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**Recent Economic Development in
Infrastructure (REDI) (vol. 1)**

**Investing in Infrastructure as an Engine for Growth:
Spending More, Faster and Spending Better**

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ABBREVIATIONS AND ACRONYMS

ANEPSSA	<i>Asociación de Empresas Prestadoras de Servicio de Saneamiento del Perú</i> (Peru Association of Enterprises Providers of Sanitation Services)	MVCS	<i>Ministerio de Vivienda, Construcción y Saneamiento</i> (Ministry of Housing, Construction and Sanitation)
BUMs	<i>Barríos Urbanos Marginales</i> (Marginalized Urban Areas)	PCM	Presidency of the Council of Ministers
CEPRI	Special Privatization Commission (<i>Comision Especial de Privatization</i>)	SNIP	<i>Sistema Nacional de Inversión Pública</i> (National Public Investment System)
CONAM	<i>Consejo Nacional del Ambiente</i> (National Environment Council)	SUNASS	<i>Superintendencia Nacional de Servicios de Saneamiento</i> (National Agency of Sanitation Services)
DGPMSP	<i>Dirección General de Programación Multianual del Sector Público</i> (General Directorate of Multi-annual Planning for the Public Sector)	TRASS	<i>Tribunal Administrativo de Solución Reclamos de Usuarios de Servicios de Saneamiento</i> (Administrative Court for Claims from Users of Water and Sanitation Services)
DGPP	<i>Dirección General de Presupuesto Público</i> (General Directorate for Public Budget)	VMCS	<i>Vice Ministerio de Construcción y Saneamiento</i> (Vice Ministry of Construction and Sanitation)
DIGESA	<i>Dirección General de Salud Ambiental</i> (General Directorate for Environmental Health)	vpd	vehicles per day
DNS	<i>Dirección Nacional de Saneamiento</i> (National Directorate for Sanitation)	WEF	World Economic Forum.
DSR	<i>Dirección de Saneamiento Rural</i> (Rural Sanitation Directorate)		
DSU	<i>Dirección de Saneamiento Urbano</i> (Urban Sanitation Directorate)		
ECLAC	Economic Commission for Latin America and the Caribbean		
EPS	<i>Empresas Prestadoras de Servicios de Saneamiento</i> (Providers of Water and Sanitation Services)		
FONAFE	<i>Fondo Nacional de Financiamiento de la Actividad Empresarial del Estado</i> (National Fund for the Financing of State Entrepreneurial Activity)		
FRA	United States Federal Railroad Administration		
ICT	Information and Communication Technologies		
JASS	<i>Juntas Administradoras de Servicios de Saneamiento</i> (Sanitation Services' Administration Committes))		
LAC	Latin America and Caribbean		
LPI	Logistics Performance Index		
MEF	Ministry of Economy and Finance		
MINSA	<i>Ministerio de Salud</i> (Health Ministry)		
MTC	Ministry of Transport and Communications		

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INTRODUCTION AND ACKNOWLEDGMENTS

This analytical work was initiated in 2007, following discussions on infrastructure policies between the Peruvian authorities and the World Bank team. The objective was to provide the Government of Peru with a comprehensive strategic assessment of three key infrastructure sectors: water/sanitation, transport and electricity, and to propose selected recommendations on how the Government could improve the performance of these sectors.

The overall context of Peru has changed significantly between 2007 and 2010, starting with a situation of rapid growth triggering concerns from the Ministry of Economy and Finance of a possible “overheating” of the Peruvian economy. The global financial crisis that started at the end of 2008 has completely modified the context and priorities. Like many countries in Latin America and around the world, Peru has prepared a countercyclical stimulus package to support economic growth in response to the global downturn. This stimulus package focuses more particularly on infrastructure investment – particularly transport, with a view to reduce Peru’s well documented infrastructure gap. In 2009 and 2010, important budget resources have been dedicated to the infrastructure sectors and the top priority of Peruvian authorities has been to accelerate public spending in these sectors.

In this context, the proposed report has been focusing attention on how the Peruvian authorities could get the most benefits from the stimulus package and what should come next. The first volume of the report is structured around six cross-sector chapters. Volume 2 includes three additional chapters that enter into the specific situation of each of the three sectors.

The authors are grateful to the Peruvian Government for the quality of the policy dialogue that was sustained during the past three years while the report was written. A wide team of Peruvian and international consultants coordinated first by Jose Barbero (Senior Transport Specialist, LCSTR) and then by Nicolas Peltier-Thiberge (Senior Infrastructure Economist, LCSTR) have been contributing to this analytical work. Specifically, most chapters have been based on the results of the following background studies:

- *Chapter 1 “An Overview of Peru’s infrastructure gap”* was drafted by Pierre-Antoine Picand and Nicolas Peltier-Thiberge, building on three sector assessment as well as on a desk review of the existing studies on the situation of the infrastructure sectors in Peru
- *Chapter 2 “Financing infrastructure development”* was drafted by Nicolas Peltier-Thiberge
- *Chapter 3 “Planning infrastructure development for efficient logistics”* was drafted by Jose Barbero, with the research assistance of Julieta Abad
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EXECUTIVE SUMMARY

Investing in infrastructure as an engine for growth: Spending more faster and spending better

Peru has just experienced a successful decade of economic growth with significant benefits to most Peruvians. The country's economy expanded at an average annual rate of 6.2 percent during the period 2002-2009. Along these years, Peru had one of the fastest growing economies in Latin America, ahead of Chile, Colombia, and Brazil. The economy has benefited from the export sector that grew close to 30 percent a year in the period 2003-2007. Mining revenues have significantly contributed to the support of a high growth rate although agricultural and manufactured exports are also increasing. Sound macroeconomic policies have enabled Peru to achieve investment grade rating which is attracting increasing capital flows from international investors. In terms of equity, the number of poor decreased by 30 percent over the period 2002-2007 despite some debate about whether economic benefits have been equitably shared among all Peruvians in a country where inequalities remain stark.

Peru's economic performance is resisting the global financial downturn better than neighboring economies; furthermore, there are signs that growth could be sustained, opening a new decade of prosperity. There is broad consensus among economists and other observers that Peru's growth fundamentals are sound and that the economic performance of the past decade could potentially resume and be sustained once the world economy has recovered from the global financial crisis. Furthermore, the current economic downturn might even represent an opportunity for Peru, since international capital flows could be attracted by the prudent macroeconomic policies of the past decade, as well as by investment opportunities opened by an aggressive investment program in the infrastructure sectors.

Indeed, as a response to the adverse effects of the international crisis, the Government has implemented a stimulus program aimed to increase the competitiveness through infrastructure investments. Peru underperforms in terms of both coverage and quality as compared with regional peers in the provision of electricity, water and sanitation and transport. These are not only facts but also the perception that users have on service provision. For instance, as shown in this report, different firm surveys rank the quality of roads, ports, airports, and electricity supply lower in Peru than in countries with a similar level of development. The government has announced some measures to improve Peru's competitiveness. In that sense, the stimulus package has been designed to fuel the economy while also improving sector performance and helping to close the infrastructure gap – more than 2 percent of GDP are expected to be spent in infrastructure projects. The plan substantially increases the level of public expenditures in these sectors after years of under-investment - around 1 percent in 2001-2005 and 1.5 percent as average over the last 30 year. While the new investments are welcome, they may not be enough to meet the needs of the population and support strong economic growth. Moreover, while a large share of the plan has been executed, the GoP may delay the remaining spending to reduce the effects over the price level as the economy is recovering. In this setting, when infrastructure spending financed by fiscal resources cannot be expanded, spending better becomes mandatory.

Spending more and faster in infrastructure will not be enough; Peru also needs to spend better. Peru's public expenditure framework shows some rigidities, a number of which were introduced when fiscal resources were scarce or, more recently, because of concerns about a

possible risk of inflation. The implementation of the stimulus package has required a laborious transition to remove bottlenecks to faster public spending, sometimes at the risk of affecting the mechanisms that help ensure the quality of public expenditures. The Peruvian authorities have been able to accelerate public investments in infrastructure but little thinking has been dedicated to improving the efficiency and effectiveness of such investments. Reaching the broader strategic objectives of Peru's investment program or improving the functioning of infrastructure requires a policy framework to plan, manage, and evaluate expenditures that goes beyond spending more and spending faster. Such a framework would not only increase the benefits from any spending but also prepare Peruvian institutions for the "post-stimulus" phase, a critical issue if Peru wants to meet its infrastructure challenges. Specifically, there are four key areas that the Government could focus on to promote "better spending" in the infrastructure sectors:

- **Better prioritize infrastructure investments through improved planning.** The strategic planning of infrastructure investments remains weak despite some initiatives such as the creation of CEPLAN. In the transport sector, the efficiency of logistics could be significantly improved with a planning approach that would go beyond the current sector-centric planning mechanisms.
- **Better promote efficiency in infrastructure delivery.** Efficiency is linked to competition and regulation, as well as to the set of incentives that apply to service providers (private providers but also State-Owned Enterprises). Infrastructure management (e.g. maintenance of assets) but also accountability and good governance are other important efficiency factors.
- **Better enhance sub-national governments' capacity with respect to infrastructure.** Peru's ambitious decentralization reforms have only gone half way in transferring the actual responsibilities for infrastructure services at the sub-national levels. Fiscal decentralization is important but institutional capacity building and a gradual devolution of responsibilities are other critical elements to bring the benefits of decentralization to the end users of infrastructure services.
- **Better leverage the participation of the private sector.** Bridging Peru's infrastructure gap cannot be achieved without the contribution of private investors and providers of services. Private sector participation has substantially increased after the liberalization reforms of the 1990s and the launch of an ambitious PPP program. However, an improved regulatory framework for PPP could both benefit the State (because of more favorable risk-sharing arrangements) and increase the interest of private partners (because of increased stability and predictability).

Although some of the recommendations developed in this report cannot be implemented in time to improve the effectiveness of the Peru's stimulus package, they could prepare the ground for a second generation of high quality infrastructure investment.

CHAPTER 1 : AN OVERVIEW OF PERU'S INFRASTRUCTURE GAP

This chapter highlights that Peru's competitiveness is hampered by a long-standing infrastructure gap, both in terms of access and quality of services. This gap is evidenced when comparing Peru with competitor countries in the region and with countries with a similar level of development. Peru's infrastructure deficit has a significant negative impact on the country's investment climate, on its attractiveness for investors and, ultimately, on its economic performance. Moreover, the gap is wider in the poorest Peruvian regions and in rural Peru which contributes to reinforcing inequalities and limiting opportunities for a more inclusive growth. The chapter concludes by looking at affordability issues and at key principles that should be taken into account when setting pricing policies for infrastructure services.

PERU'S INFRASTRUCTURE GAP: ACCESS AND SERVICE QUALITY OF INFRASTRUCTURE IN PERU AND IN BENCHMARK COUNTRIES

The infrastructure gap in Peru is substantial, both in terms of access and in terms of quality. When looking at the situation of Peruvian infrastructure, there is a well-documented gap compared to other middle-income countries, regardless of whether they are neighbors in the Latin America region (e.g., Colombia, Ecuador, or Bolivia) or countries from other regions of the world but with a similar level of development as Peru (e.g., Tunisia, Thailand). While Peru is lagging behind in the LAC region, it is important to recall that Latin America as a whole has less favorable infrastructure indicators than other regions (in particular, East Asia), and that this difference is growing. In 2007, LAC countries invested on average 2 percent of their Gross National Product into infrastructure, while China invested 9 percent. Despite the expansion of air transportation facilities and improvements in the efficiency of electricity distribution, Peru still has a long way to go in order to bridge its infrastructure gap. Although it is crucial to compare Peru to its international competitors, this chapter will also analyze the significant imbalance that exists within Peru, between the situation of the capital Lima and the rest of the country.

Access to infrastructure services is lower in Peru than in other LAC countries.

Improving the availability of infrastructure services remains a critical challenge for Peru in the years to come. Infrastructure can contribute to development and growth only if people are connected to it, can easily use it and can afford the associated services. The term "access" usually refers to connections between homes and networks (water, electricity, telecommunication, and transport). If we compare infrastructure access to other benchmark countries in the LAC region, Peru is clearly lagging behind. This conclusion holds for most of the indicators characterizing infrastructure access and performance (see Table 1.1).

Table 1-1: Access to infrastructure in Peru and neighboring countries

Indicators	Peru	Colombia	Ecuador	LAC
Road density (km/100km ²)	6	10	15	17
Percentage of paved roads	18	14	15	23
Port infrastructure quality (from 1 to 7)	3.3	3.5	2.9	3.2
Airport infrastructure quality (from 1 to 7)	4.5	4.1	4.4	4.2
Access to improved sanitation facilities (% of pop.)	63	86	89	77
Access to improved water source (% of pop.)	83	93	94	90
Access to electricity (% of pop.)	73	81	80	78
Electricity prices for residential consumers (US¢/kWh)	11.37	7.7	13.03	8.77

Sources: World Bank and World Economic Forum (2010)

Access to water and sanitation services is on average low and uneven. In 2006, 63 percent of the population had access to improved sanitation facilities. This is less than in Ecuador, where 89 percent had access, and in Colombia (86 percent); it is also low compared to LAC as a whole (77 percent). Approximately 83 percent of the population has access to an improved water source, which is below the regional average of 90 percent. Neither the size of Peru nor its relatively large and dispersed rural population can explain this discrepancy. Coverage in Peru is low for both water and sanitation services. There are important disparities between cities and rural areas, as well as between macro regions (*Costa*, *Sierra*, and *Selva*). Within urban areas, the population that lacks access lives in small urban centers or in peri-urban centers. Similarly, within rural areas, the population that has better access to water is concentrated in rural communities, rather than in remote and isolated places. It is also worth observing that access to water and sanitation is slightly lower in Peru than in Bolivia, where poverty is higher.

The situation of the Peruvian transport sector, despite recent improvements, remains less favorable than in neighboring countries, even less developed ones. Even when accounting for substantial differences in terms of size, the Peruvian territory is much less densely interlaced with roads than the territory of its neighbors. Peru also has a lower proportion and density of paved roads than its neighbors do. Unpaved roads provide cost-effective and satisfactory access for isolated populations living in rural areas. However, paved roads are needed for higher traffic transport corridors.

With the fast growing economy Peru experienced over the past decade, road traffic has been growing sharply and the demand for higher road standards has been increasing as well. Only 14 percent of the roads in Peru are paved, as compared to an average of 23 percent in LAC. Ecuador is less developed than Peru but has a higher percentage of paved roads. This situation highlights Peru's under-investment in modern transport infrastructure and stresses the need to provide adequate levels of road maintenance. In addition, access to transport infrastructure remains highly uneven. Many rural and poor areas of the *Sierra* are largely isolated and connected to local markets, schools, and health centers through poor condition rural roads or even, for the most remote ones, through precarious non-motorized tracks. This situation has been improving thanks to a rural roads program launched in 1995, but this program still needs to be expanded. In the same manner, most of the *Selva* macro-region is only accessible by plane or river boats.

Electricity coverage is low and highly disparate within different socio-economic areas. Analyzing access to electricity leads to the same conclusion as that of water/sanitation and

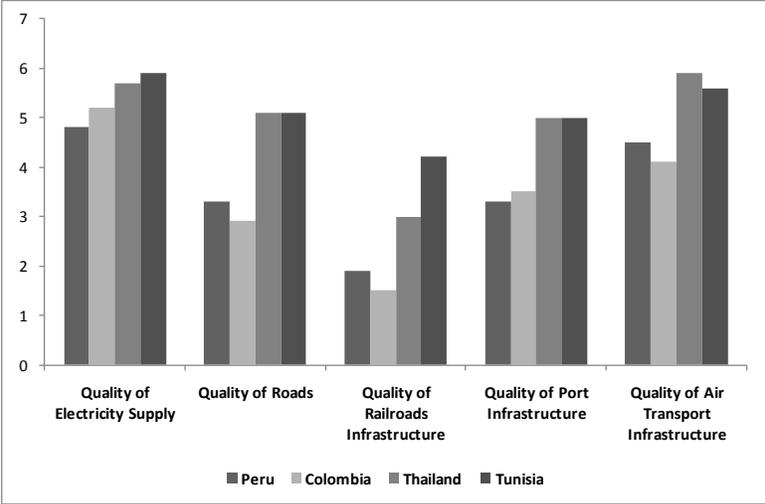
transport: Peru’s electrification rate is one of the lowest in LAC. In 2006, 73 percent of the whole population had access to electricity. In comparison, 78 percent of the LAC populations have access to power services. Ecuador and Colombia have better electrification rates with, respectively, 80 and 81 percent of their population connected to power networks. Moreover, access to electricity is highly uneven among Peruvians regions, a fact that does not appear when looking at national aggregates. In rural Peru, only 32 percent of the population has access to electricity. For purposes of comparison, a region like Cajamarca has less than 40 percent electrification whereas the Lima region has close to 100 percent.

Infrastructure services suffer serious backlogs in terms of quality.

Infrastructure service quality in Peru, as measured by a 2010 perception survey conducted by the World Economic Forum (WEF), is significantly lower than in other benchmark countries with a similar level of development in terms of GDP per capita (Colombia, Thailand, and Tunisia). The quality differentials are particularly important for roads, railroads and ports. In addition to the negative impact on service users, poor quality of infrastructure services often comes from an excess of deteriorated physical infrastructure, which is itself generally a sign of inefficient management and lack of proper maintenance. Sustained maintenance is critical to optimizing the life cycle of infrastructures and to avoiding additional investment or replacement costs that often turns out to be far higher.

The quality and continuity of water/sanitation services remain low due to inefficiencies in operation and maintenance. Peruvians have, on average, access to water services only 18 hours a day (compared to 20 hours a day in Colombia). The quality of services is particularly low when they are operated directly by district municipalities which often lack technical expertise. Municipal employees often lack the basic knowledge in order to service and maintain the infrastructure properly. In the absence of a specialized operator, there is a high staff rotation rate which deeply undermines the continuity of good service quality, and causes additional training costs. Finally, the problem of wastewater treatment is still a major one in Peru: coverage is low and existing plants are inadequately operated, which negatively impacts water quality.

Figure 1-1: Index of infrastructure service quality in 2010 (Min=1, Max=7)



Source: World Economic Forum (2010)

The quality of the transport sector in Peru is lower than the LAC average, and far below the average of world benchmark countries. The insufficient quality of transport infrastructure generates high transportation costs, which in turn affect the productivity of economic agents. It is a strong liability for the country's investment climate. According to a survey conducted by the World Bank LPI initiative, 80 percent of the firms surveyed believed that the quality of transportation infrastructure in Peru was either low or very low. This result is much higher in Peru than in Bolivia, Colombia, and LAC as a whole¹. Inefficient transport infrastructures force Peruvian firms to maintain high and costly inventories, which sharply reduce their productivity and competitiveness.

Peru's ports and airports have neither the performance nor the capacity found in neighboring countries. While the average quality indicator for is 4.3 for ports, it is 3.3 for Peru (see **Table 1-1**). A study² of seven South American ports reported that the port of Callao ranked last for speed, reliability, and security, and fourth for cost. Even if recent investments have improved this situation, the trend continues to be persistent, and Peru's objective of making Callao one of the main hubs on the Pacific Coast seems beyond reach as of today. While Peru has one of the densest airport transport networks, its quality is less than in benchmark countries. The quality indicator is 4.7 for LAC airports and 4.5 for Peruvian airports (3.2 in 2006)

Similarly, when looking at road infrastructure, Peru and Colombia have the same quality level, but this level is half as much as that of other benchmark countries in the world, like Tunisia or Thailand. Although the number of roads in good condition has risen within the past fifteen years, and although an effort has been made to maintain an increasing number of kilometers, 15 percent of paved and 63 percent of unpaved roads still remain in poor condition. A large part of the road network should be improved, in order to shorten and ensure the safety of road corridors between major poles of activity, as well as between remote rural areas and nearby concentrated rural communities. Peruvian roads are also very dangerous to users, with the annual number of casualties caused by car accidents being 16 per 100,000 people, higher than that of Ecuador (15), Argentina (12), and Chile (10). According to a recent road safety assessment performed by iRAP³, 22 percent of the 3,000 km of roads assessed are considered "highly dangerous" for car users. Moreover, informality remains very high in the transport sector in Peru, which can partially explain the low quality of the road transportation services. Railroad transport, for its part, is marginal these days since Peru has very few railed kilometers.

In the electricity sector, the frequency and duration of power cuts remains elevated and are even increasing outside of Lima. In the last fifteen years, Peru has managed to improve in certain aspects the efficiency of electricity services, in large part due to increased private sector participation in electricity generation, transmission, and distribution. However, both the frequency and duration of power cuts have been increasing all over Peru during the past few years, with the exception of Lima, where they both have remained more or less constant. In the *Sierra* areas, the frequency and duration of power cuts are three times higher than in the capital city. **Figure 1-1** shows that the quality of electricity supply in Peru and in Colombia is close. However, other benchmark countries perform better, both within the region (Ecuador, Brazil)

¹ For more details, see Chapter 7, *Sector Perspectives: Transport*

² Conducted by the Valencia Polytechnic University in 2003

³ International Road Safety Facility, financed by the World Bank through the Global Road Safety Facility

and in other countries of the world with similar development levels (Thailand, Tunisia).

THE GROWTH AND COMPETITIVENESS CHALLENGE: CONSEQUENCES OF PERU'S INFRASTRUCTURE GAP FOR GROWTH AND COMPETITIVENESS

Peru's infrastructure gap has a major impact on competitiveness. Many empirical studies have demonstrated that infrastructure has a significant positive impact on output and growth, particularly for developing nations. Moreover, economic growth is stimulated by the availability of infrastructure services; this growth in turn spurs higher infrastructure demand. Perception indicators from climate investment surveys illustrate the challenges for Peru's competitiveness.

The infrastructure deficit has a significant negative impact on the investment climate.

Investment Climate Assessments reports published by the World Bank and the IFC present the results of Investment Climate Surveys. According to the latest report released in 2004⁴, which only takes into account the perception of manufacturing firms, Peru's investment climate is subject to diverse microeconomic constraints. More than 50 percent of firms surveyed consider the lack of infrastructure a serious problem for running a business and reckon that their main difficulties stem from poor market integration and high logistics costs. This study assesses that Peruvian firms' logistics costs account for about 34 percent of their operating costs – over twice what their Chilean counterparts spend on logistics (16 percent).

All businesses, from agriculture to industry and even services, rely on infrastructure. Many Peruvian firms are dissatisfied with the level of transportation services to which they have access. They have critical concerns regarding delays, costs, and security⁵. These problems are of particular concern for companies stationed outside of Lima. Their sales, as well as their imports, largely come from Lima (around 35 percent for firms in the North, and 40 percent for firms in the South of Peru⁶). For these firms, losses in transit are high because of breakage and/or theft. They are therefore disadvantaged compared to firms based in Lima/Callao, and more generally as compared to foreign firms.

Reduced attractiveness for foreign investments

Efficient infrastructure is the *sine qua non* condition for firms to invest in a country, and especially in Peru, where almost every product sold is transported by truck on roads at some point of its commercialization. The acceptable condition of key infrastructure is crucial for most investors operating import/export businesses; it also helps generate competitive national firms. The ICA survey underscores the fact that Peru's connections with the international market are weak in comparison to other middle-income countries, the main reason for this being the high level of logistics costs in the country. If Peru is unappealing to foreign or national companies

⁴ PERU, *Microeconomic constraints to growth, The evidence from the manufacturing sector*, June 15, 2004, The World Bank

⁵ Ministerio de Transportes, Comunicaciones, Vivienda y Construcción (2001) and Guasch, 2001

⁶ PERU, *Microeconomic constraints to growth, The evidence from the manufacturing sector*, June 15, 2004, The World Bank

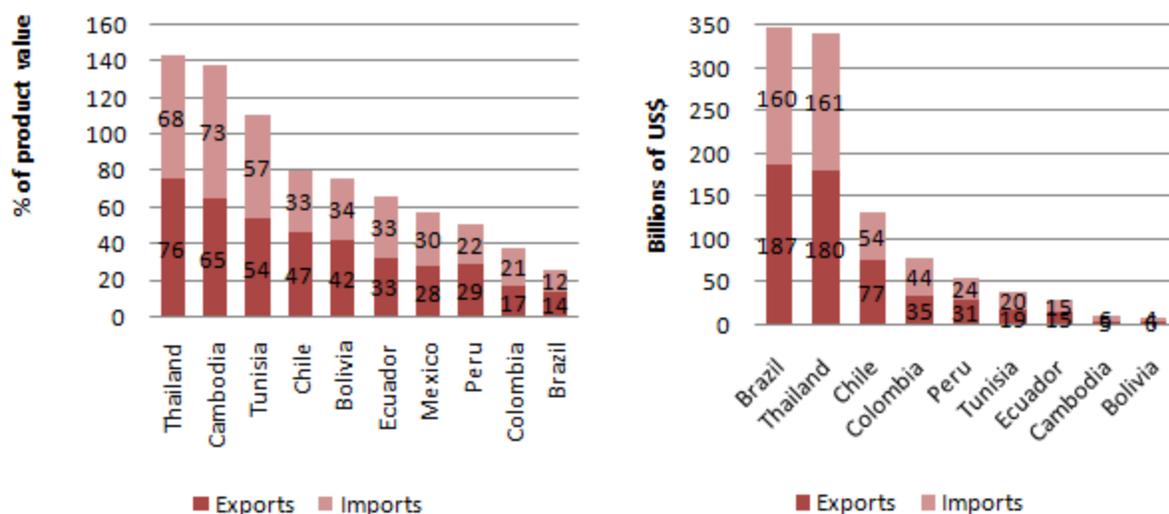
due to its lack of competitiveness, investment will be reduced, and fewer economic transactions will take place.

With the recent countercyclical stimulus package designed in response to the economic downturn, and with plans to heavily invest in the transport sector, transportation conditions are expected to improve. Through such investment program, the Peruvian government aims at making the country more attractive to both domestic and foreign investors. In August 2009, the government announced its dedication to improving Peru’s relative competitiveness, along with its intention to raise its standing in the World Bank Doing Business survey, from the 62nd rank to the 25th.

The Peruvian economy is increasingly focused on trade as a key pillar to its growth strategy. Efficient infrastructure – particularly in logistics, is an important condition for such a strategy to be successful.

The aforementioned infrastructure deficit has harmful consequences on trade. During the period from 2003 to 2007, Peruvian exports grew by close to 30 percent per year, and in 2008 represented 29 percent of Peru’s GDP. However, investments in the logistics system have been low. Peru still lacks an investment strategy that could help the country face the challenges of global trade integration and optimize its logistics chains. Peruvian export growth is directly linked to the country’s mining industry. Growth of this industry, in turn, depends on an efficient transportation network. It makes even more crucial for Peru to optimize the transportation network used by the mining industry to compete with those of Bolivia, Chile, and Brazil – all big commodities exporters with more efficient systems than Peru.

Figure 1-2: Exports and imports (in % of product value and in billions of US\$), 2007



Source: World Bank Development Indicators, 2007

Due to constraints in the sector, Peruvian ports have benefited less from the increase in trade volumes than their regional competitors. Over the 2003-2006 period, port activity only increased by 3.2 percent in Peru as compared to a 6.2 percent increase in Chile, 7.4 percent in Colombia and 9.8 percent in Ecuador. This represents a significant loss of opportunity. In addition, the Free

Trade Agreements (FTA) signed between Peru and the U.S., Brazil, and China will necessitate investments in the port sector for handling increasing cargo inflows. The port sector is a particularly weak link in Peru's logistical system. A saturated capacity, combined with expensive fees for port services, constitute strong limitations for Peru's overall competitiveness. Over-costs caused by the poor performance of the port of Callao have been estimated at US\$ 218 million (which represent twice Callao's revenues from fees). In terms of exportations, freight costs are between 20 and 35 percent higher for Peruvian firms than for Chilean firms for example⁷. In short, the competitiveness shortcomings are significant.

River-based transport, which is currently underused, also needs to be developed. Peru enjoys a vast river network suited to river transport that could ease exports to neighboring countries. Iquitos is for the moment the only river port equipped to transfer containers and fit to be connected with other transportation means. The Pucallpa or Yurimaguas ports should follow the Iquitos example.

The infrastructure gap ultimately affects the economic performance.

A World Bank study⁸ confirmed the positive impact of infrastructure stock and quality on growth. The authors simulated the effect of raising Peru's infrastructure development level to that of Chile (which, in practice, would require levels of investment much higher than current ones) and found that it would increase Peru's growth rate by 1.7 percentage points. Other studies estimated that the economic cost of road accidents in Peru amounts to approximately 1.5 percent of GDP annually.

