for calls towards ISP identified by a special numbering (947-xxx.xxx). Furthermore, PSTN operators have the obligation to offer at least two flat rates. If an ISP connects to an operator other than the one to which the user belongs to, the termination of traffic on the destination network is not charged (this is known as "Bill and Keep").

(f) Homogeneous national access model

The most representative example is the model known as Infovía, applied in Peru, a country that stands out for its dimensions. In this case, the incumbent created a special network to connect all the ISPs interested in benefit from this access modality, and users, regardless of their geographical position, can access any ISP for the cost of an urban communication. To identify the ISP accessed in this way, there is a special numbering.

In Costa Rica, a model conceptually similar exists, with a special number used to access the ISP from any point of the territory for the cost of a local call.

In Bolivia, the long distance operator offers an access that could be included in this paragraph. In this case, the operator offers a special and homogeneous rate to access the ISPs not located in the end user Local Area. Likewise, it is treated as a long distance communication. The ownership of the call belongs to the long distance operator, who pays originating charges to the local operator.

(g) Special connection/interconnection modalities of the ISP

This model acknowledges a different category of remuneration to the originating telephone network, according to the destination network of the communication. There are two types of remuneration, namely:

Access charge (AC), if the communication is transferred to an ISP connected to the carrier or long distance network, equivalent to 26% of the rate for Local Measured Service (LMS). It is

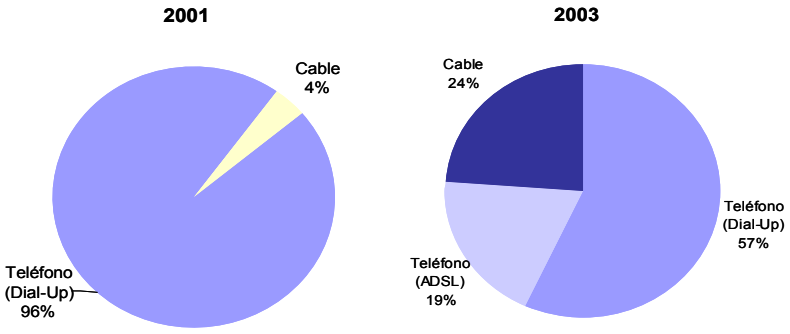
applied to long distance and other local operator calls. Therefore, if the ISP connects to another operator, the incumbent receives an AC.

Local stretch (LS): if the communication is transferred to an ISP connected to the incumbent's network, equivalent to 43% of the LMS. Useful for certain type of communications, in particular for access value-added services. If the ISP positions itself in this modality, the incumbent receives LS. Therefore it happens that a same communication can be remunerated in two different ways, depending on which network the ISP is connected to.

Experiences of Dial-Up Internet Access in Countries with Special Access Tariffs

Peru:
As shown in the diagrams below, in 2001 the provision of residential Internet in Peru was executed from fixed telephony (dial-up), and in a lesser extent, through cable. The offer of special dial-up rate plans by the fixed operator increased significantly the use of the Internet and promoted the offer of new accesses from cable and ADSL. However, it is to be noted that dial-up is still an important source of access to the Internet for residential users, whence the importance of establishing special tariff plans.

Access Types in Peru



Source: Apoyo Consultoría

Argentina
There is a model of special access that, in the case of access to ISPs connected to the incumbent's own network (TASA and Telecom), benefits from a discount of around 50% on telephone rates. However, this is a voluntary offer by the operators, authorized but not imposed by the regulator.

Colombia and Spain

There is a regulatory requirement to offer differentiated tariff for use of network, either flat or reduced rates.

Chile
According to the model of connection to PSTN adopted by the ISP, it can be considered as a value-added service or complementary service, and thus the application of the general regulation in force to interconnection leads to a use of the fixed network being remunerated differently than LMS.
Source: AHCIET. Permanent Regulatory Commission, Dial-up Internet service in Latin America

ANNEX 3

	Conclusions and recommendation	Priority of the changes (high/intermediate)	Expected degree of difficulty in the implementation (high/low)
	Decentralized systems by formal process of ANDA		
1	Revision of existing agreements and adoption of general agreements	intermediate	low
2	Revision of transfer flows from ANDA to suppliers and vice versa	intermediate	low
3	Policies and mechanisms to establish tariffs for local services	high	low
	Municipal systems		
4	Incorporation of the 100 municipal systems to the reform efforts	intermediate	high
5	Organization of municipal water and sanitation services	high	low
6	Promotion of the principle that water revenues have to be assigned exclusive to the development of water services	high	high
7	Promotion of technical assistance oriented to water and sanitation services	intermediate	high
8	Monitoring and evaluation of municipal systems' performance	intermediate	high
	Self-suppliers		
9	Major study of self-suppliers	intermediate	low
10	Study that links supply possibilities at the local level with property developments	high	high
11	Importance of ANDA assuming leadership in this process while other institutions assume a reform framework	high	low
12	Some investigation is needed to check possibility of supporting self-suppliers during transition	intermediate	low
13	Review of fees and arrangements to determine appropriateness of charge	intermediate	low
14	Need to regulate the functioning and quality of service provided for suppliers	intermediate	low
	Rural systems resulting from PLANSABAR and other programs		
14	Information assessment of the rural sector	high	high
15	Needs assessment about the peri urban	intermediate	low
16	Subsidy assessment for energy costs	high	high
17	Support of external organizations	high	high
18	Government expression of will to improve services at a national level	high	high

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