THE EQUITY CHALLENGE: RURAL INFRASTRUCTURE AND RURAL POVERTY, REGIONAL AND MACRO-REGIONAL DISPARITIES

More than half of Peru's population now lives in the more developed Costa macro-region. The Costa macro-region represents 12 percent of the Peruvian territory, the Sierra 27 percent, and the Selva, 61 percent. Fifty-two percent of the population lives in the Costa, whereas just 36 percent reside in the Sierra and just 12 percent in the Selva. The Costa inhabitants mainly live in cities or urban centers while the share of the rural population remains high in the Sierra and Selva. Also, most of Peru's indigenous populations live in the Sierra and Selva. The high urbanization of the Costa facilitates the connection of a higher number of households to a limited number of networks. A large share of the Peruvian population is concentrated within a narrow and flat strip of land which simplifies construction and maintenance of infrastructure networks. The situation is very different in the Sierra and Selva macro-regions, where marginal costs of increasing access are high and profits from investing in infrastructure are generally lower. Since the proportion of the poor, rural population living in isolated and remote areas is higher in the Sierra and in the Selva, a concerted effort needs to be made in order to connect these people to the main

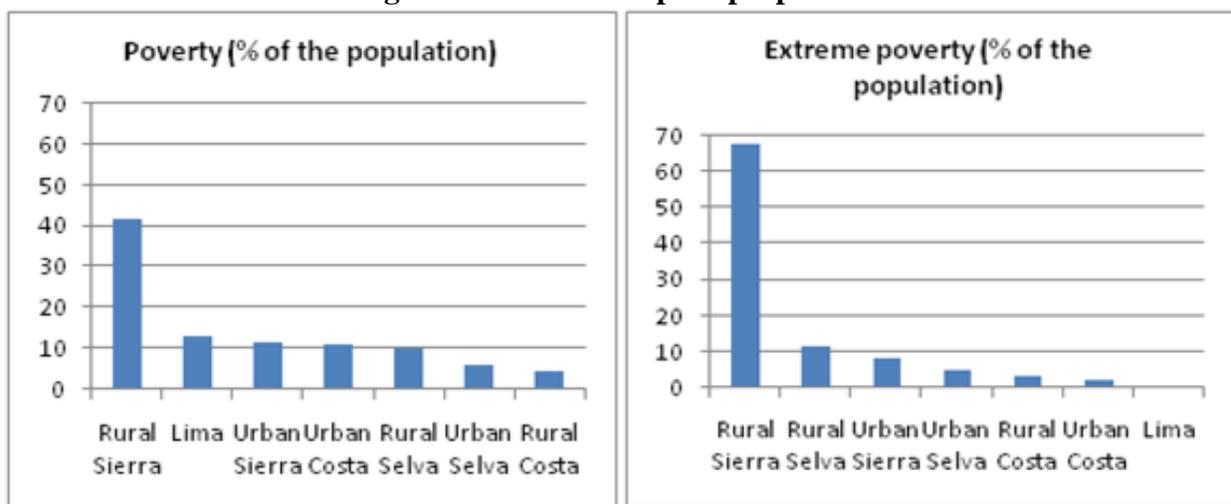
⁷ PERU, *Microeconomic constraints to growth, The evidence from the manufacturing sector*, June 15, 2004, The World Bank

⁸ *Latin America: Addressing High Logistics Costs and Poor Infrastructure for Merchandise Transportation and Trade Facilitation*, Gonzalez, Guasch, and Serebrisky, The World Bank, 2007

infrastructure networks: this is because, simply, this investment requires more resources (financial and technical) than in the *Costa*.

Poverty has been reduced but remains high in rural Peru. Household incomes have been increasing for many Peruvians and levels of poverty at the national level have declined sharply, to 44 percent in 2006 and 39 percent in 2007. However, gains have been uneven and income inequality remains a serious issue in Peru. The drop in poverty observed at the national level hides an important heterogeneity within the country. In particular, the reduction in the number of poor has mostly occurred in the urban areas (especially in Lima and in the *Costa*) and in the poor peri-urban areas, whereas poverty reduction in rural areas (especially in the rural *Sierra*) has been very limited. Half of the poor and two-thirds of extremely poor people now live in rural Peru (**Figure 1-3**).

Figure 1-3: Where do poor people live?

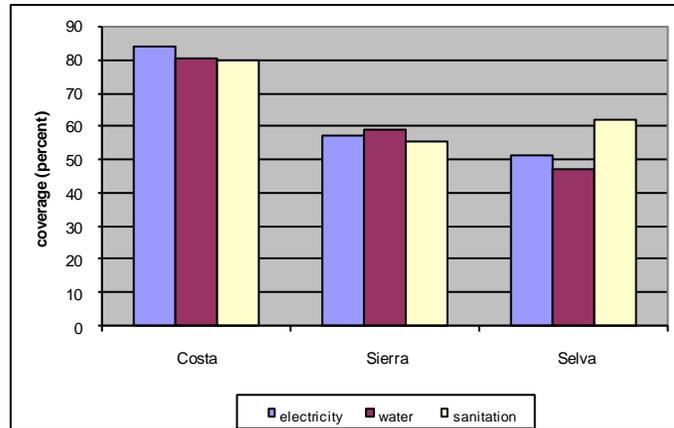


Source: World Bank's calculations based on ENAHO 2004-2007 (INEI)

Infrastructure coverage is considerably lower in the poorer *Sierra* and *Selva* than in the richer *Costa* macro-region.

In the *Sierra* and *Selva* macro-regions, which are poorer and less connected to the main infrastructure networks, access is principally restricted by the remoteness of the households. There is a 20 percent gap in the *Costa* compared to the *Sierra* and the *Selva* as regards access to electricity, water and sanitation services (see **Figure 1-4**). More specifically, electricity, water, and sanitation coverage in the *Costa* exceed 80 percent while in the *Sierra* the range is 55-60 percent, and 50 percent in the *Selva* (with sanitation access being higher at 62 percent). These large disparities between the *Costa* on the one hand, and the *Sierra* and *Selva* on the other, are in large part due to the higher rural populations in the *Sierra* and the *Selva*. The *Selva* region remains particularly underdeveloped in infrastructure, with the exception of a few roads on the riverbanks. Therefore, when discussing inequalities within Peru, a regional focus is necessary in order to pinpoint sectors where the gap between regions is the widest and what the current trends might be in terms of equity.

Figure 1-4: Access to infrastructure in the Peruvian macro-regions

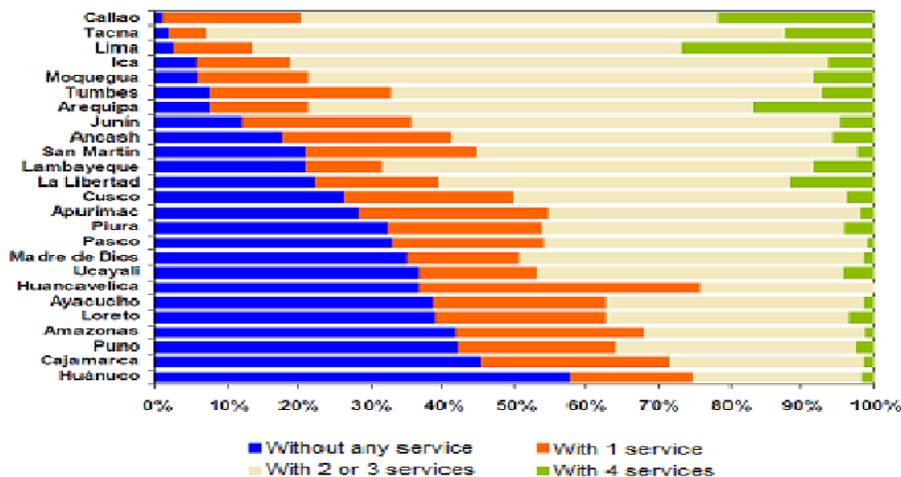


Source: Authors

A significant share of the population of the most rural regions of the *Sierra* is completely excluded from the benefits of infrastructure services.

In many regions of the Peruvian highlands, a large number of Peruvians still do not have access to any infrastructure service. In 18 Peruvian regions, more than 10 percent of the population is without any service, the seven remaining regions being mainly populated regions in the *Costa*: Callao, Tacna, Lima, Ica, Moquegua, Tumbes, and Arequipa. And there are still sixteen Peruvian regions for which 20 percent of the population remains without any service. In four regions -- Amazonas, Puno, Cajamarca, and Huánuco (the first being in the *Selva*, the other three in the *Sierra*) -- 40 percent of the population is excluded from any access to infrastructure services. Disparities do not only exist between rural and urban regions, but within each region as well. Specifically, if one looks within urban centers, where the infrastructure networks are dense, there are still a number of households with very low access to infrastructure services. In the highly urban Callao and Lima regions, only 22 and 27 percent of the population, respectively, has access to all four types of basic services.

Figure 1-5: Access to water, sanitation, electricity, and telecommunication, 2005.



Source: Elaborated by IPE⁹, Enaho 2005

⁹ Instituto Peruano de Economía, in *Como acelerar la ejecución de la inversión en infraestructura en el Perú?*, 2007

Many inhabitants from poor peri-urban areas remain excluded from infrastructure services.

It is estimated that about 7.7 million Peruvians, namely 26 percent of the nation’s inhabitants, live in poor areas in the immediate periphery of cities. More than a third of these marginalized urban quarters (BUMs in Spanish¹⁰) are located around Lima. Despite their proximity to highly equipped and well connected urban centers, the population of BUMs has much more limited access to infrastructure. In 2004, only 53 percent had access to drinkable water, 35.6 percent to sanitation, and 65 percent to electricity, far below the coverage observed in urban areas. It has been estimated that 96 percent of the urban population lacking access to drinkable water, and 85 percent of those lacking access to sanitation services, are living in BUMs. Development in some of these areas is hampered due to specific geophysical characteristics and environmental issues that require the use of more advanced technologies. In 19 percent of the BUMs there are high risks of landslides and in another 21 percent, of floods. In addition, 43 percent of these areas are close to landfills, 26 percent located on lands with high slopes, and 14 percent, close to precipices.

Table 1-2: Access to infrastructure in Marginalized Urban Areas (BUMs)

Population living in BUMs	7,717,000
Lima	2,817,000
Rest of the country	4,900,000
Number of BUMs	7,419
Lima	37%
Rest of the country	63%
Coverage of infrastructure services	
Drinkable water available at home	41%
Water available from <i>pilones</i> (basins)	12%
Sanitation at home	36%
Public lighting	65%
Electricity in home	65%

Source: Lampoglia, T.

The deficit in services in urban areas mainly affects the lower income portions of the population. These discrepancies, in terms of infrastructure distribution within cities, often correlate with inefficient management, which mars the service quality, leads to extra costs and losses, and consequently negatively impacts productivity and economic growth. Maintaining a minimum level of infrastructure should be promoted in order to prevent the situation from deteriorating further in the BUMs, a goal which is crucial for sustained economic growth and homogeneity of the city.

Experience has proved that peri-urban welfare or wellbeing is not directly impacted by increasing wealth of the whole urban area. That is why development programs in BUMs need to be comprehensive and not only focused on economic issues. Because these areas are by definition peri-urban, they are often forgotten when it comes to investing in infrastructure.

¹⁰ BUM stands for *Barrios Urbanos Marginales*

Regional integration and rural poverty are well identified issues by policy makers in Peru, but urban integration must be tackled with the same energy, both because the overall situation of BUMs is deteriorating with a quickening pace and because these specific areas are dramatically exposed to and thus more vulnerable to natural disasters.

Water and electricity services are among the most regressive in the region.

Access rates to infrastructure among the lowest income brackets are very low in Peru compared to other LAC countries. Household survey data show that the concentration coefficients summarizing the overall distribution of connections in a single statistics (cf. **Table 1-3**) are among the highest in the region (a concentration coefficient of zero denotes universal access; increasing values up to one denote increasingly disparate access). In the water sector, the coefficient for Peru is 0.11, compared to 0.10 for Guatemala, 0.06 for Colombia, and 0.05 for Mexico. In the electricity sector, only one of the listed countries has a more unequal distribution of connections than Peru (0.11): Guatemala (0.12). Other LAC countries exhibit a more uniform distribution, for example El Salvador (0.07), Brazil (0.03), Colombia (0.02), and Argentina (0.00). In the sanitation sector, Peru is average among the countries, with a level (0.09) similar to that of Argentina's.

Table 1-3: Service coverage concentration coefficients (2003)

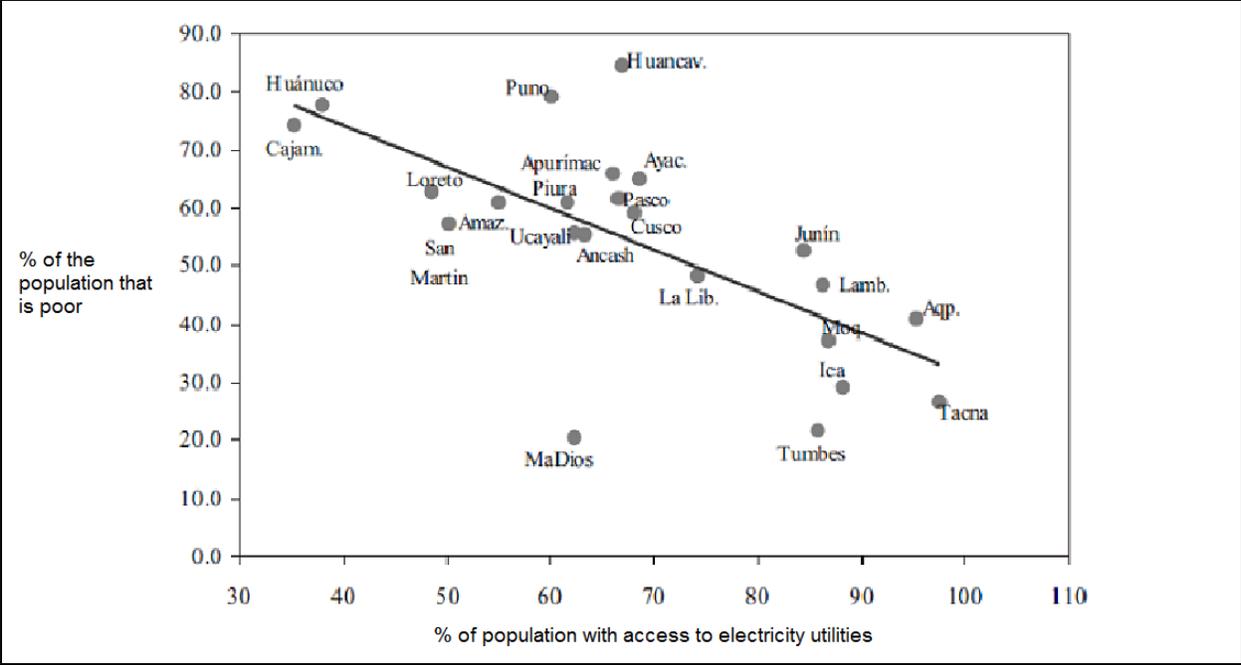
Countries	Water	Sanitation	Electricity
Argentina	0.01	0.09	0
Brazil	-	0.18	0.03
Chile	0.03	0.08	0.01
Colombia	0.06	0.07	0.02
El Salvador	-	0.24	0.07
Guatemala	0.1	0.38	0.12
Mexico	0.05	0.15	0.01
Peru	0.11	0.09	0.11
Venezuela	0.02	0.05	0

Source: World Bank

The poorest share of the population has the least access to water, sanitation, and electricity services. This relationship becomes obvious when the poverty statistics of the different Peruvian regions are compared to infrastructure coverage indicators. Electricity is the sector where this situation is most noticeably observed¹¹.

Figure 1-6: Poverty and electrification rates in 2004

¹¹ *Inversión Privada y Pública en Infraestructura en Perú: El camino para reducir la pobreza.* IPE



Source: IPE¹² (MINEM, INEI)

Figure 1-6 exhibits a clear inverse relationship between electricity coverage and poverty: the poorest regions have the lowest level of electricity coverage. While increasing marginal costs may complicate coverage expansion, this situation is an important liability for the development of these regions. Households with a lack of access to water, roads, and electricity waste greater amounts of time in procuring water, or in traveling from area to area. This time could otherwise be used to diversify and increase income. Access to electricity would increase the number of hours potentially used for reading, studying, or doing productive tasks. Although individually these services may not directly impact economic growth, they are components of a long-term process that improves productivity and standards of living: factors that are crucial to reducing poverty.

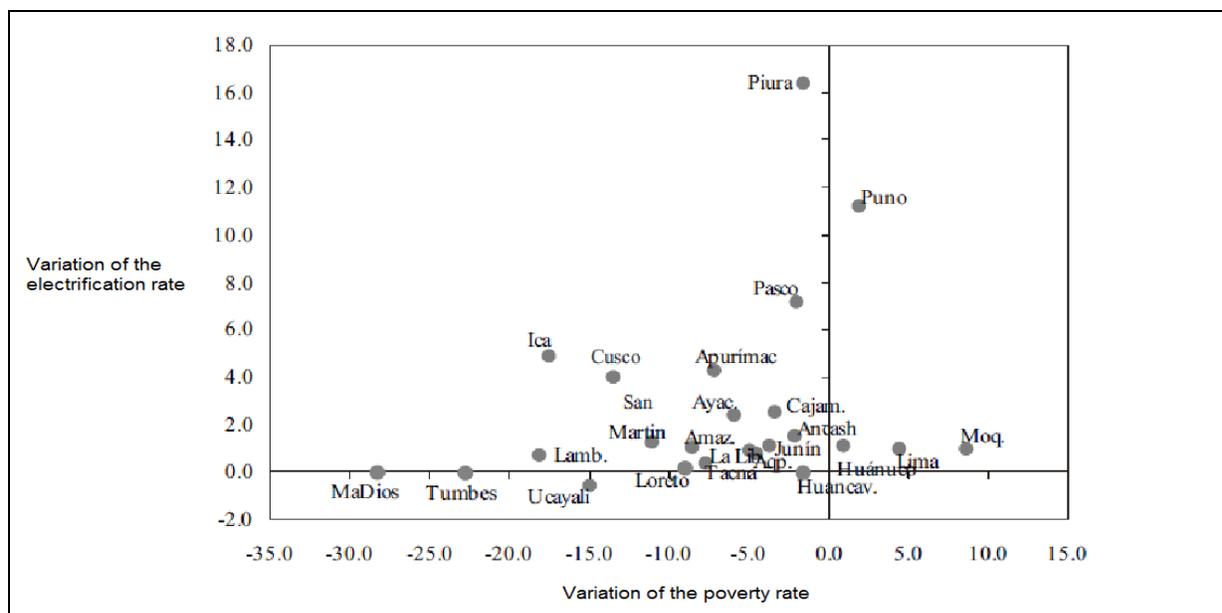
Access to infrastructure is a necessary condition for poverty reduction but is not sufficient on its own.

The inverse relationship between poverty (simply defined in terms of per capita GDP) and access to infrastructure shown above becomes obvious for most cases when following the variations of both parameters over two successive years, but there are some exceptions. Focusing on electricity coverage, **Figure 1-7** shows that 17 Peruvian regions witnessed poverty reduction between 2001 and 2004 while having improved their electrification rate in the same time (shown in the upper left quadrant). Only four regions in the upper right quadrant (Puno, Huánuco, Moquegua, and Lima) show an improvement in access to electricity that does not entail a poverty reduction (with, in fact, an 88 percent increase in poverty for the Moquegua region). Moreover, four regions have a null or negative electrification rate variation and five have a variation inferior to 1 percent. These conclusions demonstrate that improved access to infrastructure does not

¹² IPE, *El camino para reducir la pobreza*

automatically give people an increased income. Unrestricted access to infrastructure is rather a necessary condition for development and growth.

Figure 1-7: Compared variations of poverty and electrification rates



Source: IPE¹³ (INEI, MINEM).

PRICING OF INFRASTRUCTURE SERVICES, COST RECOVERY, AND AFFORDABILITY FOR HOUSEHOLDS

Access to modern infrastructure improves productivity. For poor people, it can in particular increase the amount of time dedicated to productive activities through reducing the time families spend daily on procuring supplies and commuting, the time spent doing household chores, and the time lost through diverse negative impacts on health. In order for these improvements to happen, infrastructure services have to be affordable, or access will remain limited, even when physical infrastructures do exist. Revenues from infrastructure tariffs must also consider cost-recovery since it is a necessary condition for sustainability. In Peru, although some infrastructure services (e.g., ports and, to some extent, electricity) are more expensive than in benchmark countries, affordability does not seem to be a major issue although whether these countries have tariffs at cost recovery level.

Water prices are on average lower in Peru than in LAC.

Water tariffs in LAC are the highest of any developing region, and above the average for middle-income countries. However, they are substantially lower in Peru. In 1994, the General Law of the National Superintendence of Sanitation Services (SUNASS) was passed, creating a new tariff structure in order to push prices up and consequently improve the financial situation of the Municipal Service Providers¹⁴. While this measure resulted in an increase in water prices from

¹³ IPE, *El camino para reducir la pobreza*

¹⁴ *Empresas Proveedoras de Servicios (EPS)* in Spanish

1994 to 1996, it had the opposite effect after 1996, when prices decreased. As an example, water tariffs rapidly increased from \$0.05/m³ in 1994 to \$0.39/m³ in 1996, but fell slightly between 1996 and 2007 (from \$0.39/m³ to \$0.38/m³) in actual terms, as shown in **Table 1-4**. The case of SEDAPAL, the Lima Water and Sewer Company, is different since its prices have continued increasing, rising from a 1994 tariff of \$0.07/m³ to \$0.56/m³ in 2007.¹⁵

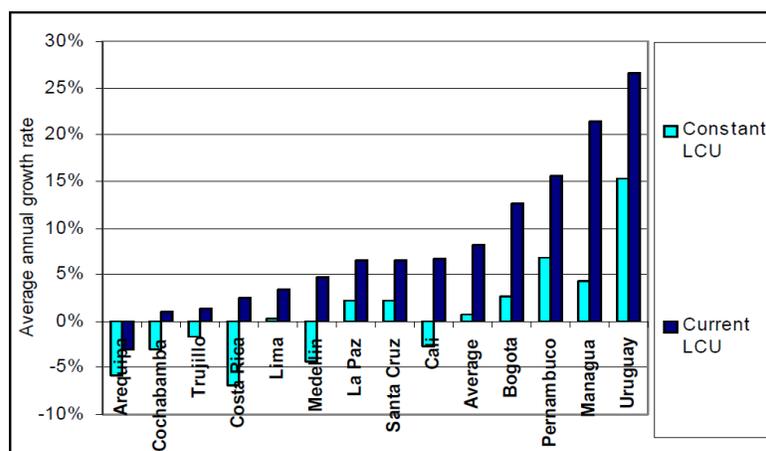
Table 1-4: Average tariffs in water utilities in Peru (1994-2007)

Year	Other Water and Sanitation Utilities								SEDAPAL	
	Large		Medium		Small		Total		S./m3	\$/m3
	S./m3	\$/m3	S./m3	\$/m3	S./m3	\$/m3	S./m3	\$/m3		
1994	0.1	0.05	0.1	0.04	0.08	0.04	0.09	0.05	0.14	0.07
1996	1.06	0.44	0.81	0.34	0.69	0.29	0.94	0.39	1.02	0.42
2007	1.32	0.41	1.18	0.37	0.8	0.25	1.21	0.38	1.79	0.56

Source: SUNASS, 2007 Water Supply and Sewerage Utility Indicators.

According to **Figure 1-8**, from 1997 to 2003 water tariffs increased by 4 percent per year on average in Lima, a value that represents less than 1 percent in real terms (taking inflation into account). In the Arequipa, Cochabamba, and Trujillo Peruvian regions, the real variation of water prices has even been negative on average. In La Paz, Bogota or Montevideo the situation is the opposite, with significant rate increases. In LAC water tariffs still remain twice as high as those in other middle income and developing regions like Eastern Europe or the Middle East, and six times higher than in South Asia, but 40 percent lower than in OECD countries¹⁶. However, one must note that the LAC average is greatly driven upwards by the Colombian cities that witnessed particularly large tariff increases compared to Peruvian cities

Figure 1-8: Average annual change in water tariffs in LAC capitals, 1997-2003 (local currency unit)



Source: World Bank¹⁷, adapted from ADERASA.

¹⁵ For further information, see Chapter 8, *Sector Perspectives: Water and Sanitation*

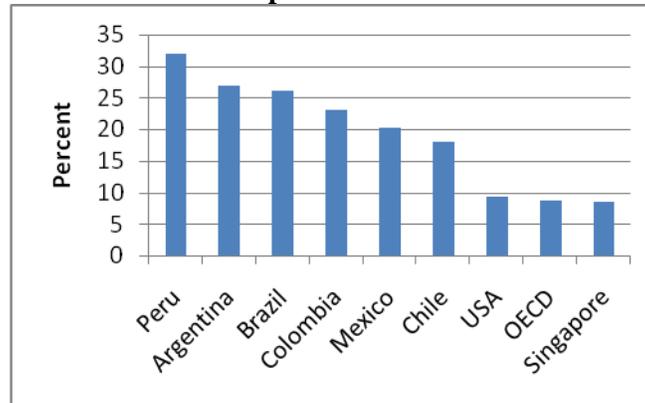
¹⁶ *Is Cost Recovery a Feasible Objective for Water and Electricity? The Latin American Experience*, Vivien Foster and Tito Yepes, The World Bank

¹⁷ Ibid 16

Logistics costs¹⁸ are dramatically high in Peru, as well as port fees; however, toll tariffs are generally lower than in other countries in the region.

With about 32 percent of product value, Peru's logistics costs are among the highest in Latin America, well above Colombia (23 percent), Chile (18 percent), Brazil (26 percent), and Argentina (27 percent). In comparison, the OECD average for logistics costs is about 9 percent (Guasch and Kogan, 2005).

Figure 1-9: Logistics costs in 2004 as a percentage of product value



Source: Guasch and Kogan, 2005.

The main reasons for high logistics costs in Peru are not the high tariffs of transportation services, although port fees in Callao are indeed higher than what is being charged by direct competitors (e.g., Buenaventura in Colombia, Guayaquil in Ecuador, or Valparaiso in Chile). As a matter of fact, airport fees are average for the region while toll road fees are generally significantly lower than in other South American countries. High logistics costs are rather the result of the poor quality of transportation infrastructure and of the unreliability and low quality of transport services, which increase the overall costs of transportation.

Because of poor transport infrastructure, Peruvian firms also need to maintain high inventories, to account for contingencies such as loss or theft due to poor transportation. This situation is particularly striking for inventories of raw materials, for which the mean ratio to the U.S. level by industry reaches 4.19 in Peru, compared to 2.98 in Brazil, 2.22 in Colombia, 2.17 in Chile, and 1.58 in Mexico. High inventories generate financial costs which in turn increase unit costs, thus lowering competitiveness and productivity. High levels of inventories for a developing country are assumed to represent a cost of 2 percent of GDP. However, the fiscal gains of reducing the logistics cost in Peru to their optimal level would be enormous since it would mean financing an increase of 50 to 100 percent of the country's infrastructure stock. On the other

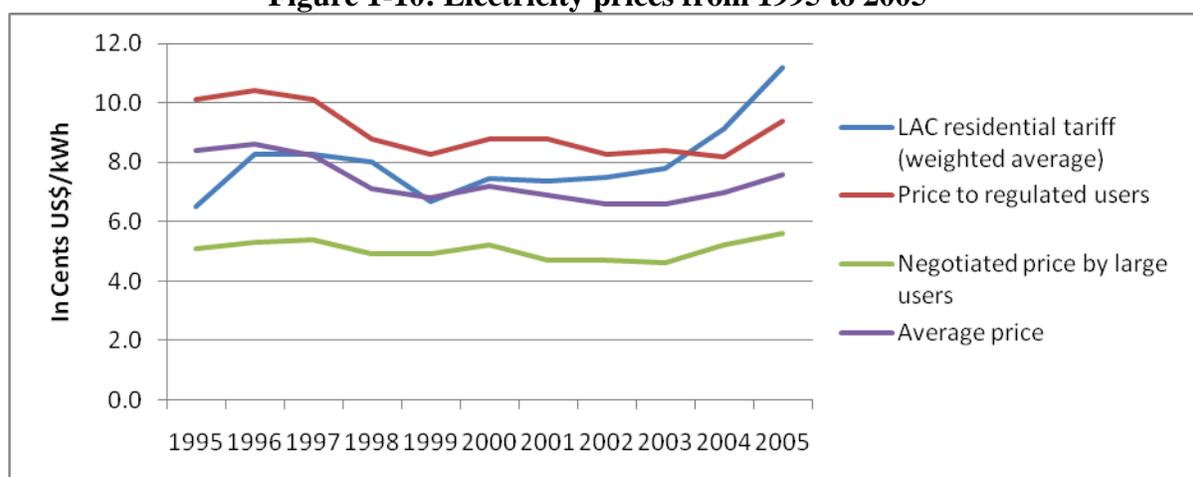
¹⁸ Although there is no precise definition of logistics costs, they can generally be defined as direct transaction costs (transport but also trade-related costs like the processing of permits, customs, or standards) added to indirect financial costs (e.g., inventory, storage, security) and non-financial costs (insurance). (Source: Guasch and Kogan, 2005).

hand, reducing logistics cost would clearly benefit private companies by reducing their unit costs by 20 percent, thereby dramatically increasing their competitiveness¹⁹.

Service fees are average in the electricity sector.

Electricity tariffs in Peru are increasing more slowly than in the LAC region and revenues cover a smaller fraction of total costs. Over the 1995-2005 period, the residential kilowatt hour cost in Peru was a bit less than the LAC average, which is itself higher than in other middle income regions (but less than in OECD countries). The average residential tariff for LAC rose from US\$0.07 to US\$0.09 per kWh between 1990 and 1996, and then fell to US\$0.065 per kWh by 2002. From 2002 to 2007 the prices in the region tended to rise faster than in Peru. In LAC as a whole, most utilities generate more income than they use on operating costs and thus create surpluses that can be used later to self-finance part of their investments in modernizing infrastructure and expanding networks. In contrast, despite their relatively high service fees, Peruvian utilities do not generate sufficient revenue to self-finance a critical share of the investments. Because of poor operational efficiency, these prices remain too low to pay for infrastructure maintenance costs. Another reason is the poor recovery of bills (said to be a major problem for foreign investors) that allegedly puts 95 percent of the service providers in a near-bankrupt situation, unable to carry out their functions adequately.

Figure 1-10: Electricity prices from 1995 to 2005²⁰



Source: World Bank's elaboration, based on Andres et al., and OSINERGMIN.

Affordability issues are less important in Peru than in benchmark countries.

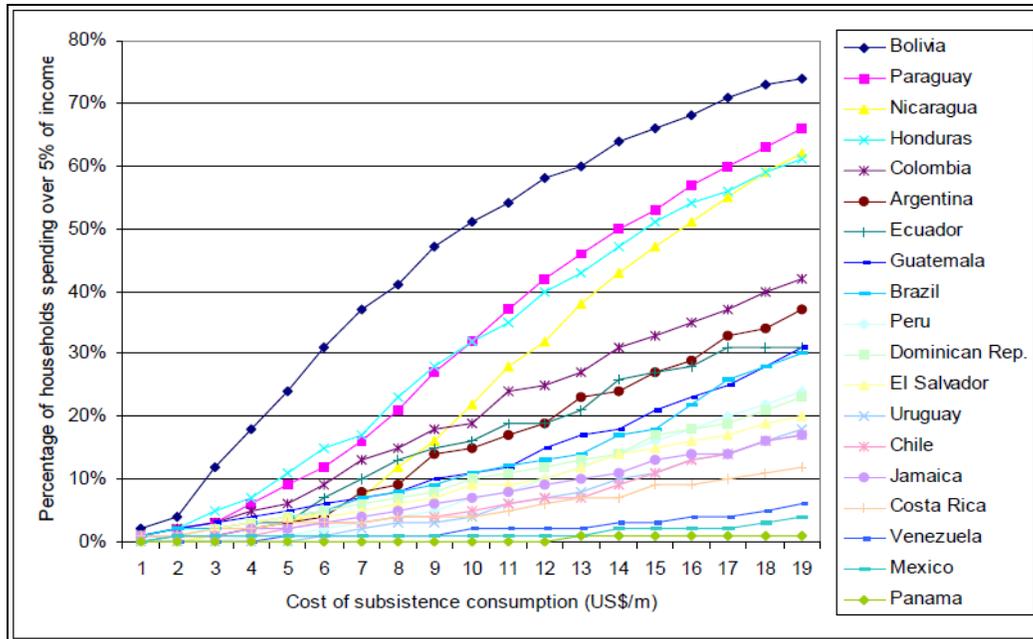
Figure 1-11 presents the percentage of urban households spending more than 5 percent of their income on water and electricity services based on monthly expenditures. The share of the Peruvian population for whom spending up to US\$ 20 per month in water and electricity represents more than 5 percent of their income is relatively small: this share does not exceed 25 percent. By contrast, this figure is 74 percent for Bolivians, 67 percent for Paraguayans, 62

¹⁹ *Latin America: Addressing High Logistics Costs and Poor Infrastructure for Merchandise Transportation and Trade Facilitation*, Gonzalez, Guasch and Serebrisky, August 2007, The World Bank

²⁰ Cf. Chapter dedicated to the electricity sector

percent for Nicaraguans, 61 percent for Hondurans, 42 percent for Colombians, and 38 percent for Argentinians.

Figure 1-11: Urban households facing affordability problems by LAC country (current US\$)



Source: World Bank, 2004.

An increase in infrastructure-related prices is not likely to impact affordability in Peru as strongly as it would in other LAC countries.

The urban Peruvian population does not face serious affordability problems compared to benchmark countries in LAC and worldwide. Hypothetically, if electricity and water prices were to be increased to the cost recovery level, or even doubled, the overall impact on the urban population in Peru would be insignificant²¹. The case of Peru is in stark contrast to that of lower-income countries like Bolivia, Honduras, Nicaragua, and Paraguay, where, facing the same scenario, 50 percent of the population would experience affordability problems. Hence, Peruvian city-dwellers appear capable of bearing a substantial water and electricity tariff increase, which could give incentives to private entities for investing in Peru without worsening poverty or shrinking available income. The situation is, of course, different in the poorer rural areas.

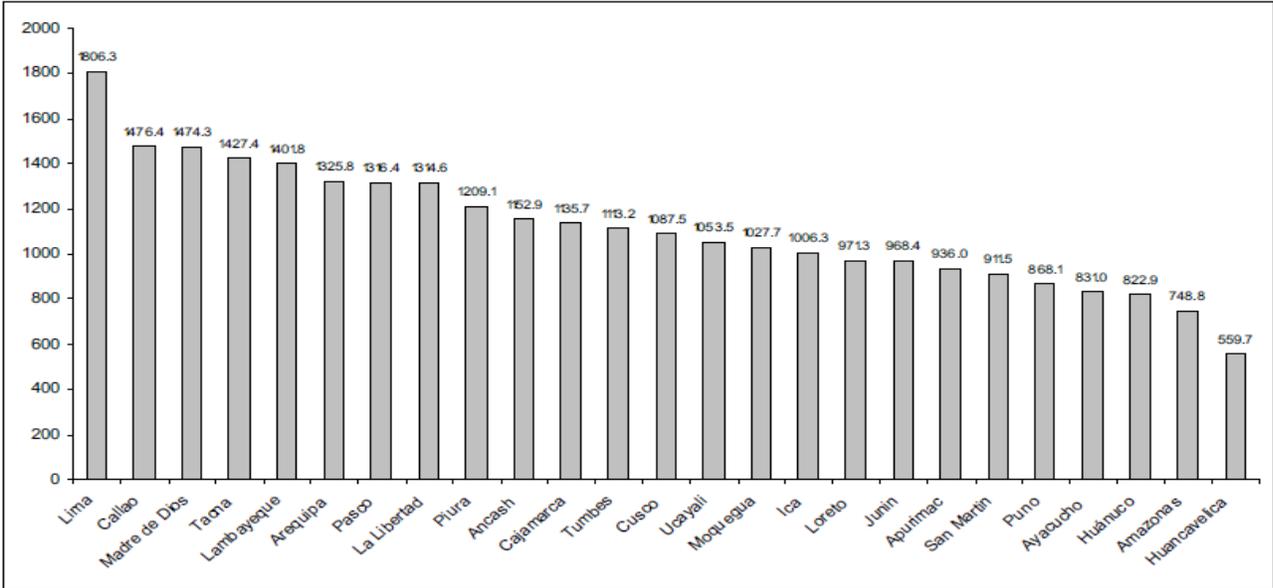
Rural and urban areas need two very different models for setting utility prices, some subsidy being difficult to avoid when expanding services to rural Peru.

In some rural areas, water service providers previously applied fixed monthly tariffs independent of usage, a practice that in some cases resulted in tariffs 15 times lower than the urban average. The cash flow generated in this manner proved to be insufficient to finance the systems' maintenance. The option of increasing prices, one that would be viable in urban areas, is more difficult to apply to rural areas. It is therefore difficult to accommodate the vastly different urban

²¹ Ibid 16

and rural realities through a unique nationwide pricing system. A better approach would consist in firstly implementing tools specifically suited to ensuring cost-efficient operations and maintenance of services in the rural areas, and evaluating associated costs. Secondly, it requires looking at differences in consumption patterns. **Figure 1-12** shows that the results of an electricity consumption study in the different Peruvian regions exhibited a threefold difference between the region with the highest consumption (Lima, with S./1800 per year on average) and the one with the lowest (Huancavelica, with about S./560 per year). Thirdly, the intrinsic characteristics of rural areas entail specific challenges like the increasing marginal cost to connect isolated and remote populations in the *Sierra*. Additionally, the high fixed cost of this type of infrastructure could not be spread out in monthly bills, because the populations would not tolerate it. After looking at these three systemic differences between rural and urban areas, it will generally be concluded that a differentiated pricing policy, with targeted subsidies applying to rural areas, is the only possible option in order to expand access.

Figure 1-12: Yearly electricity expenses per family in different Peruvian regions (in Nuevos Soles)



Source: OSINERG²².

²² In *Encuesta Residencial de Consumo y Usos de Energía*, 2003

CHAPTER 2 : FINANCING INFRASTRUCTURE DEVELOPMENT

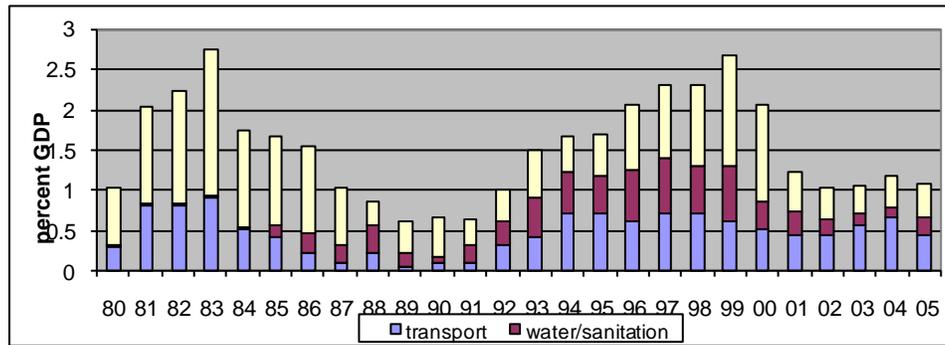
This chapter describes the history of public and private expenditures in infrastructure over the past two decades, highlighting in particular how Peru, like many other countries, has cut infrastructure spending in times of economic downturn. Peru's infrastructure gap can in large part be explained by levels of investments that are significantly lower than other countries in the region. The countercyclical stimulus package adopted by Peru is an opportunity to change this trend and achieve important objectives such as reaching the MDGs for water and sanitation or implementing the priority investments selected in the main planning instruments. However, this will require sustaining the investment effort of the stimulus package beyond 2010. The chapter explains that more ambitious objectives will require additional resources – that could be leveraged from the private sector if the proper policies are in place. A universal infrastructure access policy also deserves attention since it could be implemented over the period 2007-2016 with a greater focus on rural infrastructure.

PUBLIC AND PRIVATE EXPENDITURE IN INFRASTRUCTURE

Peru's investments in infrastructure have been cyclical, ranging from 0.5 to 2.5 percent of GDP

Over the past thirty years, Peru has spent an average of 1.5 percent of its GDP on infrastructure investments (about US\$1.2 billion equivalent in 2005 dollars). An average of about 0.8 percent of GDP has been spent on energy (about US\$630 million equivalent in 2005 dollars), 0.5 percent on transport (US\$400 million), and 0.3 percent in water/sanitation (US\$230 million). Peru's investments in infrastructure have been highly volatile, ranging from only about 0.6 percent of GDP in 1989-1991, up to more than 2.5 percent in 1983 and 1999. Two cycles of high investment levels (1981-1985 and 1993-2000) were followed by two cycles of low spending on infrastructure (1986-1992 and 2001-2005). Since 2006, a relatively modest increase has been observed, which is expected to accelerate with the adoption of the government's stimulus package in response to the global economic downturn.

Figure 2-1: Total investment in infrastructure in Peru

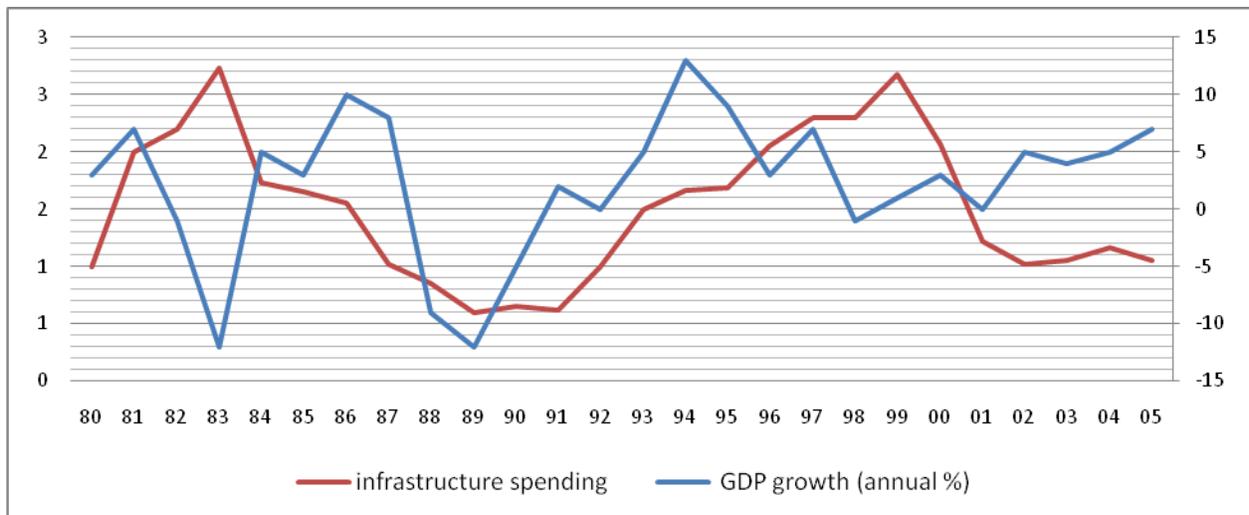


Source: IPE.

Such volatility can be largely explained by past policies through which Peru, as well as other LAC countries, has chosen to cut infrastructure expenditures as it was one of the easiest solutions to quickly reach fiscal adjustment in times of economic downturn.

Until recently, investments in infrastructure in Peru have been highly cyclical and directly correlated with the country's economic performance. There is significant evidence in Latin America that many countries have cut spending on capital expenditures such as infrastructure investments to facilitate fiscal adjustment in response to the economic downturn. In the case of Peru, for example, infrastructure investments dropped to less than 1 percent of GDP during the economic recession of the period 1988-1992. While infrastructure expenditures may be the easiest to downsize, it is now generally believed that such a strategy may delay the post-crisis economic recovery by reducing relative competitiveness and penalizing the restarting of the economy. Also, when maintenance expenditures are downsized, the deterioration of physical assets may result in future higher replacement costs.

Figure 2-2: Infrastructure spending and GDP growth in Peru (percent GDP)



Source: IPE, World Bank.

**Table 2-1: Contribution of infrastructure to fiscal adjustment
(1995-98 compared with 1980-84)**

	Change in public investment / GDP		Change in fiscal balance / GDP	Contribution of investment reduction to fiscal adjustment	
	Total	Infrastructure		Total	Infrastructure
Argentina	-3.97	-2.85	5.31	74.7	53.8
Bolivia	0.91	-3.10	6.15	n.a	50.3
Brazil	-2.80	-3.08	1.77	158.1	174.3
Chile	-0.94	-1.41	2.39	39.2	58.8
Mexico	-6.09	-1.98	6.28	97.0	31.5
Peru	-4.10	-1.51	3.11	132.0	48.6

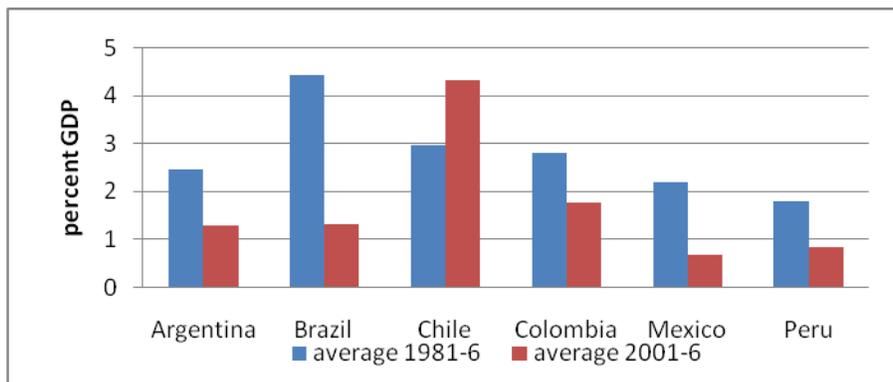
Source: Calderón and Servén (2003).

With its countercyclical stimulus package, Peru is today responding differently to the ongoing financial meltdown. Infrastructure investments, in particular in transport, are seen by the government as a way to maintain economic activity and protect jobs, while reinforcing the country's competitiveness and preparing it for the resumption of economic growth. With a predicted growth of 9 percent in 2010, Peru is one of the least affected of all Latin American countries, and can use some of the benefits of its impressive economic performance since 2002 to start bridging its infrastructure gap.

Peru's investment levels in infrastructure are well below international comparators

Since 1980, Peru has consistently been among the lowest-ranking countries in Latin America in terms of infrastructure investment relative to the size of the economy. During the period 1981-1986, Peru was spending just slightly around than 2.5 percent (2009-2010) of its GDP in infrastructure, while other LAC countries were spending more than 2 percent, or even more than 4 percent in the case of Brazil. In 2001-2006, this financing gap remained vis-à-vis most comparators (a notable exception is Mexico).

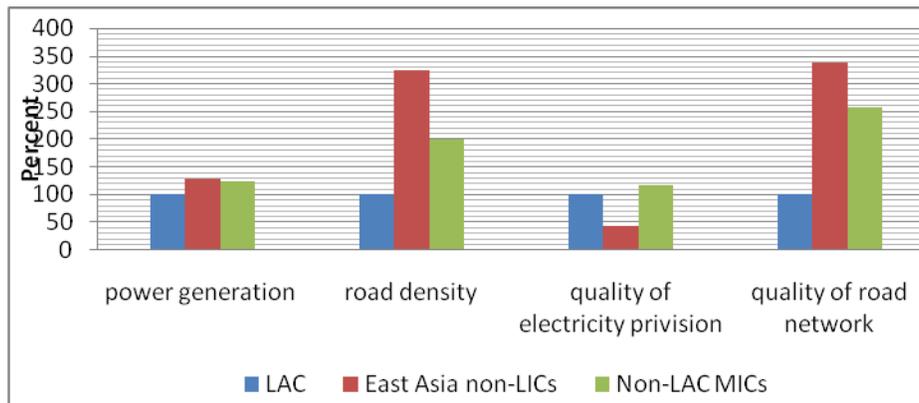
Figure 2-3: Investment in infrastructure in selected Latin American countries



Source: Calderón and Servén (2006).

It should be recalled that the LAC region as a whole is lagging behind other regions of the world (with the exception of North Africa and Africa) in terms of infrastructure spending (see also Chapter 1). The fact that Peru remains among the LAC countries spending the least on infrastructure means that Peru has little chance to reduce the gap with its Asian comparators without a significant investment effort.

Figure 2-4: Comparison of selected LAC infrastructure indicators with benchmarks (LAC = 100)



Source: Calderón and Servén (2009).

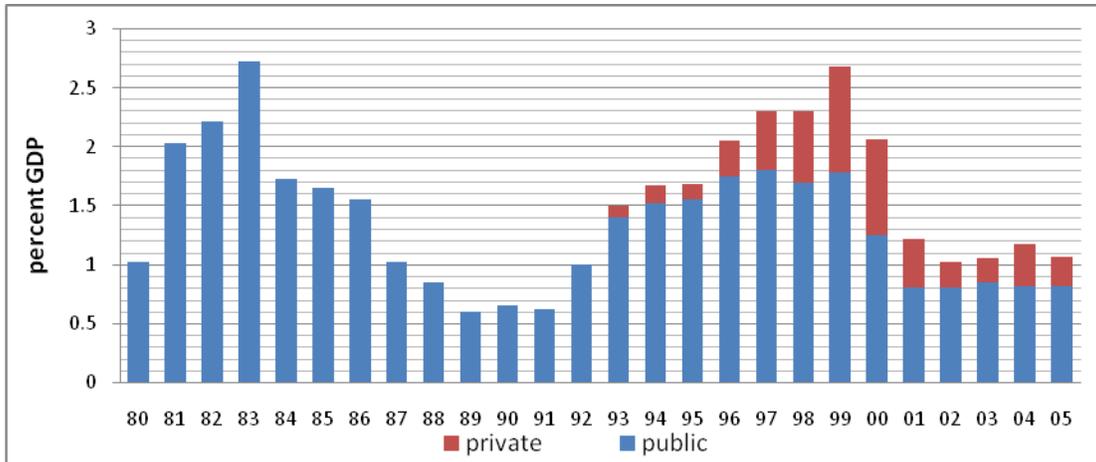
Public spending still represents the bulk of financing

Private financing in infrastructure appeared in Peru in 1993 after the legal framework was modified to authorize it and greater incentives were introduced to promote private investments (particularly in the power sector). However, private financing still represents a relatively modest share of total investments in infrastructure: since 1993, only 23 cents of each dollar invested in infrastructure in Peru has come from private sources. The greatest proportion of private financing in total infrastructure investment in Peru was achieved in 2000 with 39 percent.

Private financing in infrastructure concentrate mostly on telecoms and energy but financing in transport has also grown in the last years. In the power sector, the privatization program established following the 1993 reforms progressed quite successfully until 1997, when significant public assets were transferred into private hands. After that date, the government, taking into account the low public approval of the privatization program in the power sector, redefined its policies toward an ambitious concession program. During the period 1993-2005, private financing in the sector represented on average half of total investment in infrastructure and this proportion even reached two-thirds in 2000. Private financing has grown in the last years in transport. Indeed, in the last decade, private financing in transport has been even larger than in other traditional sectors such as electricity and telecoms.

While more private financing could be leveraged in the infrastructure sectors with more attractive and effective policies and with the increased use of innovative financing instruments, the experience of the 1990s in Latin America has shown that an important role must remain for the public sector and for public financing in infrastructure. It is estimated that only about a quarter of all Peruvian national roads have traffic conditions that could justify concessioning, while rural infrastructure calls for almost entirely non-profitable investments that require financing from public sources.

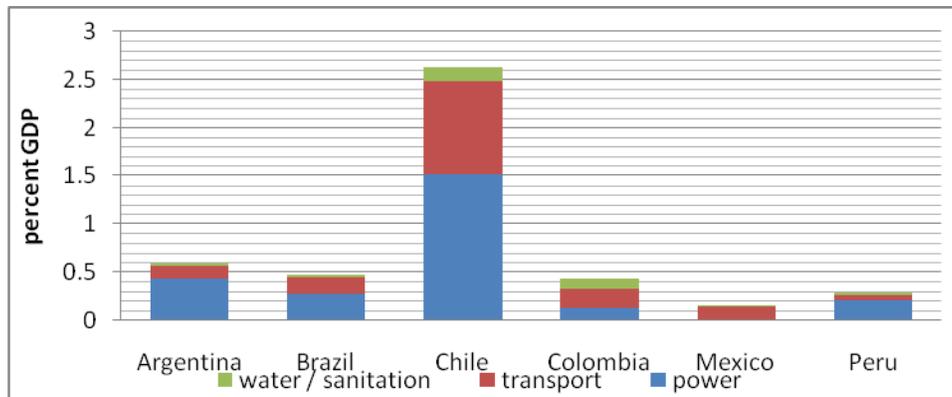
Figure 2-5: Evolution of public and private investments in infrastructure in Peru



Source: IPE.

Argentina, Brazil, and Colombia received private financing in infrastructure of about 0.5 percent of GDP over the period 2001-2006 while Chile has reached to 2.5 percent of GDP - the region's leader in this regard. This suggests that a case can still be made for greater private financing in infrastructure, which would primarily require an improved investment climate, well designed Public-Private Partnerships, and, possibly, the use of innovative financing instruments (see also Chapter 6).

Figure 2-6: Private financing in infrastructure in selected LAC countries (2001-2006)



Source: IPE, Calderón and Servén (2006).

THE CURRENT CONTEXT: EFFECTS OF THE FINANCIAL CRISIS AND THE GOVERNMENT'S STIMULUS PACKAGE

Peru's stimulus package and its expected effects on infrastructure investments

The stimulus package adopted by the government in response to the global crisis amounts to US\$3 billion, or about 2.5 percent of GDP. It is in the lower range in the LAC region: Argentina's stimulus package amounts to 12.5 percent of GDP and Brazil's to 3.8 percent. Peru's stimulus package plans to dedicate two-thirds of its resources to the infrastructure sectors which

would double capital expenditures compared to 2005. A large part of these resources should go to the transport sector with national road investments increasing fivefold compared to 2006, reaching about US\$1.1 billion in 2009. In 2010, national road investments should be at least as much as in 2009. Two emergency decrees (D.U. No. 047-2008 and D.U. No. 010-2009) have been published, listing the priority projects to be implemented under the stimulus package.

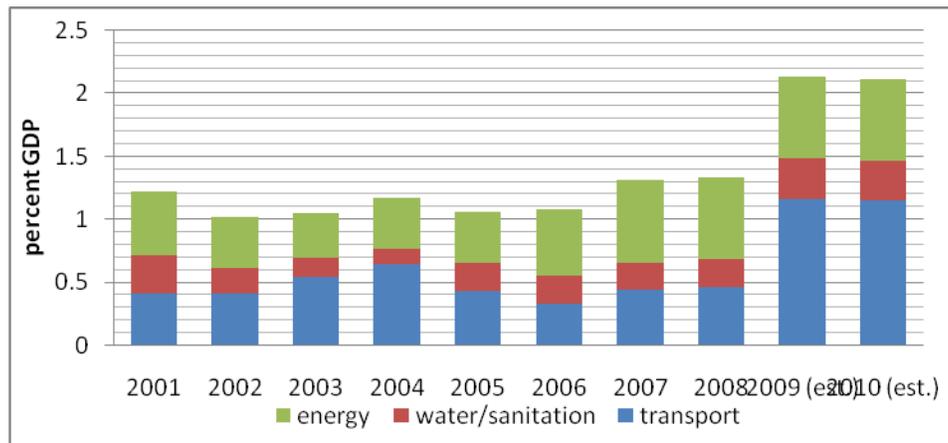
Table 2-2: Infrastructure investments flagged as priorities in Peru’s stimulus package

D.U. No. 047-2008 (ports, airports and new roads)		D.U. No. 010-2009 (road rehab. And bridge constr.)	
<i>Description</i>	<i>Estimated cost</i>	<i>Description</i>	<i>Estimated cost</i>
Port of Paita	US\$232m	Rehab. Road Tingo María – Aguaytía - Pucallpa	n.a.
Port of San Martín (Pisco)	US\$113m	Upgrading Road Ayacucho – Abancay	US\$433m
Port of Salaverry	US\$159m	Rehab. Road Tarapoto – Juanjuí	US\$20m
Port of Pucallpa	US\$17m	Rehab. Road Cusco - Quillabamba	US\$63m
Port of Iquitos	US\$15m	Rehab. Road Casma - Huaraz	n.a.
Port of Yurimaguas	US\$61m	Constr. Bridge Billingurst	n.a.
Highway “Autopista del Sol”	US\$170m	Rehab. Road Lima – Canta – La Viuda - Unish	US\$99m
Highway IIRSA Centro	US\$220m	Rehab. Dv. Tocache - Tocache	n.a.
2 nd group of regional airports	US\$157m	Rehab. Road Chongoyape - Cajamarca	US\$155m
Special project Majes - Siguas	NA	Rehab. Road Tocache - Juanjui	US\$18m
Water treatment plant Taboada	US\$249m	Rehab. Road Quinoa – San Francisco	US\$83m
Special project Chavimochic	NA	Rehab. Road Santiago de Chuco - Shorey	n.a.
		Rehab. Road Trujillo – Shirán - Huamachuco	US\$35m
		Rehab. Road Huaura – Sayán - Churín	US\$90m
		Rehab. Road Churín - Oyón	US\$15m

Source: MEF

If Peru’s stimulus package indeed reaches its objective of increasing infrastructure investments by 1.7 percent of GDP, to be spent over the budget years 2009 and 2010, infrastructure spending for these two years might reach slightly more than 2 percent of GDP. This would position Peru at a level higher than what most LAC countries had been spending before the global crisis (with the exception of Chile). However, it is unclear as of today whether such a level of expenditures will be enough to start closing the gap with Peru’s competitors. This in fact highly depends on how these countries spend their own stimulus packages. It should also be noted that a level of 2 percent of GDP is not exceptional for Peru (it was already reached in 1981-1983 and in 1996-2000). Finally, there are still uncertainties about whether Peru would maintain such levels of expenditures beyond the years 2009-2010, or if it would return to lower levels after implementing the current stimulus package.

Figure 2-7: Estimated evolution of infrastructure expenditures with Peru's stimulus package



Source: Author's calculation

Nevertheless, Peru's stimulus package constitutes an important opportunity to start reducing the infrastructure gap, particularly in the transport sector where the bulk of additional financing is invested. The quintupling of spending in transport should produce a dramatic improvement in terms of improved access and logistics. Some capacity and efficiency constraints in the port sub-sector could also be lifted with the projected investments in several regional ports. However, the designers of Peru's stimulus package should also pay attention to the quality of investment projects and not only to their quantity. In this regard, the largest scale investment projects may not be the ones with the greatest social and economic benefits for Peru.

FINANCING NEEDS

Different approaches to estimating needs

There are different ways to estimate optimal levels of infrastructure investments for a particular country:

- The first option is to look at the existing stock of infrastructure assets and evaluate the levels of investment needed to ensure that these assets are kept in good condition. This requires optimizing the lifecycle of assets, with adequate levels of maintenance and current expenditures but also proper planning of asset replacement.
- The second option is to compare the country's infrastructure stock to those of benchmark or competitor countries (i.e., regional average or leader, countries with a similar level of development or countries competing in the global economy).
- The third option is to evaluate the level of investment needed to reach specific objectives (e.g., improvements in competitiveness index rankings or a particular investment climate ranking, achieving the millennium development goals, or other poverty reduction-related objectives).

- The fourth option uses macroeconomic models to determine how the demand for infrastructure services evolves with growth or which productivity gains and growth performance could be sustained through an increase in the quality and quantity of the country's infrastructure stock.
- The fifth option looks at the effective and timely implementation of planning instruments through which the country has set its own development vision for a particular infrastructure sector.

The following paragraphs explore some of these scenarios in the specific case of Peru.

First scenario: optimizing the existing infrastructure stock

This scenario is based on asset management. It assumes that Peru does not invest in new infrastructure until it has fully optimized its existing infrastructure stock. This is a highly cost-effective scenario for large-scale infrastructure investments since expensive replacement costs and quick deterioration take place if the infrastructure is not properly operated and maintained. This is also an attractive scenario in terms of environmental sustainability since an optimized use of existing infrastructure may reduce the possible adverse impacts of building new infrastructure.

A life-cycle evaluation of Peru's road network, for example, suggests that about US\$770 million per year would be needed to upgrade the entire existing stock to very good or good condition and maintain it at that level. In comparison, MTC's budget to rehabilitate and maintain the existing network was lower than US\$400 million in 2005-2008 and only increased to about US\$600 million in 2009 with the stimulus package. Subnational government expenditures should, however, be added to this total.

Second scenario: bridging the gap with benchmark countries

A simple way to compare Peru with benchmark countries is to look at which investment level would be required to avoid the worsening of Peru's infrastructure situation with regard to the regional Latin American average. According to Calderón and Servén (2009), the weighted average of infrastructure investments for six major LAC countries (Argentina, Brazil, Chile, Colombia, Mexico, and Peru) amounts to 1.23 percent of GDP for the period 2001-2006. In comparison, Peru was spending an average of 1.10 percent of GDP over the same period; the average for 2001-2010 should increase to 1.43 percent of GDP with Peru's stimulus package. As the size of Peru's economy is close to the LAC average, it is likely that the stimulus package will prevent a further widening of the gap compared to the average LAC infrastructure stock. It may, however, be insufficient for Peru to significantly catch up, since other LAC countries are also implementing their own stimulus packages.

Table 2-3: Potential increase in per capita GDP growth from improved infrastructure stock

Country	Improvement to level of Costa Rica			Improvement to level of Korea		
	Quantity	Quality	Total	Quantity	Quality	Total
Argentina	1.3	0.4	1.7	2.2	0.9	3.2

Bolivia	1.5	1.4	2.9	2.4	1.9	4.4
Brazil	1.5	1.4	2.9	2.4	1.9	4.4
Chile	1.3	0	1.3	2.3	0.6	2.8
Colombia	1.9	1.2	3.1	2.9	1.7	4.6
Ecuador	2	1	3	3	1.5	4.5
Peru	3	0.6	3.5	4	1.1	5
Uruguay	0.7	0.4	1.1	1.7	0.9	2.6
Venezuela	1.1	0.4	1.4	2	0.9	2.9

Source: Calderón and Servén (2004).

Fay and Morrison (2005) estimated what it would cost for Peru to raise its infrastructure stock to the level of Korea. Assuming the corresponding investment cost is spread over a 20-year period, the authors found that Peru would need to invest annually between 6 and 10 percent of its GDP only for both energy generating capacity and roads (depending whether the road density is calculated for total roads or for paved roads). Water and sanitation expenditures would need to be added to this total.

Third scenario: achieving social objectives

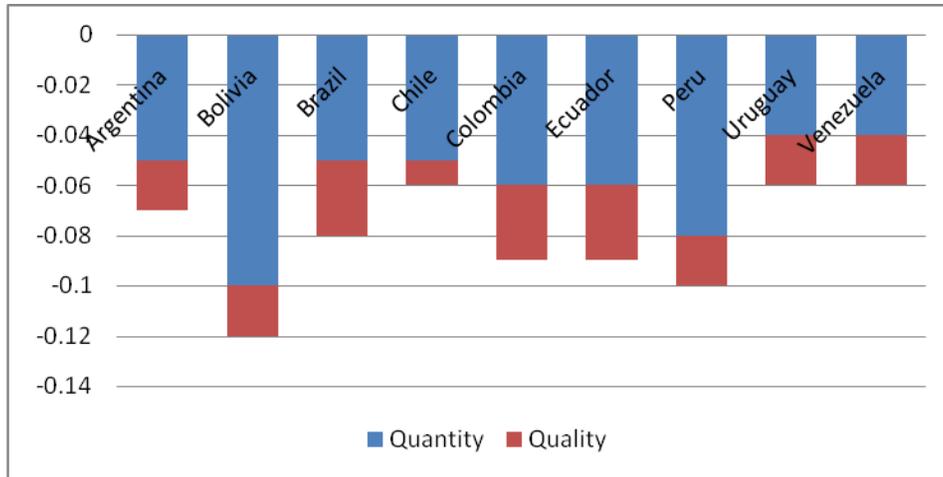
Infrastructure expenditures generally are progressive. A World Bank analysis of all infrastructure projects financed between 1960 and 2000 in Latin America has shown an average social rate of return of 12.8 percent for energy, 22.4 percent for transport, and 11.0 percent for water/sanitation.²³

Bridging Peru's infrastructure gap would be a pro-poor policy that could help reduce Peru's high levels of income inequalities. A simulation done by Calderón and Servén in 2004, which assumed that the infrastructure stock of several Latin America countries were aligned both in quantity and in quality with Korea, one of the leading "Asian Tigers," showed important benefits in the effort to reduce income inequalities. In the case of Peru, a 0.1 reduction of the Gini coefficient could be expected, the second greatest impact in South America, just after Bolivia.

An important social objective in the case of the water sector is reaching the Millenium Development Goal (MDG) target in access to safe water and sanitation services (i.e., 92 percent coverage for safe water and 90.5 percent for sanitation by 2015). It has been estimated that this would require an investment of US\$2.5 billion over the period 2006-2015 (about US\$250 million per year). Complying with Peruvian environmental regulations, in addition to meeting the MDG targets, would mean increasing investment in the sector to US\$3.7 billion over the period 1996-2015 or about US\$367 million per year. In comparison, Peru is expected to spend US\$288 million on average in water/sanitation over the period 2006-2010 thanks to the stimulus package (only an average of US\$229 million was spent in 2006-2008). The MDG should therefore be met (but not the objective to comply with Peru's environmental regulation guidelines), provided the investment effort is sustained beyond the stimulus package.

²³ Operation Evaluation Department, The World Bank

Figure 2-8: Impact on Gini coefficient of aligning the infrastructure stock with Korea's



Source: Calderón and Servén (2004).

Fay and Morrison (2005) estimated the cost of achieving universal water, sanitation, and electricity coverage in several LAC countries. They found that the additional investment cost in the case of Peru would be 0.52 percent of GDP, to be sustained over the period 2006-2015, with a growth scenario of 2.7 percent per annum. The assumption there is that low-cost technologies (off-grid electricity, latrines for sanitation) would be used to expand access to the most dispersed population. This cost does not, however, include operation and maintenance costs.

In the case of transport, rural access could be dramatically improved if all of Peru's rural roads could be upgraded, using low-cost technologies (gravel roads) that have proven to be sustainable if proper maintenance is also ensured. It is estimated that the total investment cost associated with such upgrading (the rehabilitation of existing roads) is US\$512 million. Spread over a decade and including maintenance costs, Peru would need to spend a budget of US\$115 million per year to bring rural access to 10 million Peruvians by improving and keeping in good condition its existing rural road network.

Box 2-1: A “cheap” and high-impact investment: rural roads

Peru has 47,000 km of rural roads, of which only about 15,000 km have been improved through the successful “rural roads program” in place since 1995. This program has developed low-cost solutions to rehabilitate and maintain rural roads. Some of the roads rehabilitated and maintained under this program are now 14 years old, and are still in acceptable condition. This has helped the Ministry of Transport and Communications, as well as local governments, to better understand what could be an optimized life cycle for rural roads in Peru. It is in particular estimated that, under sound management conditions (i.e., permanent routine maintenance), a rural road could require only a full rehabilitation every 15 years, as well as a periodic maintenance during the fifth and tenth year. In the most adverse climatic conditions, an annual mechanized maintenance (*perfilado*) consisting of surface repair by a grader, could be required, in addition to emergency maintenance activities.

As of 2009, the average cost for one km of rural roads was about US\$16,000 for rehabilitation, US\$2,800 for periodic maintenance, US\$600 for the “*perfilados*,” and US\$800 per year for routine maintenance. Based on these assumptions, Peru could rehabilitate and maintain all its rural roads over a decade by investing an annual investment budget of about US\$115 million. This annual budget should include: US\$51 million for rehabilitation, US\$18 million for periodic maintenance, US\$9 million for the “*perfilados*” and emergency maintenance, and US\$38 million for routine maintenance. In comparison, Peru currently spends a total of only about US\$30 million per year on rural roads.

About ten million Peruvians depend on these rural roads to provide access to social services (education, health) and economic opportunities (markets, technology, etc.). The social and economic benefits of investing in rural roads would be massive, not to mention the employment generation through in particular labor-intensive routine maintenance activities. The economic rate of returns on such investments has been estimated *ex post* to 31 percent, with a 14 percent discount rate.

Finally, in the power sector, three subsidy programs have been developed to expand access to electricity. First, a social tariff (FOSE) was introduced in 2001 in Peru for a period of three years to increase the affordability of electricity services to the poor. In 2004 the FOSE was extended indefinitely. This cross-subsidy is paid by users with an electricity consumption above 100 kWh (it represents an increase of about 3 percent of electricity tariffs) and benefits poor urban and rural users (from a 25 percent to 62.5 percent reduction in prices). Over fifty-eight percent (58.4) of households are benefiting from the FOSE for an annual cost of US\$26.3 million in 2007. Two other subsidy programs were created in 2006 to support rural electrification, for a total annual cost of US\$44 million. In total, US\$60 million in subsidies are supporting either the consumption of electricity services by the poor or the supply of rural electrification services which will mostly benefit the poor (the rural poverty rate being 78 percent). In 2007, these three subsidy programs represent almost 10 percent of the total investments in the sector. Although they are significant, these resources are far from the annual investments needed to engage towards a universal access policy to be implemented over a decade in the electricity sector (US\$300 million annual needed).

Based on these results, achieving a universal access policy for infrastructure services (transport, water/sanitation, power) for Peru during the years from 2007-2016, is estimated to annually cost US\$673 million, or 0.61 percent of GDP. In comparison, Peru has spent until now about US\$85 million on rural infrastructure, including about US\$30 million on rural roads, US\$45 million for rural electrification, and about US\$10 million on rural water/sanitation (Rodriguez, 2004). An increment of 0.53 percent of GDP, or US\$588 million in 2007, would therefore be needed to achieve the universal access objective.

Table 2-4: Estimated annual cost for Peru to achieve universal access in the period 2007-2016

	Investment	
	% GDP	US\$m in 2007
Safe water	0.08	86
Sanitation	0.16	172
Electricity	0.28	300
Rural roads	0.09	115
Total needed	0.61	673
Actual	0.08	85
Increment needed	0.53	588

Source: Fay, Morrison (2005), Authors.

Fourth scenario: The macroeconomic approach to modeling infrastructure investment needs

Fay and Yepes (2003) have modeled the demand for infrastructure services based on growth projections for the decade 2001-2010. They made the distinction between investment needs to expand the infrastructure stock (i.e., coverage extension, paving of roads) and meet the additional demand, and investment needs required to maintain the existing stock. They found that over the period 2005-2010, the LAC region should spend 0.84 percent of GDP in expanding its infrastructure stock for electricity generation, paved roads, and water / sanitation, and another 0.76 percent of GDP in maintaining the existing stock. According to this model, expected investment needs for the three sectors in the LAC region should therefore amount to at least 1.60 percent of GDP (more if accounting for the needs of electricity distribution and transmission, as well as for unpaved roads).

In comparison, assuming the stimulus package is implemented as scheduled, the average spending in infrastructure for the period 2005-2010 should reach 1.56 percent of GDP in Peru. However, as Peru's infrastructure stock is in the lower range in the region, both in terms of quantity and quality, the regional average found by Fay and Yepes should be significantly below what is actually needed in the case of Peru. The comparison between Peru's expected spending in 2005-2010 and regional investment needs over the same period suggests that power is the sector where Peru needs to especially increase its current investment level.

Table 2-5: Comparing Peru with Fay and Yepes' regional investment needs for 2005-2010

Percent of GDP	Peru's expected spending on infrastructure 2005-2010	Fay and Yepes' regional investment needs in infrastructure 2005-2010
Transport	0.7	0.3
Water / Sanitation	0.26	0.21
Power	0.6	1.09
TOTAL	1.56	1.6

Source: Fay and Yepes (2003), Authors.

Other studies have evaluated the impact on growth of increased infrastructure spending. One of these studies compared, for example, what would happen if the infrastructure levels in Peru

(located in the 75th percentile of the Latin America region) were to have risen to the levels of Chile (25th percentile) during the 1996-2000 period. The authors found that Peru's growth rate would have risen by 1.7 percentage point²⁴. Instead, the gap has been widening between the two countries: in the 1997-2001 period, Chile spent an average of 4.35 percent of GDP in the three infrastructure sectors (transport, energy, water/sanitation), while Peru spent 2.1 of its GDP in these sectors.

Calderón and Servén (2004) performed a similar benchmarking exercise by looking at the growth impact of upgrading Peru's infrastructure stock (quantity and quality) to the levels of Costa Rica (leader in LAC) and Korea (leader among the "Asian Tigers"). They found that Peru's per capita GDP growth would increase by 3.5 percentage points if Peru's infrastructure were on par with Costa Rica's, and 5.0 percentage points with Korea. The estimated impact of such scenarios on Peru's per capita economic growth would be the greatest in South America, after Bolivia. However, such growth benefits would require a significant increase of the infrastructure stock. If Peru's infrastructure stock were to be aligned with Costa Rica's (the leader in the region), it would require an increase of main telephone lines (per 1,000 people) from 164 to 457, an increase of the electricity generating capacity (per 1,000 workers) of 0.5 to 0.9 GW, and an increase of paved roads density from 0.06 to 0.70 km per sq. km.

Fifth scenario: public investments as prioritized by existing government master plans (IPE, 2002)

This scenario, which was elaborated by IPE in 2002, used the infrastructure development plans set by governmental agencies (MTC) for the next decade (roads, water/sanitation, electricity distribution, and transmission) or, in some cases, for the next 30 years (airports). In the case of electricity generation, two scenarios are presented: a high case, which corresponds to a production per capita equal to 50 percent of the Chilean one in 2001, and a low case which corresponds to 50 percent of the average of Argentina, Brazil, Colombia, and Venezuela in 2001. The total investment cost of this scenario is US\$14.0 to 15.8 million. Assuming that this scenario would have been implemented over the decade 2002-2011, Peru would have needed to sustain an annual investment level of 1.5 to 1.6 percent of GDP.

The scenario was updated by IPE in 2006, based on the government's revised planning instruments and updated unit costs. The total investment cost for the three sectors became US\$20.9 billion, including US\$7.7 billion for the power sector, US\$5.5 billion for water / sanitation, and US\$7.7 billion for transport. If this scenario were to be implemented over the period 2007-2016, it would require sustaining 1.6 percent of GDP during that same period (0.6 percent of GDP for power, 0.6 for transport, and 0.4 for water / sanitation). In comparison, actual and estimated expenditures for the period 2007-2010 should reach 1.58 percent of GDP (0.65 for power, 0.65 for transport, and 0.38 for water/sanitation), thanks to the stimulus package. It seems, therefore, that Peru is on track to meet this scenario for the three sectors. However, it is important to note that this will require sustaining significant levels of investment once the effects of the stimulus package are over.

²⁴ Gonzalez, J., Guasch, J.L., Serebrisky, T., 2007

Table 2-6: Cost of implementing Peru’s infrastructure plans (thousands of \$US)

Transport		Water / Sanitation		Electricity	
National roads	2,277	Extension coverage water	1,553	Distribution	1,101
Regional roads	1,331	Extension coverage sanitation	1,601	Transmission	303
Rural roads	598	Extension coverage water treatment	385	Generation	2,336 - 4,166
Urban roads	799	Rehabilitation water and sanitation	532		
Callao port	132	Monitoring water quality	100		
Other ports	27				
Callao airport	770				
Other airports	155				
TOTAL	6,090	TOTAL	4,154	TOTAL	3,739 – 5,569

Source: IPE (2002).

Conclusion

Some of the scenarios described above are clearly out of reach for Peru. In particular, it is highly unlikely that Peru will be able to catch up with the Asian Tigers’ leader (Korea), even over a 20-year period. Two years ago, Peru was also unlikely to meet any of the different investment need scenarios, even the most modest ones. The infrastructure gap with the Latin American average was still expected to continue widening and even the approved long-term infrastructure plans were unlikely to be implemented. This situation has significantly changed with Peru’s stimulus package which has been able to increase the average infrastructure spending from 1.10 percent of GDP over 2001-2006 to 1.58 in 2007-2010. Although such spending levels are still below that of several Latin America countries (e.g., Chile, Colombia), they should allow Peru to catch up with the regional average, achieve the MDGs for water and sanitation, and implement the priority investments selected in its main planning instruments. However, these achievements will be reached only provided that higher levels of investment in infrastructure are sustained once the stimulus package is over (i.e., beyond 2010) and do not return to the austerity of the years 2001-2006. With a little bit of additional effort, Peru could optimize its existing road infrastructure stock, eventually match the projected demand for infrastructure services, and perhaps comply with its environmental regulations for water. Finally, a special mention should be made of the relatively modest cost of achieving universal infrastructure access over the period 2007-2016. Unfortunately, this scenario is highly unlikely to materialize due to the current focus of the stimulus package on large-scale infrastructure (“mega projects”) and not on rural infrastructure.

Table 2-7: Benchmark of Peru planned and needs investments in selected scenarios

Scenario	Cost	Expected results	Is Peru on track?
Optimizing the existing infrastructure stock	US\$770 million per year just for roads	Cost-effective use of existing assets; reduces environmental impact	Unlikely: budget to manage existing road network amounted to less than US\$400 in 2005-2008 and increased to US\$600 in 2009
Closing the gap with leading benchmark countries (Korea)	Between 6 and 10 percent of GDP for 20 years just for energy generation and roads	5 percent additional growth rate	No: Peru has only spent an average of 1.5 percent of GDP for the past thirty years. Infrastructure spending peaked in 1983 and 1999 with 2.7 percent of GDP
Maintaining the situation of Peru relative to the Latin American average (2001-2006)	1.23 percent of GDP	Preventing the infrastructure gap between Peru and the Latin American average to widen	Possibly: Peru only spent an average of 1.10 percent of GDP over 2001-2006 but this average is expected to jump to 1.43 percent of GDP for 2001-2010 with the 2009-2010 stimulus package. However, higher spending levels will need to be sustained beyond the stimulus package.
Achieving the MDGs for safe water and sanitation and comply with environmental regulation in 2006-2015	US\$250 million per year just for the MDGs; US\$367 million if compliance with Peru's environmental regulation is included	Achieve MDGs and meet environmental regulation	Partially: With the help of the stimulus package, Peru should spend US\$288 million in 2006-2010. To meet the MDGs, this effort needs to be sustained beyond 2010. Investment levels are insufficient to comply with the environmental regulation.
Achieving universal access in 2007-2016	0.53 percent of GDP additional to current spending level	Major poverty reduction benefits (estimated 27 percent increase of rural households' income)	No: Stimulus package is prioritizing investment in larger scale infrastructure. Rural infrastructure investment only amount to 0.08 percent of GDP but fiscal decentralization should increase this amount.
Matching the projected demand for infrastructure services in 2005-2010	Average of 1.60 percent of GDP for LAC region as a whole. Peru likely to need to spend more (e.g., between US\$0.7 and 1 billion in roads)	Match evolution of demand as estimated through macroeconomic modeling	Unlikely: With the stimulus package, Peru's average spending for 2005-2010 should reach 1.56 percent of GDP. Peru needs to spend more than the regional average.
Implementation of Peruvian government master plans in 2007-2016	Average of 1.60 percent of GDP	Ensure that national priorities, as prioritized by Peruvian stakeholders, are actually implemented	Possibly: With the stimulus package, Peru's average spending for 2007-2010 should reach 1.58 percent of GDP. However, higher spending levels will need to be sustained beyond the stimulus package.

Key recommendations: Financing Infrastructure Development

Increasing Peru's capacity to successfully implement the stimulus package	Preparing the ground for the post-stimulus phase
<ul style="list-style-type: none"> • Seize the current context of the global crisis and of Peru's relatively strong economic performance to aim at increasing private financing flows in the infrastructure sector • Develop the use of innovative financing instruments (infrastructure funds, guarantees) 	<ul style="list-style-type: none"> • Sustain an investment effort in infrastructure of around 2 percent of GDP beyond the stimulus package • Focus on the long-term objective of optimizing the road infrastructure stock, matching the projected demand of infrastructure services and of meeting environmental regulation for water quality • Consider achieving universal access to infrastructure over the period 2007-2016 • Aim at more predictable and less volatile budget allocations for infrastructure investments and further the existing pilot on performance-based budgeting

CHAPTER 3 : PLANNING INFRASTRUCTURE DEVELOPMENT FOR EFFICIENT LOGISTICS

This chapter assesses the situation of infrastructure planning mechanisms in Peru, focusing on the transport sector. The chapter starts with a description of trade logistics, an important issue considering the increasing trade integration of Peru as well as the on-going trade negotiations with key commercial partners. Then, various aspects of logistics are analyzed, highlighting key bottlenecks for trade, due to the deteriorated situation of transport infrastructure. The chapter continues by explaining how existing planning instruments do not take logistics issue enough into consideration and how infrastructure planning is currently mostly handled under a “planning under pressure” mode, a phenomenon that is becoming even more acute with the stimulus package. Several good practices for infrastructure planning are then presented before concluding with a few recommendations on how logistics needs could be better linked with infrastructure investment plans.

THE ROLE OF INFRASTRUCTURE IN PERU’S LOGISTICS PERFORMANCE

Trade logistics in Peru

Peruvian trade represents approximately 41 percent of the national GDP, with volumes expected to grow as a result of recent Free Trade Agreements (FTAs) with China and the United States, as well as others currently under negotiation. Since the late 1990s Peru has focused on a trade liberalization policy oriented to achieve a stronger integration in the global economy. This policy materialized in a sharp decline in tariffs and a marked increase in the level of commercial openness. According to the World Trade Organization “the average tariff fell from 11.9 to 8.2 percent between 2001 and 2006, and the level of commercial openness expressed as the share of exports and imports in GDP rose from 26.9 percent to 41.5 percent in the same period”²⁵. In 2008, Peru registered a trade surplus of US\$1.3 billion, down from US\$7.2 billion in 2007²⁶. Exports totaled US\$31.2 billion in 2008, versus US\$27.6 billion in 2007, though export growth slowed by the end of 2008 as global trade volumes fell as a result of the international financial crisis. The value of imports reached US\$29.9 billion in 2008, up from US\$20.4 billion in 2007, fueled by the solid domestic demand and demand for intermediate goods²⁷. As the world economy recovers from the financial crisis, prospects for Peruvian trade are optimistic. This is because FTAs are in place with Peru’s two main trading partners, the US and China, ensuring increased trade flows, particularly as the latter is expected to recover from the crisis rather quickly. In addition, Peru continues to place a high priority on concluding additional FTAs: two agreements with Canada and Singapore were recently implemented, negotiations will continue towards agreements with the EU and Mexico, and talks will start in 2010 with India, Russia,

²⁵ *Peru Trade Policy Review*, WTO, 2007.

²⁶ *EIU Peru Commerce*, 2009

²⁷ *Ibid.*

Australia, and South Africa. Finally, the prices of metals (Peru's main export product) are expected to remain firm during 2010, ensuring favorable terms of trade for the country²⁸.

The main exports are minerals and hydrocarbons, agricultural products, fishing products, and textiles. The principal imports are inputs for manufacturing, fuels and lubricants, and capital goods. During 2008, exports of minerals and hydrocarbons represented 68 percent of the total value of the country's exports, increasing their contribution *vis à vis* 2007 by 6.5 percent. Copper was the major item in this category, followed by gold and zinc. Agricultural exports represented a total of 8.3 percent of the value of total 2008 exports, and were up by 32 percent from 2007. The main agricultural exports are fishmeal, unroasted coffee, and vegetables. Among the latter, asparagus is a leading export item, which represented 16 percent of Peru's agricultural export revenue in 2008. Garments and other textiles generated US\$2 billion, representing a 6.5 percent share of total exports. As for imports, the main items were inputs for manufacturing, and lubricants and related items, which totaled US\$8.8 billion and US\$5.4 billion in 2008 respectively and were up by an average of 40 percent compared to 2007. Construction materials (which represent 5 percent of total imports) became a relevant item due to their significant increase of 123 percent from their value in 2007 as a result of large investments in the construction sector during 2008.

The modal split for international trade is dominated by maritime transportation, while surface transport handles a small proportion of freight, and air transport is increasing its relative participation. The U.S. is the country's most important trading partner, accounting for 19 percent of imports and 18.5 percent of exports in 2010. China has increased its share of Peruvian trade in recent years, representing 12 percent of exports and 13 percent of imports in 2010. Some of the volume of imports from Brazil and Ecuador, and exports towards Chile and Venezuela account for the limited share of surface transport. Air transportation has shown a sustained increase in freight volumes, pushed by the fast growing trade of specialty agricultural products. For this group of goods in particular, the need to comply with strict requirements by international clients has triggered a series of improvements in the internal logistics chain, which in turn has triggered improvements in air freight services (modernized fleets, reefer facilities, specialized operations, etc).

Logistics flows for dry bulk cargo and specialty agricultural products are becoming increasingly relevant and complex, as export volumes for these items grow. The share of mining in total exports is expected to remain high as prices continue to strengthen and new projects become operational. The volumes of non-traditional exports such as fruits and vegetables, textiles, canned and frozen fish, and steel and metal products will continue to grow as a result of stimulus provided by the Andean Trade Promotion and Drug Eradication Act (ATPDEA). Earnings from this group of products have more than doubled since 2004. In 2007 non-traditional export earnings rose by 19 percent year-on-year, reaching US\$6.3 billion. As trade volumes grow, specific challenges have arisen in the two logistics chains. In the case of dry bulk cargo, these challenges are mostly associated with logistics services. First, the structural imbalance between exports and imports results in a shortage of bulk carriers to serve the Peruvian market. Second, the lack of a railway-port interface, particularly for minerals shipments in Callao, requires a short land transport haul which is usually covered by a truck fleet that is both insufficient and inadequate for this type of freight. These inefficiencies are reflected in higher logistics costs and

²⁸ Ibid.

shipment delays in products that take a large share of Peru’s exports, such as minerals and fish meal. Bottlenecks in the logistics chain for non-traditional exports (such as fruits and vegetables) on the other hand, are linked to difficulties in the provision of logistics services. Some of the most relevant are the lack of specialized reefer facilities in Callao; the small size of the reefer truck fleet; and limited space for air freight.

The results of international indicators

As regards the performance of Peru’s logistics system, the existing indicators show a consistent result: the country is close to the regional average in most areas, with the greater weaknesses in basic infrastructure and customs. Peru was ranked 67th in the world in the 2010 Logistics Performance Index (LPI), with customs procedures and infrastructure bringing the score down. According to the LPI sub-indices, tracking and tracing show good scores, but should improve, given the growing importance of non-traditional exports (i.e., asparagus, fruits). The 2010 Trade Enablers Indicators (produced by the World Economic Forum) show Peru in a good relative position in regional terms, customs efficiency and transport infrastructure being its main weaknesses; customs transparency and imports-exports procedures appear better than average. The international indicators and the analysis done in this report confirm that infrastructure is just one component in determining a country’s logistics performance, although a very relevant one, and that the trade scenario calls for major infrastructure improvements in order to remain competitive. Nonetheless, it should not be forgotten that logistics performance depends on several determinant factors in addition to transport infrastructure (and services), such as trade facilitation and business logistics organization. As far as infrastructure planning is concerned, in the new context that Peru is now facing, the goal should be to address not only social but also logistics needs. The traditional institutional framework of the sector often does not facilitate the latter link, and infrastructure investment decisions are made with a supply delivery perspective.

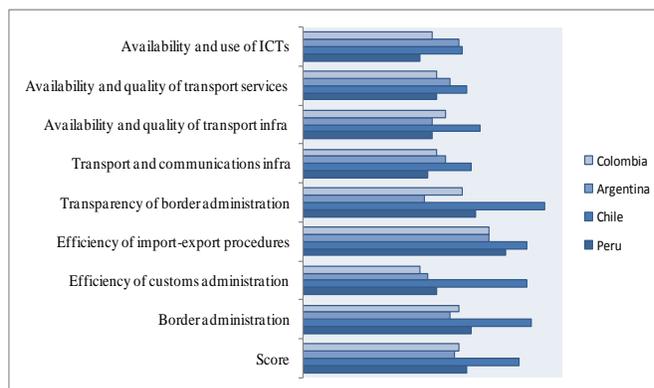
Table 3-1: Logistics Perception Index, Peru’s scores in the regional context, 2010

Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
Brazil	3.20	2.37	3.10	2.91	3.30	3.42	4.14
Argentina	3.10	2.63	2.75	3.15	3.03	3.15	3.82
Chile	3.09	2.93	2.86	2.74	2.94	3.33	3.80
Mexico	3.05	2.55	2.95	2.83	3.04	3.28	3.66
Costa Rica	2.91	2.61	2.56	2.64	2.80	3.13	3.71
Peru	2.80	2.50	2.66	2.75	2.61	2.89	3.38
Colombia	2.77	2.50	2.59	2.54	2.75	2.75	3.52
Ecuador	2.77	2.32	2.38	2.86	2.60	2.84	3.55
Paraguay	2.75	2.37	2.44	2.87	2.59	2.72	3.46
Uruguay	2.75	2.71	2.58	2.77	2.59	2.78	3.06
Venezuela	2.68	2.06	2.44	3.05	2.53	2.84	3.05
Bolivia	2.51	2.26	2.24	2.53	2.38	2.38	3.20
Latin America & Caribbean	2.74	2.38	2.46	2.70	2.62	2.84	3.41

Source: Logistics Perception Index 2010, World Bank.

Table 3-2: Trade Enablers Index (WEF), 2008

	Peru	Chile	Argentina	Colombia
Score	3.8	5	3.5	3.6
Border administration	3.9	5.3	3.4	3.6
Efficiency of customs administration	3.1	5.2	2.9	2.7
Efficiency of import-export procedures	4.7	5.2	4.3	4.3
Transparency of border administration	4	5.6	2.8	3.7
Transport and communications infra	2.9	3.9	3.3	3.1
Availability and quality of transport infra	3	4.1	3	3.3
Availability and quality of transport services	3.1	3.8	3.4	3.1
Availability and use of ICTs	2.7	3.7	3.6	3



Source: WEF, 2008.

Table 3-3: Infrastructure quality based on WEF's perception surveys (2003, 2006, 2008, and 2009)

Railways				Roads			
Country	2006	2008-2009	2009-2010	Country	2002-2003	2008-2009	2009-2010
Argentina	2,5	2	2	Argentina	5	2,9	3,2
Brazil	2,2	1,7	1,8	Brazil	4,4	2,5	2,8
Chile	2,2	2,1	2,1	Chile	4,6	5,5	5,8
Colombia	1,4	1,5	1,5	Colombia	3,7	2,9	2,8
México	2,4	2,1	2,3	México	5	3,5	4
Paraguay	1	1	1	Paraguay	3,9	1,8	2
Peru	1,7	1,7	1,8	Peru	4,3	2,6	2,9
Uruguay	1,5	1,5	1,4	Uruguay	5	4,1	4,4
Indonesia	3,2	2,7	2,8	Indonesia	3,9	2,5	2,9
Philippines	1,5	1,8	1,7	Philippines	3,5	2,8	2,9
Thailand	3,7	3	3	Thailand	5,3	5	5
Average	2,1	2	1,9	Average	4,4	3,2	3,5

Ports				Airports			
Country	2006	2008-2009	2009-2010	Country	2006	2008-2009	2009-2010
Argentina	3,7	3,3	3,6	Argentina	3,9	3,1	3,4
Brazil	3,3	2,5	2,6	Brazil	5,1	3,7	4,1
Chile	4,6	4,9	5,4	Chile	5,4	5,9	6
Colombia	2,6	2,9	3,2	Colombia	4,2	4,7	4,6
México	3,3	3,3	3,7	México	4,6	4,9	4,9
Paraguay	2,3	3,9	3,5	Paraguay	2,7	2,1	2,4
Peru	2,3	2,3	2,7	Peru	3	3,9	4,1
Uruguay	4	4,4	4,9	Uruguay	3	3,4	3,7
Indonesia	3,7	3	3,4	Indonesia	4,1	4,3	4,7
Philippines	2,4		3	Philippines	3,9	4,1	3,7
Thailand	4,5	4,4	4,7	Thailand	5,6	5,8	5,9
Average	3,3	3,5	3,7	Average	4,1	4,2	4,3

Source: WEF (2003, 2006, 2008, 2009).

The current performance of the major logistics components

Three main components can be recognized within a logistics system: (i) transport infrastructure and services; (ii) business logistics performance; and (iii) trade facilitation practices. A summary of the current performance of each component follows:

Transport infrastructure and services

- *Highways.* The Peruvian road network faces important challenges in order to reach adequate levels of service and infrastructure stock to meet increasing transport demand. Sector performance is weak in regional terms: only 14 percent of the road network is paved (versus 21 percent in Chile, 30 percent in Argentina, and 34 percent in Venezuela)²⁹, and road densities are low (see Chapter 7 for a detailed analysis of the sector). Scores in international quality perception surveys are not encouraging: Peru ranks below its regional peers for quality of roads, and 80 percent of respondents surveyed for the World Bank’s LPI considered the quality of fixed infrastructure to be low or very low. From the technical perspective, in 2006 only 34 percent of the paved network was in good condition³⁰. Two factors can help explain, to a certain extent, the sector’s weak performance. The first is linked with low levels of overall investment in the sector (see Chapter 4) and insufficient financing for maintenance activities. A recent study by the *Instituto Peruano de Economía*³¹ (IPE) indicates that only 34 percent of the network is subject to periodic maintenance activities. The increasing extension of road concessions in the last five years has only partially helped offset the financing gap. A second relevant factor is the difficult topographic and weather situation in certain areas of the country, which produces damages to existing assets –the phenomenon of *El Niño* in 1998 was a paramount example of this –and complicates road works.
- *Trucking industry.* Trade growth in recent years has triggered a surge in demand for surface transportation, which accounts for 95 percent of domestic freight movements. This, in turn, has resulted in a moderate trend toward fleet modernization. However, as discussed in Chapter 7, informality and fragmentation continue to define the freight transport market in Peru. In 2006, approximately 35,700 companies were listed in the National Freight Transport Registry. The average number of vehicles per operator was 2.35, although many operators in fact own only one vehicle (and a large proportion of the latter are not registered). The fragmented market structure has a negative impact on sector efficiency: (i) small operators are usually unable to reach economies of scale; (ii) small firms tend to invest in vehicles only, while a rational transport operation also requires investments in warehouses, cargo handling facilities or platforms, and information technology; and (iii) low levels of productivity have a negative impact on profits, pushing vehicle owners to operate in extreme conditions (deferring vehicle maintenance expenditures, exceeding maximum loads), thus generating negative externalities³².
- *Railroads.* Scores received by Peruvian railways in the latest WEF surveys place them at an average level among comparator countries. Peru’s railway share of freight is below 5 percent of the total, and is comprised mostly of minerals. Three of the five existing networks take practically the entire share of the railways’ freight: two of them are under concession (*Ferrocarril Central* and *Transandino Ruta Sur*) and the largest one is property of the Southern Peru Copper Company; all of them are operating with acceptable levels of efficiency. On the basis of interviews carried out for the purposes of this report, one of the main obstacles in the logistics chain for minerals is the lack of a railway-port interface.

²⁹ IPE, 2009

³⁰ MTC, *Plan Intermodal de Transportes*, 2007

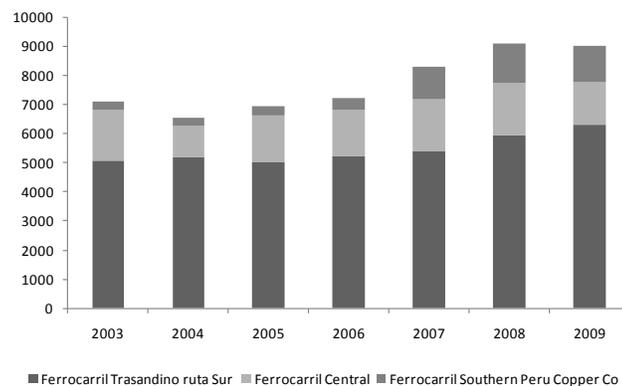
³¹ See footnote 29

³² MTC, *Plan Intermodal de Transportes*, 2009

Recently, the rising amount of investments in the mining sector has triggered a large number of private proposals to build new lines linking mines to ports, thus railway traffic may potentially grow in the medium term.

- *Ports.* Peru’s port system comprises 11 public terminals which are operated by the Empresa Nacional de Puertos (ENAPU): seven of which are maritime and four, fluvial. There are also more than 20 private terminals; the largest are the property of oil and mining companies. The overall performance of the system is poor, based on the scores received in WEF’s annual survey (2010). Difficulties are linked with insufficient dredging and lack of modern handling equipment, particularly in the largest port, Callao. These inefficiencies result in logistics over costs of approximately US\$200 million, based on a study funded by USAID in 2005³³. Traffic has grown steadily in the last five years (see **Figure 3-2**). In 2008, ENAPU handled a total of 1.4 million TEU in container traffic, representing an accumulated growth of 72 percent from 2004. Callao absorbed 86 percent of this volume, followed by Paita and Ilo with 10 and 2.5 percent respectively³⁴. ENAPU moved a total of 24 million tons of general cargo in 2008, of which Callao handled almost 80 percent, followed by the ports of San Martin, Salaverry, and Paita. ENAPU has made partial improvements to its terminals in order to keep up with cargo growth. The Southern terminal in Callao was concessioned recently and new facilities will start operating during 2010; thus port capacity will double. Some experts point out that this will not be sufficient to handle expected freight growth, and recommend that further improvements be made in Callao’s Northern and Central terminals – both terminals have been recently concessioned.

**Figure 3-1: Evolution of railway freight traffic in Peru, 2003-2008
(thousand tons)**

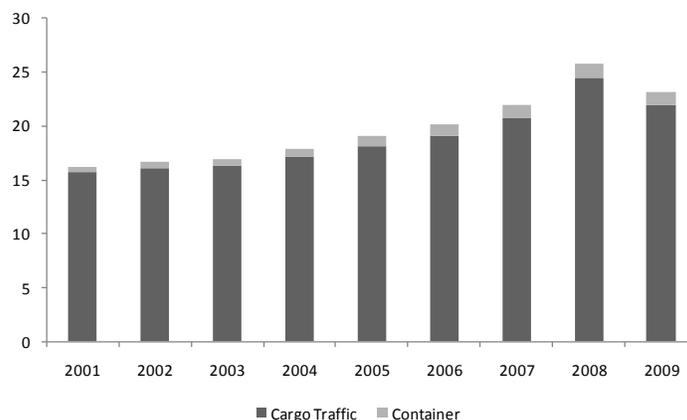


Source: MTC (2010)

³³ *Estudio de Costos y Sobrecostos Portuarios del Puerto del Callao, 2005*

³⁴ IPE, 2009

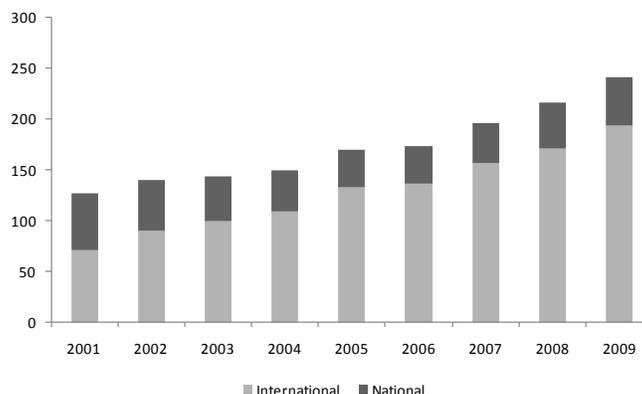
Figure 3-2: Evolution of container traffic (right) and general cargo traffic (left), ENAPU terminals (Millions of Tons)



Source: MTC and ENAPU (2010)

- *Airports.* Performance of this subsector, based on quality perception surveys, has improved in recent years and places Peru at average levels within its comparator group. Lima’s Aeropuerto Jorge Chavez (AJC), concessioned in 2001, is the largest in the country, encompassing 63 and 88 percent of passenger and freight traffic in the country, respectively. **Figure 3-3** below shows the evolution of air freight, with volumes growing rapidly starting in 2002 (particularly those for international cargos) triggered by the growth of non-traditional exports which are mostly shipped by air. Investments to increase cargo handling capacity have been made, although these are lagging behind volume expansion. Important improvements such as the setup of reefer facilities in AJC have been carried out directly by exporters who need to comply with provisions from international customers. The scarcity of space for cargo in aircrafts is another challenge that is reflected in costs: 80 percent of shippers surveyed for the LPI considered air freight charges to be high or very high. The airports of Piura and Iquitos are quickly increasing their share of freight volumes, with the latter handling a total of 16,000 tons in 2008³⁵. Some regional airports in the south have been recently concessioned – for instance, the airports in Arequipa, Juliaca, Puerto Maldonado, among others.

Figure 3-3: Evolution of air freight in Peru, 2001-2008 (thousand tons)



³⁵ Ibid.

Source: IPE 2008, on the basis of MTC data

Business logistics performance

Shippers' supply chain performance. Peru's business logistics performance is at an intermediate level³⁶. The opening of Peru's economy in the 1990s launched an important modernization process in logistics activities. First, although the mining sector has traditionally handled logistics in a competent manner, new investments in the sector by large international groups have brought about best practices, and also triggered important infrastructure projects intended to increase supply chain efficiency (i.e., new railway lines, specialized ports terminals, etc.). In addition, the implementation of many FTAs resulted in a new push toward increasing logistics efficiency, in order to compete in international markets. Multiple coordination efforts are in place to achieve this goal, as reflected in the active role that institutions such as the National Industry Society, the Exporters Council, and the Peruvian Exporters Association are playing in the fostering analytical efforts and dialogue with the public sector on logistics issues. However, there is still ample room for improvement in this area: based on the results of the survey conducted for the WB's LPI, only 20 percent of respondents considered as "high" the level of logistics competence among shippers and trade/transport-related associations.

Box 3-1: The Centers for Technological Innovation Initiatives (Centro de Innovación Tecnológica, CITE)

The Ministry of Production has recently developed a new initiative to create Centers of Technological Innovation for specific value chains, with a focus on those in which SMEs³⁷ play an important role. Each CITE is intended to be a strategic partner of firms in the selected sector, by providing strategic support to foster their abilities to innovate, and thus help increase their productivity. Each CITE brings together information, knowledge, and best practices from the public and private sectors, as well as from academia. Their objective is to facilitate and foster change, quality, product differentiation, and efficiency among SMEs.

CITEs provide training and technical assistance oriented to improve productivity, quality control, product design, and environmental management. These services are tailored to the specific needs of the industry they assist. To date, there are specialized CITEs for the forestry industry, wine grape producers, the footwear industry, and lime producers. Some of them are managed by the public sector, others are private.

In 2006, the Logistics CITE was created as the first of these centers to have a cross-sectoral mandate. It is administered by a private consultancy firm and works together with existing centers providing support on logistics issues.

Source: Ministry of Production and GS1 (<http://www.gs1pe.org/citelogistica>).

- *Logistics operators.* The development of logistics operators has shown important progress: 80 percent of respondents in the 2007 LPI survey indicate that the availability of logistics services has improved significantly in the last three years. However, the performance of logistics services providers is weak based on the answers of the survey; only 40 percent of respondents believed that customs brokers, freight forwarders, and warehousing and distribution operators in the country had high levels of logistics competence.

³⁶ Authors' assessment based on interviews carried out in Peru with sector experts. Reports, such as the LPI, also make similar conclusions.

³⁷ Small and Medium Enterprises

Trade facilitation practices

- *Customs and other border-crossing related agencies.* The performance of this group of agencies is weak.³⁸ The country's performance in the Trading Across Borders indicator of the World Bank Doing Business survey is not very consistent with the results of the other surveys. Based on its results, time to export and import are above the average of its selected regional comparators, and costs to export and import are lower in Peru than in comparator economies. This inconsistency highlights the subjective nature of international perception surveys, which are highly sensitive to the composition and size of the sample of interviewees, and to isolated events that can have a disproportionate influence on responses in a particular moment.³⁹

**Table 3-4: Trading across borders
Peru's performance in 2009**

	Country	Documents to export (number)	Time to export (days)	Cost to export (US\$ per container)	Documents to import (number)	Time to import (days)	Cost to import (US\$ per container)
Top performers	Denmark	5					
	France	2			2		
	Malaysia			450			
	Singapore					3	439
Selected Economy	Peru	7	23	875	8	24	895
Comparator Economies	Argentina	9	13	1480	7	16	1810
	Bolivia	8	19	1425	7	23	1747
	Brazil	8	12	1540	7	16	1440
	Honduras	7	20	1163	10	23	1190
	Mexico	5	14	1472	5	17	2050

Source: Doing Business, 2009.

- *Transit with neighbor countries for surface transportation.* Transit regimes allow for cargo to receive customs clearance in a customs facility (either at a carrier's or shipper's facility, or at a logistics platform), not at the border. This helps shorten waiting times and queues at the border, as it reduces the workload for customs and other border agencies. In the case of Peru, this regime works well for trade with Brazil and Chile, as well as with southern countries (Argentina, Uruguay, and Paraguay). The implementation of a transit regime with Bolivia and Ecuador has proven to be more difficult due to practices associated with the trucking industries in these countries, which encourage unloading and reloading of freight in facilities located at the border.

³⁸ Based on results from the *Logistics Performance Index* survey and WEF's Trade Enablers survey (Tables 2.5 and 2.6)

³⁹ This, in turn, outlines the need to consider international surveys as preliminary evidence on the performance of specific sectors, which need to be supplemented with more detailed analysis and field interviews to make more.

THE CURRENT INFRASTRUCTURE PLANNING PROCESS

Procedures in infrastructure planning in Peru

The Ministry of Transport and Communications (MTC) has the main responsibility for infrastructure planning in Peru. Nonetheless, logistics matters are at the heart of other government institutions, like the Ministry of External Trade and Tourism (Mincetur) and the Ministry of Production. The cooperation among those entities - which plays a central role in the definition of future demands for logistics services - and MTC - which is the basis of infrastructure planning – is clearly weak. The *Centro Nacional de Planeamiento Estratégico* (CEPLAN, established under the *Presidencia del Consejo de Ministros*), was created in 2008 with the objective of defining a shared vision for the country's development, and may cover this gap in the future, but the institution is still in a preliminary organizational stage.

Within the MTC, the planning of the diverse infrastructure components is performed independently. Although there is a Planning and Budget Office that may coordinate plans and programs, effective planning is made by the modal directorates (roads and railways, civil aviation, etc.) and special and decentralized entities, such as ProVías Nacional (the highways department) and the National Port Authority. The Planning and Budget Office focuses on budget preparation and management, with little capacity to develop strategic planning. There have been attempts to unify transport planning through a Transport Intermodal Plan, elaborated in 2007, which – although it provided a comprehensive data base and analyses, and proposed investment priorities – has not had a major impact so far in defining the investment portfolio.

ProInversión plays an important role in the infrastructure sector as the agency in charge of promoting private participation and designing the technical structure of concessions. The agency carried out some of the most important concession processes in Peru, such as Camisea Gas, the Southern Interoceanica Highway, and the Jorge Chavez airport. It concentrates a high level of technical knowledge in the design of concessions, which is not necessarily counterbalanced by know-how of this type in the line ministries. Thus, the agency has a certain influence in the definition and prioritization of the infrastructure investment portfolio, particularly in those cases where private financing is essential to ensuring project implementation. Coordination with line ministries to ensure that specific sectoral issues are put into the right perspective in PPP processes has proved to be weak. Examples such as costs overruns in the concessions of IIRSA highways, or the conflicts over tariffs with shipping companies when the Paita Port concession became operational, are illustrative of this lack of coordination.

The projects proposed by MTC should be reviewed by the *Sistema Nacional de Inversión Pública* (SNIP), part of the multiannual programming area within the Ministry of the Economy and Finance, responsible for the administrative management of investment projects throughout their cycle; SNIP approval is a prerequisite to receive public financial support. This institution is aimed at supporting project development and at making certain that public resources are invested

wisely; it cannot, however, provide for strategic planning, which should come from the sponsor agencies (of which there are more than 1,400). The SNIP has recently been decentralized (see Chapter 6). Universidad del Pacífico is currently conducting an ex post review of multiple projects assessed and approved by the SNIP, and the preliminary results are not encouraging: they show that two-thirds of the projects under evaluation should not have been assessed as viable.

Many public agencies have made important planning efforts intended to reflect the varied interests and needs of the multiple stakeholders of the country's logistics system. The National Competitiveness Plan developed by *Peru Compite* is probably one of the most comprehensive efforts to address the different aspects involved in promoting competitiveness: infrastructure, trade facilitation, and business logistics organization. *Peru Compite* is also tracking regional competitiveness performance using an index structured on the basis of the one developed by the World Economic Forum, for its Global Competitiveness Report. Mincetur, on the other hand, has made an important effort in engaging the private sector in the design of the *Plan Nacional Exportador 2003-2013*, which emphasizes the need to design a national infrastructure policy to ensure that projects respond to the needs of the productive sectors. Finally, the Ministry of Transport and Communications developed the *Plan Intermodal de Transportes* in 2007, which presents a comprehensive analysis of the status of each transport subsector. This plan also outlines the need to strengthen coordination among them; however, little progress has been achieved toward actual intermodalism.

As a summary, the review of the planning process shows that at the national level, the main difficulties consist of lack of coordination among public sector entities, and very little interaction between the public and private sector, except for the case of Mincetur, which has developed a supply chain approach to interact with the private sector, develop bottlenecks analysis in the chain, and prioritize interventions as required. The most severe problems lay at the subnational level; as decentralization is still a work in process, the institutions responsible for planning and project evaluation lack in some cases the required capacities (in terms of resources, funds, and staff) to conduct planning activities.

Box 3-2: Planning in Peru

The planning function in Peru combines three layers, linking the long-term strategic objectives with the annual budget process: (i) *strategic sector planning*, defining the key policy objectives based on a long-term vision, (ii) *programmatic institutional planning*, defining programs and actions for each institution (government area) in a multiyear horizon, and (iii) *operational planning*, establishing tasks and budget allocation on an annual basis. The strategic planning is carried out through the PESEM (*Plan Estratégico Sectorial Multianual*), a four-year document produced by each sector; strategic objectives are proposed, based on a sector vision, providing results indicators and expected benefits. The programmatic plan is established in the PEI (*Plan Estratégico Institucional*), in which the main actions to be carried out by each governmental institution to achieve the objectives set in the PESEM are established, covering the same four-year period. The yearly operational plan for each government area is defined in the POI (*Plan Operacional Institucional*), defining tasks, budget allocation, chronogram, goals, and responsibilities. The Ministry of the Economy and Finance (MEF) has traditionally been responsible for the coordination of the PESEM and PEI prepared by the diverse governmental areas, establishing the guidelines and the budget margins.

Due to the lack of technical capacity, PESEM, PEI and POI have been interpreted more as budget and expenditures control tools rather than planning mechanisms. This situation motivated various ministries to elaborate their own detailed sector plans, aside from the formal planning process. This was the case of the Plan Intermodal de Transporte, prepared by MTC in 2005, or many provincial or departmental road plans. Many of the initiatives executed during

recent years were based on those sector-specific plans.

A new planning office was created in 2005: CEPLAN (*Centro Nacional de Planificación Estratégica*), whose role is the generation of national strategic plans to promote a better articulation of the diverse national sector policies as well as the plans proposed by the subnational jurisdictions. The intention was a shift in planning paradigm: from a budget-oriented one, to a participatory, vision-oriented one. Nonetheless, CEPLAN is showing difficulties in taking off. Almost five years after its creation, it is still in the process of preparing a 2021 strategic plan.

Recent evolution: planning under pressure

In recent years, the planning process has been carried out “under pressure”, due to the need for infrastructure resulting from the intense economic growth starting in 2003. The 2008 crisis slightly delayed the trend, but the potential growth in areas like mining and agribusiness requires the expansion of logistics-oriented infrastructure. Major demands are centered on the development of maritime container terminals, mineral ports, new railway lines, new and improved roads, and logistics platforms. Many decisions are now in the process of being made that will shape the future of Peru infrastructure map. In ports and railways the process is characterized by a strong presence of private proposals, between which the government arbitrates. The development of highways and logistics platforms has been more in line with public planning processes.

The pipeline of future transport infrastructure investments

The portfolio of transport projects under preparation results from complex interactions among the public and the private sector in the current context of robust trade growth. Although it may be sub-optimal, it addresses existing needs of dynamic productive sectors. In the road sector, the portfolio comprises the following projects: (i) concession of the *Autopista del Sol (Panamericana Norte)* linking Sullana with Guayaquil in Ecuador; (ii) the recently concessioned of the *Panamericana Sur* in the section between Ica and the border with Chile; (iii) concession of *IIRSA Centro*, in the axis Callao-Pucallpa; (iv) concession of the Achamanqui-Tingo highway in Amazonas. In addition, ProVías Nacional is planning to implement CREMA contracts in the north-south “*serrano*” axis. For air transportation, ProInversión led the process to concession the second package of small regional airports (including Tacna, Arequipa, and Juliaca, among others). This is an interesting initiative as the private sector could bring dynamism and new logistics services creating small logistics hubs around these airports. The Cusco International Airport is also in the pipeline to be concessioned. In the railway sector, most projects in the current portfolio are linked to the mining industry: (i) concession of the Norandino train, linking Cajamarca with the port of Bayobar, which would be mostly devoted to the transport of minerals; (ii) increase of the capacity of *Ferrocarril Central*, in the section Oroya-El Callao, which would help decongest traffic in the *Carretera Central*; (iii) construction of a new line linking Apurímac and the port of Marcona, in Ica. This project will be executed by Mapsa (*Minera de los Andes y el Pacífico*) and will include construction of a new port terminal. Finally, in the port sector, there are a number of important projects: (i) the new container terminal in Callao, concessioned to Dubai Ports; (ii) the concession of the port terminal San Martín-Pisco; (iii) the concession of Salaverry port terminal; (iv) the concession of Ilo port terminal; and (v) river ports, for which the following projects are in the process of being concessioned: Pucallpa, Iquitos, and Yurimaguas. ProInversión is also planning to concession the dredging of river Huallaga in the sections between Yurimaguas and Iquitos.

REVIEWING INFRASTRUCTURE PLANNING GOOD PRACTICES

Considering best practices in infrastructure planning

Planning is a crucial phase in the infrastructure cycle. It is aimed at the identification of a set of projects that - according to the country needs - allows the most socially efficient use of the available resources. Infrastructure sectors are usually comprised of complex networks, in which multiple interventions may be performed in order to expand, rehabilitate, or maintain the assets, requiring a specific design process. The final goal of the traditional planning process is to enable the government to define its portfolio of such proposed interventions, which need to be carried out during a given time frame, and are expected to fulfill needs and optimize the use of public resources. The quality of the planning process determines the effective impact of the infrastructure investment; recent analyses in LAC have emphasized that the region needs not only to spend more on infrastructure, but to spend better (Fay and Morrison, 2007), and stress the relevance of the quality of the planning process in order to enhance the investment impact.

The scope of infrastructure planning is broadening as a result of several trends that are making the planning process more complicated, which at the same time brings forward institutional capacity challenges in public sector agencies:

- *More criteria are progressively being taken into consideration for project selection.* Efficient allocation of resources is no doubt one of the key aspects in selecting the infrastructure portfolio, because of the opportunity cost of the public capital committed to projects, and constitutes one of the foundations for project selection. Nonetheless, infrastructure investment is not restricted solely to the criterion of economic efficiency: multiple environmental, social, and territorial development factors are increasingly taken into account in the planning process (European Conference of Ministers of Transport [ECMT], 2004).
- *Alternative ways for project implementation are expanding.* The multiple ways to combine the roles of the public and private sectors (as well as diverse levels of public jurisdictions) that have emerged over the last two decades have expanded the ways to implement infrastructure projects, pushing the planning process one step further: identifying the best method to procure, finance, and operate each infrastructure project, in order to maximize value for money.
- *There is a growing public demand for participation throughout the planning process.* The involvement of citizens and relevant stakeholders from the beginning of project definition is increasingly perceived as a way to improve project effectiveness and to channel the growing interest of society in its direct participation in public decisions; participatory procedures are becoming part of the planning practice, particularly with community involvement in local development plans.

Because of the diversity of institutional arrangements, the different technical features of infrastructure projects in different sectors, and the variety of cultural and political issues that need to be taken into account when making investment decisions, it is not easy to identify “best

practices” in infrastructure planning. But it is possible to make a number of basic recommendations and to highlight practices within the planning process that have been shown to yield good results in diverse circumstances (ECMT, 2004).

Six topics are analyzed in order to review the infrastructure planning process and provide some general prescriptions on “good planning practices.” The first three correspond to the traditional steps in the project cycle within the planning stage, while the remaining three deal with transversal issues. The selected topics – which are briefly discussed below – are:

- i. *Project identification*: what is the procedure for the identification of the infrastructure needs and the projects aimed at their satisfaction?
- ii. *Project preparation*: how are projects prepared, covering their technical, economic, financial, environmental, and social dimensions?
- iii. *Project evaluation*: what are the procedures to assess the initiatives, select the portfolio prioritizing investment decisions, and define the best implementation strategy for each project?
- iv. *Planning, governance, and institutional culture*: emphasizing aspects related to transparency and corruption, the technical-political balance, the institutional organization and culture, and public participation.
- v. *Planning and coordination among entities and jurisdictions*: projects in infrastructure sectors may have considerable synergies; therefore their impact will depend on the vertical and horizontal coordination among the diverse responsible entities.
- vi. *Planning and the public and private roles*: planning is mostly a public sector function, but the generation of projects by the private sector has gained momentum through the unsolicited proposal mechanisms, which may help or eventually complicate the planning process.

Planning and project identification

Project identification is related to the detection of infrastructure needs and the projects aimed at their satisfaction. The aggregated economic analysis usually provides an answer to the question on how much infrastructure is needed and how much to invest, but does not lay out the specific projects to develop (Estache and Fay, 2007). The sector practice based on network analysis (for example, transport planning) usually does it: projects come out as a result of matching future demand with infrastructure supply, identifying bottlenecks. Sector planning is usually conducted assuming demand trends, under a “predict and provide” approach. There is a growing trend towards the adoption of strategic planning in infrastructure, which may be considered a good practice to encourage. The procedure starts by setting a vision of the desired scenario, translating it into infrastructure demands through network models, and defining projects aligned with the vision to cope with bottlenecks and missing links as well. This type of process results in a large portfolio of possible initiatives, which are appraised and prioritized later on at the evaluation phase. This practice allows the incorporation of strategic environmental assessment, in order to consider environmental factors from the process onset (not ex post facto, just to mitigate projects impacts). The 1998 *Avança Brasil* plan, or the IIRSA planning process, are examples of this practice.

Planning and project preparation

Good preparation is key for the success of infrastructure projects: errors at this stage are reflected later, at the execution stage, in costs escalation and delays. Recent studies covering a vast set of projects in the transport sector showed that actual costs exceeded project estimates by 20 percent for roads and 45 percent for railways on average, and that actual demand levels are below the project estimates in 9 percent and 39 percent, respectively.⁴⁰ These biases (not errors) may result from specific planning weaknesses, like poor data, lack of adequate planning tools, or limited professional competence in the planning agency. But they also stem from a number of more general factors, such as: urgency due to inadequate programming, lack of resources, administrative obstacles to outsource professional services, and the tendency of agencies to present their projects as more attractive than they really are. Capacity strengthening initiatives at the planning offices level, adequate procurement rules for outsourcing professional services, and good project management, appear as well-suited measures to enhance the quality of project preparation.

Project evaluation in infrastructure planning

Project evaluation appraises the merit of the initiatives that result from the identification phase, and eventually prioritizes investment decisions. Cost-benefit analysis (CBA) remains as an essential tool to assess investment projects, and is usually required by governments to support the investment decision-making process. One particular aspect to consider is that CBA estimates the impact of a project within its own market (in a partial equilibrium frame), assuming that other markets remain neutral. This assumption disregards the wider and indirect impacts that a given project may have on other markets, which is a relevant phenomenon in infrastructure undertakings, particularly in developing regions. For example, an improvement in transport infrastructure and services may impact the regional labor market, or may allow for significant gains in economies of scale, increasing overall productivity in its area of influence, in a dynamic fashion. Measuring these types of impacts is hard as it requires compiling large amounts of information, and may at times result in overestimations of project benefits.. In spite of these challenges, appraising these wider impacts within evaluation frameworks is usually recommended for large infrastructure projects (OECD-ITF 2008).

The revision of the CBA guidelines to ensure adequate consideration of all relevant impacts (such as the indirect impacts mentioned previously, or global environmental impacts) is a good practice to recommend. Extreme caution must be adopted towards multi-criteria methods, which can easily tip evaluations one way or another based on the relative weight assigned to each of the criteria being considered. The multiple combinations available in the roles that private and public actors can play in the implementation phase have brought an additional element to be considered by evaluation techniques. Thus, the evaluation practice has broadened its scope to assess which is the execution mechanism that maximizes the value for money, utilizing specific tools such as the public sector comparator.

⁴⁰ B. Flyvberg et al, 2003.

Box 3-3: Economic Evaluation in the Road Sector in Peru

One of the easiest ways to prioritize infrastructure investments consists in comparing their Economic Rates of Return (ERR). Such comparison should be an important criterion for strategic planning purposes.

In the road sub-sector, the HDM-4⁴¹ model and its simplified version RED allow the easy comparing of alternative investments, provided that accurate traffic projections and cost estimates are available. A comparison between past and projected road investments in Peru highlights the high economic returns generated by smaller scale investments, in particular rural roads and road maintenance activities. The economic returns of larger scale investments need to be carefully assessed. The initial ERR of the IIRSA Sur project was initially estimated to be 24 percent, using a methodology that was accounting for significant indirect benefits. However, this ERR is going to be considerably less due to the doubling of the actual cost of this investment. The final cost of the IIRSA Sur project will represent more than four times the annual budget spent by Provias Nacional in the rehabilitation and maintenance of existing national roads during the period 2005-2008.

Economic evaluation of selected road investments in Peru

Description	Ex-Ante / Ex-Post	ERR	Comments
IIRSA Sur (<i>Universidad del Pacifico</i> , 2008)	ex-ante	24 percent	The actual cost of the work has doubled, which is not reflected in this evaluation. Direct benefits only represent 1/3 of the total accounted benefits. Discount rate of 11 percent.
Provias Nacional's rehabilitation and upgrading program for national roads (2009-2011)	ex-ante	16 percent	Only direct benefits are accounted for. Discount rate of 11 percent.
Provias Nacional's low cost upgrading and maintenance program for low-traffic national roads (<i>Proyecto Peru</i>)	ex-ante	28 percent	Only direct benefits are accounted for. Discount rate of 11 percent.
Provias Descentralizado's rural roads program (2002-2007)	ex-ante	24 percent	Discount rate of 14 percent. Difference from ex-ante and ex-post comes from the higher than expected benefits on agricultural production.

Sectoral planning instruments and the Peruvian SNIP are, in theory, in charge of ensuring that infrastructure investments are selected to maximize impacts. Pressures to spend, particularly in the context of the ongoing stimulus package, have weakened the influence of these mechanisms. The transition between the stimulus package and the post-crisis recovery phase should be an opportunity to rethink and strengthen the planning function in the infrastructure sectors, as well as the role of the SNIP. In the current situation, Peru could also maximize the impact of its stimulus package by putting greater emphasis on how to select infrastructure investments with the highest social and economic benefits.

Planning, governance, and institutional culture

Infrastructure planning is usually a function established within large, traditional institutions responsible for infrastructure provision; the organization and culture of such entities, as well as the political environment in which they perform, have a significant impact on the planning process. Many public works or transportation ministries are enormous, construction-oriented entities, without a clear results-based management. There is growing literature that reviews the potential distortions that institutions may bring to portfolio selection, which typically include

⁴¹ Highway Development and Management Model

lack of focus on users, internal disintegration (“culture of silos”), insufficient transparency and presence of corruption, and inadequate technical-political balance in decision making.⁴² A recent survey of more than 450 senior executives directly involved in the development, delivery, operation/maintenance, provision, financing, or advisory roles in infrastructure highlights the incidence public sector challenges in infrastructure development. Based on the survey’s results, 69 percent of respondents pointed to deficiency in governmental effectiveness as the most important factor inhibiting the industry’s ability to provide relevant infrastructure. The politicization of infrastructure priorities was cited by 42 percent of respondents as the biggest impediment to increased infrastructure investments. Finally, 51 percent of participants indicated that excessive bureaucracy was the largest contributor to government ineffectiveness in this area.⁴³

Good practices in this case outline the need to implement government reform in order to modernize the old-fashioned institutions. Issues and functions of particular interest include the planning process, which should be based on service standards and sound demands estimates (overcoming the traditional construction-oriented approach); ensuring transparency and public participation; achieving a sound balance of political influence on project selection (generally related to the geographic basis of the political representation) with careful technical analysis, and adopting integrated project management techniques. The modernization process started by the Chilean Ministry of Public Works (MOPW) provides a good example in this direction as encompasses topics such as vision-oriented integrated planning (instead of fragmented planning functions by sectoral departments), project management integrated throughout the entire project life, and project design and planning based on pre-defined service standards.

Planning and coordination among entities and jurisdictions

Projects in infrastructure sectors may have significant synergies, highlighting the need for high levels of horizontal coordination among the diverse agencies involved. Nonetheless, a “culture of silos” prevails, leading to independent plans even within the same sector (for example, in the transportation sector, road, railway, airports, and port plans are frequently developed separately). The vertical coordination – among jurisdictions – is relevant when different levels of government share infrastructure services (as is usually the case in roads and power). This type of coordination is linked to the decentralization agenda, which is covered in detail in Chapter 5. The good practice recommendation in this area is to enhance horizontal coordination through a shared vision-oriented strategic plan, and through the empowerment of the general infrastructure planning offices (usually disregarded by specific agencies). The public disclosure of the available technical information and its integration into common Geographical Information System (GIS) is also an efficient mechanism to strengthen coordination.

Public and private roles in infrastructure planning

Although planning is usually seen as a public sector undertaking, the generation of projects by the private sector has gained momentum, particularly through the unsolicited proposals mechanisms, linked to the growing adoption of PPPs. Even though private participation may yield a significant contribution in the infrastructure provision process, generating efficient project concepts and introducing technical and managerial innovation, attention should be paid

⁴² World Bank Transport Paper No. 27 (2009)

⁴³ Economist Intelligence Unit – KPMG, (2009). The Changing Face of Infrastructure. p. 10

so that it does not reduce competition, promoting sole-source negotiations instead of open tendering processes. *“Unsolicited proposals for infrastructure projects from private investors can introduce innovative ideas—but also risks, such as opportunities for corruption. Some countries disallow unsolicited proposals. Others manage them in ways that introduce competition and transparency. Governments’ decisions to allow unsolicited proposals should depend on individual circumstances and overall development policies, but when they do allow them, governments will have several important issues to consider.”*⁴⁴ There is considerable opposition to unsolicited proposals, usually not because of the characteristics of the project concepts, but because *“...there are often perceptions that the projects serve special interests or are associated with corruption. Unsolicited proposals often become controversial when—or if—governments negotiate the project rights directly with the original proponent without sufficient transparency or competing proposals.”*⁴⁵ Good practices include the implementation of rules ensuring transparency and competition through specific norms (as in Korea, Chile, or Taiwan), and private participation in the optimization of project designs, through specific consultation mechanisms (as in Mexico highways).

LINKING LOGISTICS NEEDS WITH INFRASTRUCTURE INVESTMENT PLANS

As the global economic crisis impact declines, Peru’s main trading partners are expected to recover and commodities prices increase. The FTA with the United States will increase Peru’s competitiveness and attract activity, reinforcing its potential of becoming a regional hub: it will not just result from the country’s geographical location, but also from its position on the “trade map.” However, the opportunity comes with a challenge: growing demands are requesting the deployment of new, sizeable logistics infrastructure investments, and the increasing participation in globalized supply chains is calling for better organization to achieve the required service standards.

The comparison of the current infrastructure planning practice in Peru with the “good planning practices” laid out in this chapter brings forward several actions that could be implemented to enhance the planning process for trade logistics infrastructure, and to achieve the greatest impact from investment. Three main policy priorities are suggested in this regard: (i) generate a vision of infrastructure needs for the future logistics scenario under a comprehensive trade-logistics integrated approach; (ii) develop a new institutional and cultural setting for the coordination of the logistics agenda and for the planning of the infrastructure investment; and (iii) reinforce the technical competence of the planning entities to effectively translate policy and consensus into a sound investment portfolio.

A vision of infrastructure needs for future logistics scenarios

The development of a new approach to deal with trade logistics by integrating a number of policy areas which currently show weak coordination would help the Peruvian government identify priorities for enhancing logistics performance. There is a growing trend in developed and developing countries to integrate policy areas that were traditionally handled separately, all

⁴⁴ Hodges and Dellacha, 2007

⁴⁵ Ibid.

of which determine to a large extent a country's logistics performance: transport infrastructure and services, business logistics development, and trade facilitation procedures. The composition of the Logistics Performance Index (LPI) clearly reflects this trend as it includes sub-indices dealing with areas such as transport infrastructure, customs clearance procedures, and the competence and quality of logistics services, reflecting the multi-dimensional nature of logistics. "World trade is primarily moved by a network of increasingly global logistics operators. But the ease with which exporters can use this network to compete internationally depends in large part on domestic factors such as infrastructure, trade procedures, and the market for support services."⁴⁶

Changes in the traditional scope of the trade facilitation present further evidence of this emerging integrated approach to address logistics issues. "In recent years, trade facilitation practitioners are tending to adopt a wider total supply chain perspective and to look not just at trade procedures, but rather at the export and import supply chains of developing countries and the associated physical movements of goods. Hence, in practice, a more comprehensive definition might describe trade facilitation as the process of identifying and addressing bottlenecks affecting the cost-effective and timely movement of goods imposed by weaknesses in trade related logistics" (Arvis et al. 2009).

Two promising actions are taking place in Peru in this regard: (i) a new comprehensive logistics policy document recently issued, accompanied by the launching of a second version of the Intermodal Plan, to be developed under a wider trade-logistics approach, and (ii) the design and development of a network of logistics platforms across the country (like those in El Callao and Arequipa) to enhance logistics performance (particularly among SMES) and to reduce the growing city-freight transport conflicts.

Towards a new institutional and cultural setting

The urgent need for modernizing infrastructure planning functions, and the challenges involved in managing a transversal logistics agenda call for a renewal of existing institutional arrangements. The new framework should ensure a more efficient resource allocation, and should foster a more active participation of key stakeholders in the identification of priorities to strengthen the country's logistics performance. Two actions are suggested in this regard: the establishment of a national logistics council to address logistics bottlenecks and facilitate international trade and transportation, and the modernization and empowerment of the infrastructure-planning entities.

A Logistics Council as a way to manage a public-private transversal agenda

The objective of this Council should be to promote improvements in the country logistics performance, helping the trade sector achieve a more solid and efficient integration to international markets. The proposed Council would include the diverse public institutions involved in trade logistics (under a comprehensive approach) such as the Ministries of Transport and Communications, Trade and Tourism, and Production, as well key private stakeholders including freight generators (exporters, traders), logistics operators, and logistics intermediaries. A council-type of organization may be adequate to target interventions aimed at easing the

⁴⁶ World Bank (2009), Connecting to Compete 2009: Trade Logistics in the Global Economy.

weakest links in the logistics chains with larger impacts on the country’s competitiveness. This type of institution is already active in developed countries like Australia, and is in the process of being implemented in developing countries like Colombia or Tunisia (LPI, 2009). In the case of Peru, the Logistics Council may function under the *Consejo Nacional de Competitividad*, integrated by high level officials and managers representing the involved institutions, and supported by a small technical team organized as a “logistics observatory”. The observatory would be in charge of providing trustable data and analysis to inform the Council’s policy directives, and to monitor the impact of the proposed reforms. The figure of “*Conferencia*” could be an adequate legal basis to implement this Logistics Council.

Reinforce technical competence in order to translate policy and consensus into an investment portfolio

The emerging demands resulting from pressures on the trade front push for important decisions to be made in Peru, on, for example, new railroads, new ports, and new logistics parks or enhanced highways. These decisions will set the frame of the logistics map in the future. Beyond the public relevance of the decisions that need to be made, many of the projects in the current portfolio are presented by private stakeholders (mining companies, port operators). The government’s leadership in the definition of investments needed in the long run would help maximize the public benefits from such interventions; too many private initiatives may be unveiling weak public planning capacity. This requires the modernization of the planning process in order to define investment priorities, particularly in MTC planning office, which is currently more focused on investment programming rather than on planning. A comprehensive modernization strategy will require analyses of topics like a review of the key planning offices processes effectiveness and efficiency, the requested staff competences and organization, the information systems and planning tools, the rules about outsourcing professional services, and the financial resources needed to perform the planning functions.

Key recommendations: Planning Infrastructure Development

Increasing Peru’s capacity to successfully implement the stimulus package	Preparing the ground for the post-stimulus phase
<ul style="list-style-type: none"> • Create a Logistics Council under the National Competitiveness Council • Strengthen coordination between public and private actors on the issue of logistics • Better integrate social and environmental consideration in the decision-making process for infrastructure investments • Implement the logistics platform program 	<ul style="list-style-type: none"> • Design and implement a new paradigm for trade logistics policy, integrating relevant policy areas that currently show poor coordination • Modernize planning agencies and build up their technical competence, with the objective of moving from investment programming to investment planning • Finalize the updating of the Intermodal Plan • Design a program to support the planning function at the subnational level

CHAPTER 4 : THE EFFICIENCY OF INFRASTRUCTURE SERVICE DELIVERY

This chapter seeks to analyze the determinants of inefficiencies in infrastructure service delivery. In all sectors but more particularly in the water sector, low levels of competition are observed. The regulatory framework is in general adequate but it is poorly enforced. The combination of insufficient competition with unenforced regulation results in insufficient incentives for efficient service delivery. Other factors of inefficiencies include the poor maintenance of infrastructure assets, insufficient accountability and poor governance. For each of these key determinants of inefficient service delivery, the chapter proposes specific recommendations on how the current situation could be improved.

COMPETITION IN THE INFRASTRUCTURE SECTORS

Competition in the infrastructure sectors is limited by the natural network structure of the markets (entailing high fixed costs). In Peru, competition is also reduced by the dominant role played by State-Owned Enterprises. Barriers to entry (structural as much as behavioral) to the most profitable shares of the network are high.

Competition is low in the three infrastructure sectors.

Despite the significant increase of private sector participation in the infrastructure sectors over the past two decades, low levels of competition are still observed, particularly in the water sector.

In the water sector, with the exception of one concession, all other water services are operated by either State-Owned Enterprises (SOEs) or directly by municipalities. These operators did not have to compete to win the corresponding market shares nor do they have to compete to keep them. Specifically, out of the 1,833 Peruvian districts, 312 receive water and sanitation services operated by 50 State-Owned Enterprises (SOEs) regulated by the sector regulator, SUNASS, while the 1,520 remaining ones receive these services directly by municipalities. The largest SOE is SEDAPAL, the dominant provider operating in Lima. The other SOEs are small to medium scale municipal enterprises. The only private operator, *Aguas de Tumbes*, owns a concession for water services in the city of Tumbes.

In the transport sector, twelve road concessions have been signed between 2003 and 2010 and the Government of Peru has an ambitious concession program for roads, ports and airports. With the deactivation of force account practices, road works (construction, rehabilitation and maintenance) are now all awarded on a competitive basis. However, until recently, road works' tenders were attracting only a few bidders or bidding processes had to be declared unsuccessful because they over-exceeded the estimated reference price. The situation has now improved, partly because the global economic downturn has renewed the interest of international contractors from Colombia, Brazil, Chile and Spain for the Peruvian market, but also because

qualification criteria were smoothened and tenders were better advertized. However, these improvements are less observed for works outside of Lima where the supply capacity can be quickly saturated. Outside of the capital city, the limited size of contracts, harder conditions to implement works (remoteness, climate conditions), and the increased operating costs (firms mention first the cost of transportation, followed by the cost of material), reduce the expected rate of return and the possible short term profits. In general, competition could still be enhanced with some adjustments to the procurement practices, the bundling of contracts, as well as through investment climate improvements.

The electricity sector is not vertically integrated thanks to solid regulatory pieces of legislation, but quite horizontally concentrated. The Electricity Concessions Law (*Ley de Concesiones Electricas, Decreto Ley 25844*, in Spanish) dated November 19, 1992, then complemented by the Supreme Decree 009-93-EM, sets very clearly the separation of the three main activities of the electricity supply industry: generation, transmission and distribution. The Electricity Concessions Law also transfers assets' ownership to the private sector, as well as most of the management and operation functions. Even though competition in the market should be fostered by the absence of vertical integration, it actually remains low because of strong dominant positions in the three branches.

As a result of the reforms adopted in the early 1990s, 70 percent of power generation capacity is now owned by private operators, as well as the totality of the high voltage transmission system. At the beginning of the 1990s, only 3 percent of customers were served by private companies whereas the proportion reaches 44 percent as of today. In what refers to the retail regulated market, 23 companies (13 medium to large scale, and 10 small scale ones) are today distributing electricity in Peru. Two dominant electricity distribution companies are competing in the capital city Lima, thus ensuring a fair level of competition: Edelnor and Luz del Sur. Together they serve 40 percent of the regulated customers of Peru, and they distribute not less than 64 percent of the total electricity of the retail market. The 21 remaining distribution companies all operate outside of Lima. The two largest provide electricity to the cities of Trujillo (Electro Norte Medio, also called Hidrandina), and to the city of Huancayo (Electro Centro). Distriluz is a large public owned holding company of four electricity providers: Electro Norte, Electro Noroeste, Electro Norte Medio (Hidrandina), and Electro Centro, together operating throughout the country but with similar characteristics (medium charge load, and urban location). Together, they cumulate 33 percent of the regulated electricity customers of the country, and 10 percent of the electricity sales of that same market. If the structure of the market itself favors the two main companies operating in the capital city Lima, these two companies are also advantaged by the per unit annual electricity consumption of their clients: the highest of the country (about four times higher than Electro Sureste's one, and three times higher than Distriluz's one).

Barriers to entry to the most profitable parts of the electricity network remain high for potential new entrants, and competition remains insufficient (especially in urban areas where it could entail critical quality improvements). Smaller service providers (located in rural areas for most of them) are sometimes competing with larger operators, but they are penalized by structural aspects like the limited length of the network, the numbers of users (directly linked to the population concentration) or the moderate service usage of their consumers.

A large proportion of infrastructure services is administered by State-Owned Enterprises (SOEs)

Within this group there are a large variety of entities, each with its own unique situation. SOEs are essentially legal entities created by the state to operate commercial activities, sales, and revenues on behalf of an owner government, so that they may also have public policy objectives. In contrast to state entities or governmental agencies, SOEs pursue financial objectives and thus need to satisfy both the shareholders and the consumers of public services. Similar to private companies, they are also subject to market regulations and bankruptcy laws. But in addition, they fall under the jurisdiction of a few public regulations like SNIP⁴⁷ or the State Procurement Law. SOEs' strategies are also expected to be aligned with the public policies of the current administration.

There are today in Peru 78 SOEs at the central government level (of which 24 are in liquidation, 36 are majority state-owned, and 18 minority state-owned), 87 municipal enterprises depending on the *Dirección Nacional de Presupuesto Público*, an unidentified quantity of SOEs at the local government level, and 101 public beneficiary companies.

In the water sector, the 50 water SOEs provide services to about 81 percent of the urban population, and to 60 percent of the total national population. SEDAPAL, the largest by far of these SOEs, only operates in the city of Lima and in the constitutional province of Callao. It delivers water services to about 50 percent of the whole population served by SOEs and had 2,174⁴⁸ employees in 2009. SEDAPAL manages more than one million of drinkable water connection, whereas the remaining 49 Peruvian SOEs manage on average 32,500 connections. The 50 water SOEs provide services to about 81 percent of the urban population, and to 60 percent of the total national population.

In the port sector, the SOE ENAPU is operating most of the Peruvian ports with the exception of Matarani and the new Callao terminal.

In the power sector, state-owned distribution enterprises operate about 56 percent of Peru's 4.35 million households connected to electricity services. They generally have the least profitable markets (i.e., where energy consumption per client is the lowest), while privately owned companies generally are servicing the more profitable markets. *Distriluz*, the largest of these SOEs, is a publicly owned holding of four regional companies with similar features: moderate load concentrations and enough profitability to expand their network. *Distriluz* is not highly profitable but has a return sufficient to sustain the business and expand modestly. The remaining SOEs serve a few medium-sized and relatively small cities and towns with low load concentrations, as well as rural areas with disperse communities and low demand.

An obstacle to efficient competition is the unclear role that the Government wants SOEs to play.

In Peru, SOEs are under the control of government institutions, generally FONAFE or MEF. The government is still quite influent in the management, the operation and the definition of the priorities of service providers, often bypassing SOEs' Board of Directors (and even FONAFE's), as well as the shareholder's voice that should prevail according to commercial principles that rule SOEs. The Government often uses its weight in SOEs' governance to impose social

⁴⁷ Stands for *Sistema Nacional de Inversión Pública* in Spanish, or National System for Public Investment

⁴⁸ Source: SEDAPAL's website: <http://www.sedapal.com.pe/>

objectives such as expanding access, even when these objectives are not reachable and they might threaten the financial equilibrium of SOEs. While coverage expansion is a desirable objective that can be implemented through various mechanisms – including SOEs, it is important that such decisions are fully funded in a transparent way and that a clearer framework be designed on the respective roles of SOEs and the private sector.

REGULATION OF INFRASTRUCTURE SERVICES

Peru has established a relatively robust regulatory framework for infrastructure services and each sector can count on a regulatory body with average to high capacity. Enforcement, however, remains a serious issue. Also, regulatory policies are still little applied at the sub-national levels.

A sound legal framework has created regulatory bodies in all sectors.

In the water sector, the national regulator is the National Agency of Sanitation Services (*Superintendencia Nacional de Servicios de Saneamiento*, SUNASS), created by the Law Decree No. 25965 passed in 1992. SUNASS reports directly to the Presidency of the Council of Ministers (PCM), and is in charge of regulating the activity of the 50 Peruvian SOEs, but not of the 500 municipalities that also operate water services in remote areas. Initially, SUNASS was in charge of both the urban and the rural sector, but never really implemented any actions towards the rural sector, which is now regulated by a separate agency: JASS. The regulatory framework is well defined, and regulatory instruments are correctly developed, but SUNASS now needs to be strengthened to enforce its policy, so that its role is not limited to mere consultancy functions, as it is in practice the case today. Moreover, SUNASS strategy is not in line with the reality of the institutional capacity of the regulated SOEs. SUNASS assumes that the regulated SOEs are institutionally strong enough to implement procedures and meet quality standards, while only a fifth of SOEs have their investment plans and their tariffs structures validated. SUNASS also needs to proactively tackle the low service quality and the weak financial condition of the SOEs, promoting for example new management models using private participation.

In the transport sector, laws and decrees have been passed to strengthen the regulatory framework, mainly aiming at ensuring the quality of transport infrastructure and services. In 1991, the first Decree-Law No. 758 was passed, establishing standards to foster private participation in infrastructure, and was complemented in 1996 by the creation of a regulatory framework for concessions. Nowadays, the regulatory framework encompasses three main functions: (1) the regulation of the privatization of public enterprises; (2) the regulation of concessions; and (3) the regulation of the financing and institutional framework for the promotion of private participation in infrastructure. These functions are carried out by different actors, of which OSITRAN is the principal one. OSITRAN's responsibilities include: regulating enterprises operating transport services, the concession contracts, ensuring that the interests of both the Government and the final users are addressed. Another actor, ProInversion, focuses on the promotion of private sector participation in PPPs schemes like concessions. Separating the technical responsibilities (the charge of MTC) from regulatory responsibilities (assigned to OSITRAN) has led to substantial gains in efficiency and increased transparency of the Peruvian transportation sector. This has been especially noticeable with regard to concession contracts.

*In the electricity sector, the main regulatory body is the Organismo Supervisor de la Inversión en Energía, OSINERGMIN*⁴⁹. It has two independent functions: (a) the economic regulation (tariffs setting) of all business segments of electricity and of the transport and distribution of natural gas; and (b) the monitoring, supervision, and regulation of the provision of supply services of electricity and gas to consumers. A recent benchmarking of the electricity regulatory bodies in Latin America⁵⁰ shows that OSINERGMIN ranks higher than average regulation agencies in the region, according to three characteristics: autonomy, transparency and accountability.

The regulatory framework of SOEs is sound, but its implementation is difficult and enforcement measures are not adapted.

Peruvian SOEs have a sound and relatively well-defined institutional framework when compared to other countries of similar or even higher levels of development. Besides, the central government's shares in SOEs are all held by the same state entity: FONAFE, which is clearly prohibited by the Peruvian law from overseeing sector regulatory activities. The role of FONAFE, a public holding corporation created in 1999, is to manage all public-owned enterprises in which the state has a majority stake⁵¹. At present, there are 34 public companies under FONAFE administration, 18 of which belong to the electricity sector (the largest group by far). All public-owned electricity companies are administered by FONAFE, whose policy has been to retain profits for transfer to treasury and not incentivizing SOEs to invest. This strategy resulted in backlogs in service quality due to insufficient levels of assets maintenance, vulnerability of the long term sustainability of networks, and a limited growth of the SOEs. However, this policy is changing. SOEs are now independent in the way they chose to use their profits, and improvements have been evidenced in asset maintenance and coverage expansion. To strengthen SOEs' financial operation with a view to attract more private investors, a new legislation recently authorized SOEs under FONAFE to list shares in the Lima stock market, up to 49 percent of their asset value.

Despite these progresses, the implementation of the regulatory framework remains difficult, since local and small scale SOEs do not have the appropriate systems to consolidate and communicate their financial statements, nor the computing tools to monitor physical outputs and management indicator. Finally, consistency still needs to be enforced between shareholders rights and SOEs commercial rules. For example, auditors are currently directly designated by the State Audit Body (*Contraloría General de la República*, in Spanish) and not by the SOE Board⁵².

How prices are set?

The determination of infrastructure service tariffs should aim at achieving a fair price paid by the

⁴⁹ OSINERG was created in 1997, transferring some MINEM monitoring and supervisory functions in the energy sector. At the time, the Energy Tariff Commission (CTE), created in the Electricity Concessions Law of 1992, was in charge of the economic regulation. In 2000, the two institutions merged in OSINERG. In 2007, some mining monitoring and supervision functions of MINEM were transferred to OSINERG and the name changed to OSINERGMIN.

⁵⁰ Andres et al. (2008)

⁵¹ FONAFE's board of directors is composed of five ministries and the office of the Prime Minister, and the minister of economy and finance is the president of the board.

⁵² Source: *SOE Corporate Governance, Country Assessment, Peru*, July 2006, The World Bank

end user in proportion to the quality of services but also at ensuring the sustainability of infrastructure investment while sending the right incentives to attract potential investors and promoting efficiency.

In the water sector, the tariff formula is different for each SOE, and it takes into account the results from a financial, operational and commercial evaluation (focused on costs), inflation, as well as an assessment of the demand and supply levels. SUNASS recently reviewed its past economic regulation model, that had led to excessive costs for service providers. Now, tariffs are set in order to ensure short term financial viability, and are adapted to each SOE. The tariff formula is determined equaling to zero the Net Present Value of the forecast investments for the five coming years. SUNASS' independence from the government has been questioned since the Ministry of Housing recently passed a "Simplified Procedure for the Approval of the Tariff Formula for Self-sustainable Investment Projects", mostly applicable to cases with participation of the private sector, that has neither been defined nor validated by SUNASS.

In the electricity sector, the pricing system is based on full cost recovery in the three segments that are the generation, the transmission and the distribution of electricity. The regulatory agency, OSINERGMIN, determines the regulated energy price every year. This price is calculated according to several factors: expected demand levels, generation capacity, fuel prices, inflation inter alia. Regulated tariffs set by OSINERGMIN are only applied to regulated users (namely those with a demand inferior to one Megawatt) for which prices are consequently regulated. Larger users are not subject to tariffs regulation. They directly and freely negotiate prices – and also quantities - with generators and distributors. These large users represent 46 percent of the total demand, which means that 46 percent of the electricity market is not regulated.

Since electricity tariffs were initially designed for full-cost recovery, there were no explicit subsidies or cross-subsidies to the electricity rates. But in 2001, a new legislation created the Fondo de Compensación Social Eléctrica, FOSE for its initials in Spanish, established a "social tariff" for electricity consumption. This fund gives subsidies (i.e. tariff reductions) to poorest households with low electricity consumption: - 25 percent for urban households, - 50 percent for rural households interconnected, and – 65 percent for rural households supplied by isolated systems. Households with the highest monthly electricity consumption are paying for the cross-subsidy through a 3 percent increase in the electricity tariff. A new provision to the FOSE was passed in 2006 tackling cross subsidies between users interconnected by the national system, and users served by isolated systems. This law also dedicates a similar US\$22 million amount to finance rural electrification projects.

In the transport sector, tariffs in the transport sector essentially refer to toll fees, and the maximum toll price is regulated using price caps. Tariff adjustments for toll roads are currently based only on inflation, and they do not currently take into account possible productivity gains. In the port and airport sector, the regulation system is different since tolls are adjusted according to inflation but also to productivity gains. In the railway sector, like in the road sector, tariff regulation assumes that there is no productivity gain.

The regulatory framework is poorly applied at the sub-national level, where political interference from local and regional governments is observed.

At the local level, the majority of service providers in Peru are institutionally weak, and political interference easily affects the general efficiency of service management. For example, it is estimated that the management of water service providers is replaced on average every 12 months. After the passage of the Law to Optimize SOEs Management in 2006, tariff increases only needed the approval of the SOEs' Board to be implemented at the local level, which was supposed to lower the level of political interference in tariff policies. However, this outcome still needs to be evidenced, since it depends on how the new legal dispositions regarding the composition of SOEs's Board are implemented. Since mayors represent the largest shares of local SOE's Board, municipalities eventually have the possibility not to increase prices, so that their population (and potential electors) is not penalized by higher tariffs. This strategy often makes service providers very weak financially. Most municipal utilities are vulnerable, and would face bankruptcy if not supported by public resources, because their operating incomes barely cover their operating costs. A key challenge for the regulating agency is thus to promote models that are adequate for small cities and local governments, including for example fair tariffs, appropriate use of assigned subsidies, and a guarantee of service quality and performance coupled with a sustainable financial position.

INCENTIVES FOR EFFICIENT SERVICE PROVIDERS

The Peruvian SOEs have a mixed track record in terms of efficiency. Smaller SOEs tend to be higher performers.

In the water sector, competition is more vivid outside of Lima, and small scale SOEs have the highest efficiency ratios. Undergoing little competition, SEDAPAL does not exhibit the best efficiency ratios of the sector despite the potential for economies of scale. SEDAPAL provides 21.3 hours of water services a day, whereas three smaller SOEs are providing 24 hours a day (*Emaq*, *Emsapa Yauli*, and *Emusap Amazonas*). SEDAPAL's operating performance remains stable at 1.58 m³ produced/m³ billed⁵³ to customers, above international standards and has even been deteriorating. In parallel, SEDAPAL has a 20 percent operating margin, whereas the operating margin of large SOEs as a group was -3 percent; -8 percent for medium size SOEs, and -15 percent for small SOEs. SEDAPAL or SEDACUSCO manage to reach high levels of financial profitability maximizing gains from economies of scale, which for example enables them to: (i) invest more than rivals in maintenance, (ii) offer lower prices to consumers, or (iii) extend their network with capital investments. These enterprises typically show rates of private participation much higher than other providers in rural areas, or other providers operating a smaller network. These operating results have serious consequences on the financial profitability of SOEs in the water sector.

Table 4-1: Simplified income statements of water SOEs, 2007

	Local WS&S Utilities				SEDAPAL
	Large	Medium	Small	Total	
Operating revenues (<i>Soles</i> M)	277.18	101.87	40.13	419.18	866.82
Earnings before interest & taxes (<i>Soles</i> M)	-7.73	-8.14	-6.10	-21.98	174.86
Operating Margin (including depreciation)	- 3%	- 8%	- 15%	- 5%	20%

⁵³ For more details, see Chapter 10, Sector perspectives: Water and Sanitation

Estimated Unaccounted for Water 46% 49% 54% 48% 37%

Source: Requena Sixto, with figures from SUNASS, indicators 2007.

In the port sector, where competition remains very limited (but growing with the new *Muelle Sur* terminal in Callao), the main port operators, the SOE ENAPU, has low productivity ratios. ENAPU's competitiveness is penalized by its current pension system and the subsequent liabilities. But since ENAPU does not have real competitors (ENAPU is operating most of the Peruvian ports with the exception of Matarani and the new Callao terminal), it is consequently not incentivized to review its financial and organizational structure, which leads to serious efficiency backlogs. Port services are both expensive and with medium-to-low quality standards. The lack of modern equipment, combined with other sources of inefficiencies result in low productivity ratios. For example, only 16 containers are moved per hour in Callao, compared to 80 or more in other ports in the region. It has been estimated that opening the sector to broader competition, and improving ENAPU's cost structure, could halve operations costs with the same level of activity.

In the electricity sector, among SOEs operating outside of Lima, Distriluz operates in where load concentration is quite high, but is not as efficient as it should be; and smaller SOEs operating in disfavored areas manage to reach high quality standards. Distribution SOEs operate about 56 percent of Peru's 4.35 million households connected to electricity services. They generally have the least profitable markets (i.e. where energy consumption per client is the lowest), while privately owned companies generally are servicing the more profitable markets. *Distriluz* is not highly profitable but has a return sufficient to sustain the business and expand modestly. The remaining SOEs serve a few medium-sized and relatively small cities and towns with low load concentrations, as well as rural areas with disperse communities and low demand. Most of the small companies are not profitable, and most of the medium companies barely have a positive operational margin. The financial performance indicators of the electricity SOEs are summarized in **Table 4-2**.

Table 4-2: Simplified Income Statements of electricity SOEs in 2008

	Public-owned electricity enterprises under FONAFE's holding				
	Small	Medium	Large		Total
			<i>Electroperú</i>	<i>Distriluz</i>	
Operating revenues (<i>Soles</i> M)	66.5	207.8	1208.1	1090.3	3603.7
Gross margin (<i>Soles</i> M)	13.7	58.8	496.1	283.7	1132.2
Operating margin	12%	17%	35%	15%	22%
Operating margin (including D&A)	-35%	10%	26%	7%	11%
Net Income (including D&A)	-37%	4%	14%	1%	4%

Source: Corporación FONAFE, indicators 2008.

Informal, non-regulated providers of infrastructure services are filling the gaps left by larger, more formal providers.

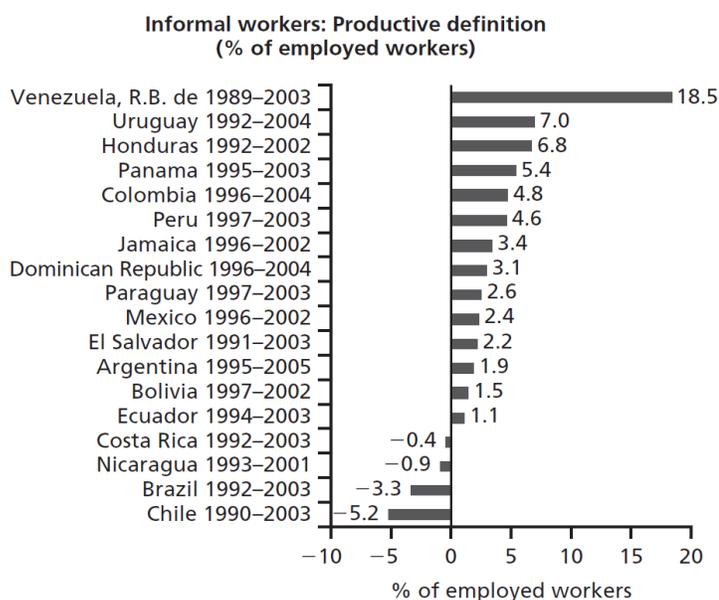
Informality is observed when neither the Government nor the formal private sector, are capable of responding adequately to the population's needs⁵⁴. To compensate for this, small-scale local deliverers provide services, often expensive and low-quality (but not always), sometimes illegally. Sellers of water in jerry cans or tankers can appear, and the prices per liter they ask for

⁵⁴ Source: *Informality: Exit and Exclusion*, The World Bank, 2007

are typically higher than the one used by the official counterparts. Transport services are provided by minivans, and electricity services, through mini-grids or in some cases, individual solar panels. The persistence of informality in the infrastructure delivery highlights the institutional weakness of the national and sub-national governments that are unable to offer either affordable services or coverage to some of the poorest portions of the population.

Informality is highly developed in Peru. For example, from 1997 to 2003, Peru had the sixth highest growth rate of the proportion of informal workers among workers in the region (4.6 percent). This is comparable to the one in Colombia (4.8 percent), but far higher than the one in Ecuador (1.1 percent). There are LAC countries in which informality actually decreased: Chile (-5.2 percent) and Brazil (-3.3 percent). In the infrastructure sectors, informality is not necessarily a bad thing since it allows extending service coverage in areas that cannot be serviced by the formal sector. It should even be encouraged when it can provide cost-effective solutions to the poorest segments of the population (or compete at the margin with larger operators). When informal services have low quality, reliability, or are too expensive, the authorities may bring incentives to strengthen the capacity of providers so that they can ultimately join the formal sector.

Figure 4-1: Trends in informality in LAC



Source: Gasparini and Tornarolli 2006, International Labour Organization (ILO) Labor Statistics Database 2006, and World Development Indicators 2006⁵⁵

Insufficient competition and the granting of legal monopolies reduce opportunities for accountability and efficiency gains.

Low levels of competition do not stimulate dominant enterprises to be held accountable. The low levels of competition observed in every infrastructure sector of Peru implies that the largest

⁵⁵ In *Informality: Exit and Exclusion*, The World Bank, 2007

companies delivering utility services have the strongest market power and that they can take advantage of it. Controlling and monitoring the activity of dominant enterprises (*Luz del Sur* in the electricity sector, *Telefónica del Peru* in the telecommunication sector, or *ENAPU* for the port sector) is a real challenge. These firms are not encouraged to remain accountable, since financial or operational inefficiencies are not going to penalize them in terms of clientele and revenues. Enhancing competition at the margin - even only for infrastructure network competition, would significantly improve the efficiency of service delivery. Dominant infrastructure firms may feel uncomfortable and endangered when not able to extend their network as freely as before. They may consequently try to improve their performance to extend their network faster than rivals.

In a vast majority of cases, private sector participation has rapidly produced sharp efficiency gains in infrastructure service delivery. Following the privatization reforms of the 1990s, distribution losses in the power sector decreased from 20 to 8 percent over the period 1995-2007. In the water/sanitation sector, where private participation remains the lowest, a successful private financing arrangement was designed, involving a special purpose company, *Consortio Agua Azul*, with a purchase guarantee of a minimum quantity of water per year by SEDAPAL. In the transport sector, results-based contracting arrangements led to more permanent road maintenance activities than the old force account practices, and subsequently to roads in better condition. The management of some concessioned roads also became fully financially sustainable. The 104 km long *Arequipa-Matarani* concession is for example entirely financed by tolls collection even though the traffic load is only about 1,500 vehicles a day⁵⁶. Road concessions also led to the development of new services for road users. For example, the concession between *Ancón* and *Pativilca* in the Lima region developed a panel of new services such as emergency phones (regularly set on the side of the road and directly linked to ambulance services or mechanical help centers), signalization, and road safety signs, but also control of demolition and preventive works to prevent major deterioration due to environmental threats such as earthquakes or rain. Maintenance services for this concession also included cleaning of drains and sand disposal facilities. Finally, the port sector is seeing important benefits from the concession of *Muelle Sur*, a new container terminal in Callao, compared to the highly ineffective ENAPU model.

Sound regulation can bring accountability practices to light

Box 4-1: Sound private participation and regulatory practices made the Chilean urban water system in Santiago become more efficient

The urban water system in Santiago has been a successful experiment in service quality improvement. Four major characteristics of Chile, and Santiago in particular, permitted this success. First, in Chile there was an early recognition that water is in short supply and that it could be commercialized as a private good. Second, Chile's institutional framework concerning the delivery of public services is strong and constitutes a solid barrier against the development of corrupt practices by SOEs, the major being EMOS (*Empresa Metropolitana de Obras Sanitarias*). Third, Chile's institutions and governments soon enabled the development of different kinds of public-private partnerships. Lastly, water sources there have always been relatively inexpensive, which enabled pricing of water services at complete cost-recovery levels. Competition is not the major factor of success as it has always remained quite low. However, accountability and supervision have improved year after year. All companies were required to disclose annual audited financial accounts. The government agency in charge of the supervision, SENDOS (*Servicio Nacional de Obras Sanitarias*), was replaced by an independent regulatory agency with extended powers in 1990:

⁵⁶ OSITRAN, *Evaluación económica de la concesión de la carretera Arequipa-Matarani*, 2007

SSS (*Superintendencia de Servicios Sanitarios*) was in charge of identifying the potentially fruitful public-private partnerships and ensuring that the privatization of monopolies remained beneficial for the consumer. Its responsibilities were also limited to regulatory and monitoring functions. The SSS asked EMOS to enhance its quality standards, and to monitor and report its costs in order to adjust water tariffs. This policy of tariff adjustment enabled SSS to gain independence vis-à-vis the information that companies were willing to disclose or not. As a result, not only had tariffs increased, thereby enabling better cost-recovery, but also the transparency and accountability of EMOS had improved, bringing a strong dose of confidence into the system. The Chilean water supply and sanitation sector today is recognized as one of the best in terms of quality, as well as for having one of the strongest institutional frameworks in Latin America.

Source: Reforming the Urban Water System in Santiago, Chile, Policy Research Working Paper 2294, Mary M. Shirley, L. Colin Xu, Ana Maria Zuluaga, The World Bank, March 2000.

Regulation influences sector performance in three different ways⁵⁷. First, the mere presence of a regulatory agency has a significant positive impact on the performance of utilities. Second, the experience of regulatory practices can be built upon, and good practices are reinforced once implemented. Third, good governance of the regulatory agencies also contributes to the improvement of the utilities' efficiency. In Peru, the presence of a regulating agency in the three infrastructure sub-sectors that are technically, financially, and administratively independent is an asset used to hold Peruvian service providers accountable. Separating the technical responsibilities (the charge of MTC) from regulatory responsibilities (assigned to OSITRAN) has in particular led to substantial gains in efficiency and increased transparency of the Peruvian transportation sector. This is especially noticeable in regard to concession contracts. In Peru, the issue of public utilities regulation was the first preoccupation of investors⁵⁸, because of the continuous interference of the Congress in regulation questions. An independent and strong regulation system is necessary in order to enable service providers to reach cost-recovery and generate cash-flows. This is why regulation matters that much when it comes to increasing the efficiency and service quality, but many improvements remain to be done in Peru to allow the regulation framework to send incentives to service providers to improve their performance.

The emergence of new small-scale operators that can compete with larger utilities should be promoted.

To ensure service continuity even where large SOEs are not present, more incentives need to be given to small scale providers. This is why introducing more vivid competition in the public services delivery sector could on the one hand spur SOEs to restore their financial health, allowing the small ones them to compete at the margin with larger SOEs. This movement could be supported by regulation measures in favor of small utilities.

Although private participation remains limited in the water/sanitation sector, innovative arrangements have been piloted – inspired by the experience of other LAC countries – to improve the efficiency of water service delivery in small cities through the contracting of specialized private operators. In the past ten years, LAC governments have invested large amounts of resources to expand and improve the water and sanitation infrastructure in small cities and municipalities. However, in a high percentage of cases, these investments only resulted

⁵⁷ *Source: Andres, Guasch and Lopez Azumendi, Regulatory Governance and Sector Performance: Methodology and Evaluation for Electricity Distribution in Latin America*

⁵⁸ *Source: The World Bank Investment Climate Survey, 2002*

in temporary improvements in the quality of the services rendered because of a lack of sustainable and appropriate maintenance, and above all, a deficient management and operation of infrastructure services. To tackle this problem, several countries, including Colombia and Paraguay, have successfully piloted the delegation of such services to small private operators, contracted under performance-based arrangements. In order to generate economies of scale and increase attractiveness to private operators, these two countries also merged some municipalities to enlarge the market's size. Colombia carried out 20-year concession contracts, with operators partially contributing to the total investment, for cities up to 100,000 inhabitants. Paraguay implemented constructor-operator schemes, coupled with services management over a 10-year period for cities up to 10,000 inhabitants. In Peru, the management model is mainly municipal, meaning that the municipality delivers the services, but also operates and maintains the assets⁵⁹. There is not any specialized company or team responsible for carrying out these tasks. In Peru, the Water and Sanitation Program (WSP) of the World Bank⁶⁰ from 2003 to 2007 led the Small Towns Pilot Project (PPPL⁶¹, see Box 4.1) with a view to develop new water services management models as an alternative to the unsatisfying municipal management, in order to improve the sustainability and the quality of these services. Similarly, the Rural Water and Sanitation National Program (PRONASAR), also financed by The World Bank, initiated a pilot program in 2000 to train local communities to manage operations and maintenance services on water and sanitation facilities. The objectives of these two programs are similar: maintaining sustainable and cost-effective water and sanitation facilities by training and directly involving local communities to reach efficiency

Box 4-2: Service delegation to the private sector: the PPPL experience

Under the PPPL framework, Peru also carried out the experiment of services delegation and private sector participation in cities with 6,000 to 25,000 inhabitants. In this new model, the municipalities and the communities contract together through a participatory process, and a specialized operator delivers the water and sanitation services. Nevertheless, the municipality still owns the assets. Finally, communities control the quality of the services provided by the operator through a “*unidad de vigilancia*” or “vigilance unit.” The PPPL implemented management contracts in which the municipality pays a percentage of the income to the specialized operator only if it reaches standards of quality and efficiency specified in the contract. Its duration is five years, which allows the possibility of contracting another operator if the current does not reach the stated goals.

Source: World Bank

A modification of pricing policies could make investment more attractive to the private sector and generate more funds for operation and maintenance as well as new investments.

With the exception of electricity and port services, the tariffs of infrastructure services in Peru remain low and could be substantially increased without critically affecting the affordability of these services. In particular, toll tariffs are lower on average in Peru than in other LAC countries. In Colombia, the *Cartagena* road concession costs US\$ 2.5 cents per km and the *Panamerican* road, 3.3 cents. In LAC, Chile is the second most expensive country in terms of road tolls,

⁵⁹ *Source:* *Avances latinoamericanos en la gestión de los servicios de agua y saneamiento*, The Water and Sanitation Program of the World Bank, September 2008

⁶⁰ With financial support from the Canadian Development Agency

⁶¹ Stands for *Proyecto Piloto para Pequeñas Localidades*, in Spanish

ranging from US\$ 0.5 cents in the *Auracania* road to 2.4 in the *Interportuaria* highway⁶². In comparison, most of the Peruvian concessions present tariff tolls around US\$ 1.5 cents per km. With proper contracting arrangements and adequate regulation, a revision of pricing policies in the water, sanitation, and toll road sectors could help generate additional revenues that could help finance operation and maintenance costs or even modernization investments, and make concessions more attractive to private operators. In the water sector, it is particularly important that tariffs are adjusted to completely cover the operation and maintenance costs. This is a key prerequisite to reaching the financial sustainability of the sector and the physical sustainability of the assets. Cross-subsidies between richer urban areas and poorer rural ones can also help finance an extension of service coverage to these areas and correct regional imbalances, as currently used in the power sector. However, the political economy of increasing service fees may be complicated, as illustrated by a number of protests in Peru during which roads have been blocked by the local populations. The challenge is to find a trade-off in order to fix the toll tariffs at such a level that it would both increase the financial resources collected by the concessioner and increase the traffic volume (due to the perceived affordability and acceptability of the tariffs). But in Peru, the situation appears more like gridlock because prices are low but are already considered excessively high by users. Thus, Peru might be a long way from coming to a consensus on the appropriate tariff.

OPERATION AND MAINTENANCE OF INFRASTRUCTURE ASSETS

In Peru, as in many countries, maintenance is often neglected and underfinanced. Building new infrastructure has a higher political visibility than maintaining existing ones, although investing in maintenance usually brings higher economic returns and generates more jobs. Peru's stimulus package places a high priority on a few selected 'mega-projects' but communicates little about how they will be operated and maintained. Moreover, the huge cost of these new investments may negatively impact the ability of public agencies to finance current expenditures like operation and maintenance. To mitigate such risks, the full life cycle of infrastructure investments, including operation and maintenance, should be considered from the planning stage so that decision-makers become aware of the incurring costs. This is particularly important in the transport sector where directly collected revenues are generally insufficient to pay for the maintenance of roads (with the notable exception of high-traffic ones). In the water/sanitation and power sectors, the pricing of services should be based on affordability considerations while also ensuring that revenues are sufficient to pay for operation and maintenance.

In the water/sanitation sector, operation and maintenance are particularly deficient for rural water systems and for wastewater treatment.

In rural Peru, the lack of maintenance and poor operation practices has had a significant impact on the sustainability of rural water infrastructure. In 2002, it was estimated that less than a third of rural water systems were sustainable. At the national level, more than half of the systems were deteriorated and an additional 12 percent were seriously deteriorated. Even in the more

⁶² Source: *Autopistas de Peaje en América Latina: La Crisis Crediticia Global Causa Baches en el Camino*, Fitch Ratings, Project Finance and Infrastructure, June 17th 2009

developed *Costa* macro-region, 10 percent of the systems were collapsing (see **Table 4-3**). On the other hand, wastewater treatment installations are critically lacking in Peru: in eight regions⁶³, wastewater is not treated and in many others plants are highly deficient, resulting in insufficiently treated effluents. Operation issues dramatically undermine the service quality of the wastewater treatment plants, with all the imaginable harmful consequences on public health.

Table 4-3: Condition of Rural Water Infrastructure in percent of total length (2002 - 2003)

Macro-region	Sustainable	Deteriorated	Seriously deteriorated	Collapsing
<i>Costa</i> (2002)	0	90	0	10
<i>Selva</i> (2002)	15.3	38.5	30.8	15.4
<i>Sierra</i> (2002)	38.6	52.3	9.1	0
National				
2002	28.8	56.1	12.1	3
2003	31.7		66.4	1.9

(Deteriorated or seriously deteriorated)

Source: Lampoglia, T.

In the transport sector, maintenance expenditures are highly volatile, but Peru has developed efficient road maintenance mechanisms that now need to be streamlined.

Despite existing regulations, such as Ministerial Resolution No. 817-2006/MTC, which assigns the greatest priority to the preservation of existing infrastructure, planned road maintenance works remains highly insufficient. The budget resources allocated to maintenance have been quite variable over the past nine years, ranging from 103 to 455 million *soles* in volume, and jumping from 13 percent of road infrastructure investments in 1999 to 28 percent in 2007. As a result of insufficient maintenance, road assets deteriorate more quickly: between 1992 and 1995, lack of maintenance caused the rapid deterioration of an estimated 1,357 km of national roads, generating a loss of US\$ 718 million for the Government of Peru⁶⁴. With Peru's ambitious road investment programs – in particular in the context of the stimulus package - the stock of road assets requiring proper maintenance will increase. However, the consequences of this evolution are still imperfectly integrated in Peru's multi-annual budget framework.

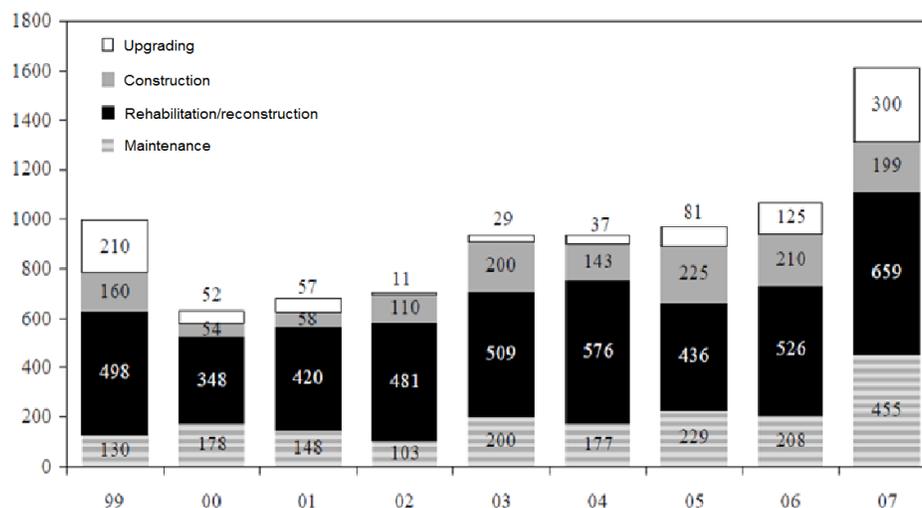
In recent years, *Provías Nacional* has been developing new strategies in order to more efficiently manage the quality improvements of the road network (both paved and unpaved) for which it is responsible. The objective was, on the one hand, to help make decisions regarding the sustainability of the roads and their investment needs and, on the other, to monitor improvements in road quality. These tools should help *Provías* elaborate its works and maintenance plans, and track the progress indicators, so that it can reach its objectives more frequently. The Ministry of Transport and Communication has used the Maintenance Management System (*Sistema de Gestión de Mantenimiento*) since 1999, whose concept was later redesigned by *Provías Nacional* to create the Road Infrastructure Management System (*Sistema de Gestión de Infraestructura Vial*). The first step is the elaboration of a five-year program of activities based on technical and economic analyses of the road network, with the goal of identifying and precisely estimating

⁶³ Amazonas, Apurímac, Huancavelica, Huánuco, Loreto, Madre de Dios, Pasco, and Ucayali (see Chapter 10, *Sector Perspectives: Water and Sanitation*)

⁶⁴ Source: Instituto Peruano de Economía (IPE)

what the budget will be. The HDM-4⁶⁵ model has been used to meet these goals, and the estimated results have also been assessed by the opinion of engineers from the Maintenance Management to ensure the consistency of the results. The amount that will be invested in the road network directly stems from the maintenance and works costs. Provías Nacional, in collaboration with the General Unit for Planning and Budget (*Oficina General de Planeamiento y de Presupuesto*), calculates the financial and economic cost of each activity (design, technical assessment, maintenance and rehabilitation works), depending on the macro-region (*Costa, Sierra, and Selva*)⁶⁶.

**Figure 4-2: Investment in road infrastructure from 1999 to 2007
(in millions of soles)**



Source: SIAF, IPE elaboration.

The Ministry of Transport and Communications (MTC) has also improved the way maintenance is being implemented. Force account practices have been largely phased out although they are still used for certain types of road works (e.g., emergency maintenance). The last road investment implemented under force account by MTC was the construction of a bridge in 2008 by Provías Descentralizado. There is now a clear strategy of the MTC to fully phase out such practices and deactivate the corresponding equipment and staff. However, by transferring this equipment to subnational governments, the MTC has in some cases sent the wrong incentives to regional governments and many have started using force account as a way to implement their road investments. A second and more recent strategic evolution of MTC has been the adoption of longer-term, performance-based maintenance contracts. *Proyecto Perú* is in particular a successful model through which private construction firms are contracted to perform low-cost paving and ensure the adequate provision of maintenance for five years. Such long-term performance-based maintenance contracts are being progressively implemented by Provías Nacional for paved sections of the national network. In addition, a CREMA contract pilot is envisaged for 2010⁶⁷. If confirmed, such evolution should help secure maintenance arrangements

⁶⁵ Highway Development and Management Model

⁶⁶ Source: Programa Quinquenal 2006-2010 del sistema de gestión de infraestructura vial, Gerencia de Planificación y Presupuesto, Provías Nacional, Ministry of Transport and Communications

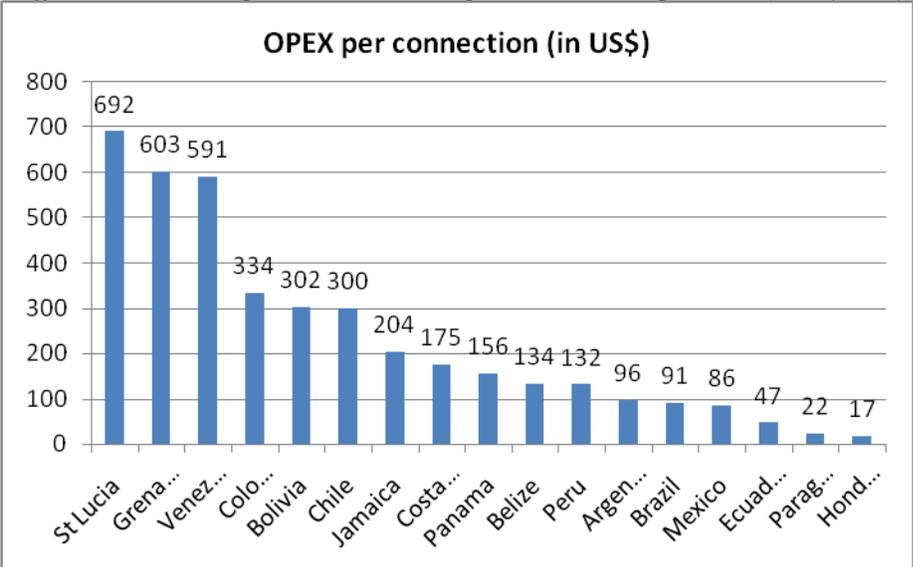
⁶⁷ See Chapter 7: *Sector Perspectives: Transport* for more details on CREMA contacts in Brazil and Argentina.

on a growing proportion of the Peruvian national road network. Finally, for the unpaved road network, the MTC, through Provías Descentralizado, has, for more than fifteen years now, been promoting the use of community-based microenterprises. In 2009, about 600 of such microenterprises were maintaining about 15,000 km of rural roads, ensuring both the sustainability of these infrastructures and the creation of employment opportunities for the rural poor. Unfortunately, in 2010, an increasing number of rural roads are being rehabilitated without the conformation of such microenterprises and, thus, without maintenance being ensured.

Peru dedicates a growing but still insufficient portion of its expenditures in the electricity sector to operation and maintenance.

More than 60 percent of Peru’s total expenditures per MWh sold in 2003 in the public electricity sector went to operational expenditures, or OPEX, with labor in the first rank, as well as material and service contract expenses. Despite this relatively high proportion, the average amount per electricity connection that Peru invested in 2003 in maintenance was below the average of LAC. Comparable countries like Colombia, Chile, and Colombia each dedicated nearly three times more financial resources to maintenance per connection than Peru. Along with Argentina, Brazil, and Mexico, Peru belongs to a group of countries that still does not focus enough on maintenance expenditures.

Figure 4-3: OPEX per connection in public electricity sector (2003, US\$)



Source: Andres et al.

ACCOUNTABILITY, TRANSPARENCY AND GOVERNANCE IN THE INFRASTRUCTURE SECTORS

Poor efficiency can also be explained by ineffective accountability that easily drifts into corruption, and can ultimately lead to the financial collapse of companies in charge of operating

infrastructure. The lack of accountability limits the scope of the collection of revenues, and more generally hampers the performance of service providers. Some efficiency progress could also be reached with increased transparency and with improved corporate governance

Entrepreneurs identify anti-competitive practices and corruption, as important barriers to doing business in Peru.

Infrastructure has many characteristics that may foster the development of corruption. The natural monopoly structure of the infrastructure market provides a conducive atmosphere for the inflation of operating margins, with companies claiming high spending needs without being compelled to show an increased production level. Infrastructure investment decisions often are affected by political interferences and the large sums involved make them easy targets for some corrupt activities⁶⁸. In Peru, many firms rank corruption, as well as anticompetitive practices and informality among the top five barriers to doing business.

Table 4-4: Perception of surveyed enterprises on greatest barriers to doing business (importance ranking from 1 to 17)

	Peru 2002	India 2002	Brazil 2003
Anticompetitive practices and informality	3rd	9th	8th
Corruption	4th	5th	1st

Source: The World Bank Investment Climate Survey.

Corruption costs have a direct impact on the efficiency of infrastructure delivery and they hamper competition among utilities. Furthermore, corruption is likely to increase the number of contract renegotiations, especially in PPP infrastructure projects. Renegotiations entice firms to underestimate their bids to win the contract⁶⁹, because they know that conditions and tariffs can be renegotiated after the papers are signed. The experience of Cambodia highlights the mechanisms through which corruption can impact the efficiency of infrastructure delivery (see **Box 4-3**).

Box 4-3: The impact of corruption on infrastructure service delivery in Cambodia

Cambodian firms report corruption as their first constraint in conducting business, alongside weak law enforcement and bureaucratic costs. Out of the 447 firms surveyed, 368 (80 percent) acknowledged the necessity of paying bribes, and 71 percent of the largest firms believed that corruption is endemic. The cost of these payments has been estimated at 5 percent of the private sector’s total sales, but this percentage increases to 6 percent when including only the largest firms, which paradoxically have the highest level of formality. Moreover, the perception of corruption has not changed since the previous survey in 1999, and has lingered at a constant level. In Cambodia, in contrast to most developing countries, corruption does not make infrastructure delivery easier, and the larger the firms are, the more unofficial the payments they disburse are. But there is no real difference in the efficiency of administrative procedures for infrastructure services between firms that pay bribes and firms that do not.

Furthermore, a lack of transparency, along with anemic competition in the Cambodian private sector, undermines the efficiency of the infrastructure delivery. Transactions are so secured that competition is weakened and most benefits of private participation are consequently lost. Disclosing contracts could facilitate the evolution of

⁶⁸ Source: *Connecting East Asia: A New Framework for Infrastructure*, Asian Development Bank, Japan Bank for International Cooperation, The World Bank, March 2005

⁶⁹ Source: Guasch, 2004

infrastructure transactions towards more transparency, and could deter actors from unscrupulous activities during bidding processes. It would also instill more confidence in tariff regulation which suffers recurrent renegotiations because of the often suspicious appearances of the results of the contracts awarding phase. In fact, informality and unfair competition have actually strengthened recently, and are now considered major obstacles to conducting business. A third of the firms surveyed believed that competitors collude with others to distort the market structure and restrict the entrance of new competitors. Furthermore, it is believed that the government does not treat all the companies equally, which helps the dominant ones to abusively use their market power. Publishing contracts could partly resolve this problem, setting up guidelines for future negotiations.

Source: Cambodia Seizing the Global Opportunity, Investment Climate Assessment and Reform Strategy for Cambodia, Prepared by the Royal Cambodian Government by the World Bank Group, August 12, 2004.

The Anti-Corruption Action Plan designed by the government is an appropriate response but it needs to be fully implemented.

Despite progress in the system of check and balances, the situation of governance in Peru continues to be a source of concern. The issue of corruption has acquired new prominence in Peru after a corruption scandal over oil concessions in October 2008, which resulted in the resignation of the entire cabinet. In response, the Government of Peru has designed an Anticorruption Action Plan whose implementation is being monitored, and which requires substantial technical assistance. A number of the activities listed in this plan have already been implemented on the ministerial level and the government has reaffirmed its commitment to fight against corruption. An important risk mitigation element is the systematic publication of bidding documents in the Public Procurement Electronic System (SEACE), which has thus enhanced the transparency of procurement processes.

Despite a clear and sound institutional framework, transparency too often remains theoretical.

Peruvian SOEs have a sound and relatively well-defined institutional framework when compared to other countries of similar or even higher levels of development, and they are defined as corporate entities. They consequently need to respond to commercial laws. Besides, the central government's shares in SOEs are all held by the same state entity: FONAFE, which is clearly prohibited by Peruvian law from overseeing regulatory activities. FONAFE contributed to establishing the regulatory framework that now governs SOEs. An increasing number of surveys studying Peruvian SOEs spurred them to enhance reporting activities, and more generally to be held more accountable. As a consequence, efficiency and transparency of SOEs have significantly improved in the recent years, as proves the first public disclosure of the SOE financial statements by FONAFE in 2005. However, these high standards of transparency remain theoretical, and actual disclosure of financial statements and other operating ratios are hard to assess. Moreover, local SOEs are barely controlled, because they do not have the appropriate systems to consolidate and communicate their financial statements. Releasing operative or management indicators is not common either. Finally, shareholders rights are not always in line with the commercial rules that rule SOEs. For instance, auditors are directly designated by the State Audit Body (*Contraloría General de la República*, in Spanish) and not by the SOE Board⁷⁰.

Infrastructure operators should implement stronger accounting methods to enable a better

⁷⁰ *Source:* SOE Corporate Governance, Country Assessment, Peru, July 2006, The World Bank

follow-up of their financial situation, and eventually improve it.

For most infrastructure sub-sectors there is a large data gap that interferes with the strict monitoring of the service quality. Establishing strong accounting models and implementing the follow-up of key financial and organizational indicators would thus critically help the different actors to have an accurate, comprehensive view of the service quality and the financial state of the enterprises. To strengthen accountability, the competition needs to get more vivid and the regulation norms need to be enforced. An effort should be put into benchmarking and monitoring the performance of both public and private operators⁷¹. In Peru, this strategy has been implemented in the three infrastructure sub-sectors, but for small-scale infrastructure projects only. For example, communities have been involved in providing information on demand, loads, and connections. But the soundness and the efficiency of this model need to be verified when applied to larger infrastructure. Indeed, there is no local capacity to handle large-scale financial accounting, because there is no access to modern computing tools to deal with large databases, nor the ability to rapidly and systematically collect the financial information. Furthermore, in regard to the services rendered by municipalities, account separation for each sub sector or activity is not common, which leads to little transparency in terms of tariffs and subsidy policies, as well as ignorance of costs and of where investments go.

Peruvian SOEs need clear incentives to improve their corporate governance, as a first step to increase both service quality and financial profitability.

In the water sector, most of the SOEs have a deteriorated financial situation or are even in bankruptcy, which makes them not competitive. Of the 50 SOEs surveyed by Andres et al., only 19 had a positive net income in 2007. Peruvian SOEs are in the midst of divergent interests since many of them have to keep on ensuring the quality of services delivered, while at the same time reaching a sustainable and profitable financial situation. The question of the performance of SOEs can be tackled from the governance angle: a stronger governance model could help SOEs deal at the same time with the government, private shareholders and users' need and interests, and still safeguard the efficiency of infrastructure delivery. Sound corporate governance should induce improved transparency and accountability of practices. Specifically, a better balance needs to be found between the accountability to the state – the majority owner of the company – and the technical and management decisions that the company can make independently of political interference.

Key recommendations: Efficiency of Infrastructure Service Delivery

Increasing Peru's capacity to successfully implement the stimulus package	Preparing the ground for the post-stimulus phase
<ul style="list-style-type: none">• Secure sustainable funding for the maintenance of infrastructure• Reduce inefficiencies in service provision• Consider increasing tariffs for infrastructure services other than electricity, and communicate about the rationale for such an increase	<ul style="list-style-type: none">• Systematically disclose SOEs' financial statements• Have SOEs' external auditors designated by SOE board or by FONAFE• Better align technical standards with expected benefits of infrastructure investments• Better regulate informal service delivery and

⁷¹ Source: *Connecting East Asia: A New Framework for Infrastructure*, Asian Development Bank, Japan Bank for International Cooperation, The World Bank, March 2005

<ul style="list-style-type: none"> • Better involve users and stakeholders in the planning and regulation process • Fully implement the Anticorruption Action Plan 	<p>establish incentives for informal operators to improve the quality of services</p> <ul style="list-style-type: none"> • Fully scale up innovative and efficient models for operation and maintenance • Implement account separation between collected revenues and subsidies to increase transparency about tariffs and subsidy policies
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CHAPTER 5 : THE CHALLENGES AND POTENTIAL BENEFITS OF DECENTRALIZATION

This chapter gives an overview of what is the status of the ambitious decentralization reforms initiated by the Peruvian governments since 2002. Intergovernmental transfers at the regional and municipal level have dramatically increased, bringing significant new resources to subnational governments that they are using to invest in infrastructure, among other things. It is expected that this trend will continue as some Peruvian regions will continue to receive additional resources from the mining revenues (*canon minero*) and a few others may progressively have access to subnational borrowing. However, there exist significant bottlenecks to efficient spending at the decentralized level, as illustrated by the low budget execution ratios of several regions. The chapter analyzes the various factors behind the low efficiency and effectiveness of decentralized expenditures, including organizational shortfalls, the fragmentation of investments, unattractive compensation policies and frequent staff rotation, lack of technical and management skills, inefficient evaluation processes and the use of force account. The chapter concludes with some recommendations to build institutional capacity at the decentralized level and to pilot a transition from sector-based infrastructure policies to a more comprehensive territorial development approach.

THE RATIONALE FOR GREATER DECENTRALIZATION IN INFRASTRUCTURE

With about a third of the Peruvian population and 53 percent of the national GDP, Lima still has the largest share of the country's economic development. The flourishing urban primacy of the capital city contrasts with Peru's numerous lagging regions, still predominantly rural, primarily located in the Sierra part of the country. As the 2009 World Development Report has explained, resolving bottlenecks to integrate lagging regions within the Peruvian nation will require encouraging the mobility of people and establishing the institutional foundation for possible urbanization that would lead to strengthening not only Lima but also a network of secondary Peruvian cities. In addition to institutions, connective infrastructures are critical so that the benefits of rising economic density are more widely shared. Beyond the differences in terms of economic development, the inequalities that exist between Lima and the provinces are generating political and social tensions that could affect the country's stability. Recent elections have shown that Lima and some northern regions tend to vote differently than the rest of Peru. In this context, decentralization offers the opportunity to promote a more inclusive development and to improve the provision of public goods by tailoring them to local preferences. Competition, proximity and transparency also provide a strong motivation for local governments to be more responsive to the needs of the public.

Decentralization can be a powerful instrument to rebalance Peru's development

A fiscal and political decentralization process can create the conditions to promote the emergence of alternative growth poles by transferring additional resources at the subnational level and by empowering local stakeholders so that public investments can be better aligned to local development strategies. It can also increase the accountability of elected officials by reducing the distance between citizens and decision makers. Some degree of equalization between Lima and the provinces would contribute to progress toward the objective of treating citizens alike no matter where they reside in the country and would also contribute to the country's overall economic growth.

Whether subnationals tend to spend more on infrastructure with greater decentralization varies from country to country. Some studies have found that the share of infrastructure expenditures in total expenditures tend to increase as decentralization proceeds, particularly in developing countries.⁷² However, in Bolivia, the creation of rural local governments was associated with dramatic shifts in public allocations away from infrastructure and into social sectors.⁷³

In a sound environment, decentralization has been found to improve several performance indicators of basic service delivery, based on the principle of subsidiarity.⁷⁴ For example, unpaved roads have been found of better quality, with less expensive maintenance costs, where road maintenance is decentralized.⁷⁵ There have also been many successes in water supply and sanitation, particularly in extending services to relatively inaccessible rural areas. In Ghana, 78 percent of the target population is reported to now benefit from improved water sources, as a result of decentralization. Similar programs are implemented in Benin, Ecuador, India, and South Africa. Other performance indicators remained however unchanged.

Table 5-1: Main effects of decentralization on infrastructure services

Sector	Positive	Negative	Neutral
Roads	Improved condition of unpaved roads		Condition of paved roads unchanged Proportion of paved roads unchanged
Electricity	Improved generation capacity Extended access in rural areas Lower tariffs	Lower productivity (measured by employees per GW/hr) if there is no vertical unbundling	Customers served per employee unchanged System losses unaffected
Water	Decrease of water losses Increased coverage		Production and operation costs unchanged Incidences of water-borne diseases unchanged

Source: Estache and Humplick (1995).

Despite their potential benefits, decentralization reforms also present challenges and risks

Decentralization's potential impact on infrastructure performance depends largely on the enabling environment for effective local provision. If decentralization just moves the functions from the central ministry with a slightly lower tier of government, but everything else remains

⁷² Estache and Sinha (1995).

⁷³ Faguet (2002)

⁷⁴ Ahmad and others (2005)

⁷⁵ Humplick and Moini-Araghi (1996)

the same, little positive change should be expected. Important success factors include the degree of subnational political and financial autonomy, accountability, and the existence of incentives for a long-term approach to infrastructure investment, maintenance, and use. Studies also show that decentralization can result in more variable performance across territories, thus potentially contributing to a widening gap between regions and to territorial inequalities. However, it is not clear whether this is a symptom of varying local capacity or of varying local preferences. In some cases, this could also be caused by the “capture” of public resources by local elites. Even when investments become more equally distributed, problems might arise. In Bolivia, for example, the creation of rural local governments was associated with a sharp fall in the geographic concentration of public investments as they become more evenly dispersed across regions but this increased dispersion could reduce the ultimate effectiveness of these investments in fostering growth. Finally, when subnational borrowing is allowed, some regions or municipalities drive themselves into an unsustainable debt situation, sometimes encouraged by the confidence that the central government will bail them out. As a result, countries such as Brazil and Mexico have seen their restrictive central fiscal policies in the early 1990s thwarted by subnational deficits which ended with a bailout by the national government.

THE DECENTRALIZATION FRAMEWORK FOR INFRASTRUCTURE IN PERU AND COMPARISON WITH BENCHMARK COUNTRIES

In 2002, Peru accelerated its decentralization reforms significantly, particularly at the regional level

The 1993 constitution already envisaged the establishment of a decentralized state. However, no significant progress in this area occurred until 2002 when a constitutional amendment required the creation of elected regional governments. Subsequently, regional elections took place in 2003, after which elected governments took power in 26 regions. Peru’s decentralization reforms were introduced with the following objectives: (i) economic development and competitiveness; (ii) modernization and simplification of administrative systems and processes; (iii) assigning responsibility for public services to the levels closest to the users; and (iv) citizen participation in governance.

Decentralization has led to a change in budget allocations. Subnational governments account for a growing share of non-financial public expenditures and they are playing a more important role in public capital investments. Royalties and corporate income tax on natural resource exploitation activities constitute a large share of their revenues, the rest being essentially provided by the central government through other intergovernmental transfers. However, the Peruvian Constitution and decentralization laws do not allow subnational governments to modify the rates and bases for local taxation, nor create new taxes. Consequently, subnational governments have very little discretion over the amount of revenues they get.

Peru has opted for a gradual approach, in which the central government is still largely involved

As have most countries, Peru has established a three-tier government structure with a central government, 26 regions, and 1,834 municipalities, of which 194 are provincial municipalities and

the rest, district municipalities. The territory of a province covers several districts. However, the provincial mayor does not have any authority over district mayors. Regional presidents are elected for a four-year term.

A comparison of Peru with peer countries highlights that the Peruvian decentralization reforms have been gradually implemented, as opposed to the “big bang” approach of other countries such as Indonesia, Pakistan, or the Philippines, where decentralization laws and transfer of responsibilities, authority, and staff took place in rapid succession. An important share of subnational government revenues still depend on central government’s transfers even if this proportion is quickly changing with the important increase of mining revenues in some regions. The Peruvian model of decentralization is also still somewhat ambiguous with an incomplete devolution of responsibilities, resources, and accountability at the subnational levels and a still significant role played by sector ministries’ deconcentrated units.

Table 5-2: Comparison of Peru’s decentralization reforms with peer countries

Country	Government	Decentralization reforms	Type of decentralization	Transfers represent more than 75% of revenues	Pace of decentralization reforms
Albania	Unitary	2000	Devolution	Yes	Gradual
Bolivia	Unitary	1994	Deconcentration	Yes	Gradual
Brazil	Federal	1988	Devolution	No	Gradual
India	Federal	1993	Deconcentration	Yes	Gradual
Indonesia	Unitary	2000	Devolution	Yes	“Big Bang”
Morocco	Unitary	1992	Deconcentration	No	Gradual
Pakistan	Federal	2001	Devolution	Yes	“Big Bang”
Peru	Unitary	2002	Deconcentration/d evolution	Yes	Gradual
Philippines	Unitary	1991	Devolution	No	“Big Bang”
Russia	Federal	1999	Devolution	No	Gradual

Source: Decentralization in Client Countries: An Evaluation of World Bank Support, 1990-2007.

THE EXPANSION OF PERU’S DECENTRALIZED EXPENDITURES

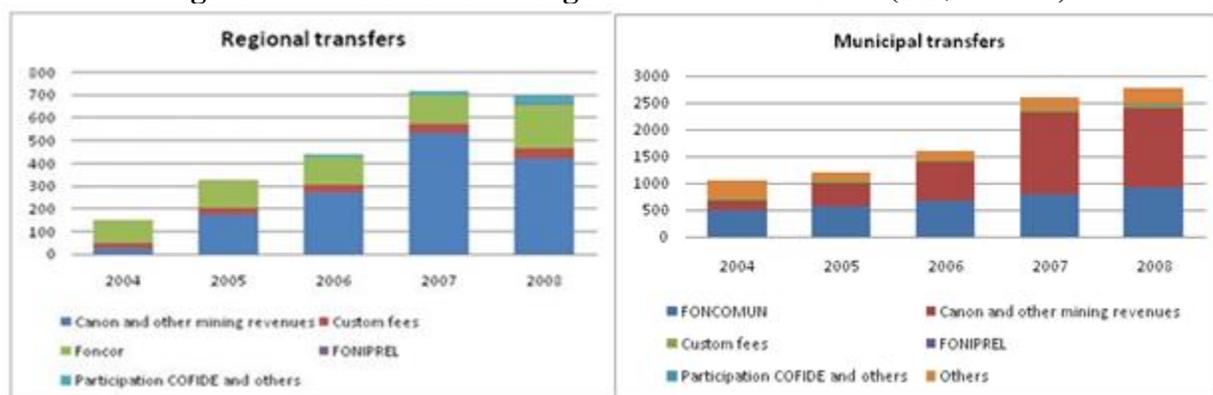
Intergovernmental transfers to municipalities and regions have dramatically increased since 2004

Over the past five years, transfers to regions have increased by 366 percent to reach US\$1000 million in 2010. In the same period of time, transfers to municipalities have increased by 170 percent to reach US\$2.78 billion (distributed among 1,834 municipalities). Transfers to regions include natural resources and mining revenues (*canon minero*⁷⁶, FOCAM⁷⁷, *regalía minera*⁷⁸),

⁷⁶ The *canon minero* (mining tax) represents the transfers received by Local and Regional Governments from the taxes and incomes collected by the State through mining activities.

custom fees, as well as other central funds (FONCOR⁷⁹, FONIPREL⁸⁰) and financing instruments (COFIDE). Transfer to municipalities include the FONCOMUN, natural resources and mining revenues, custom fees as well as several small sector specific transfers (*Vaso de Leche*, *Caminos Rurales*) and other revenues (e.g., casinos). Natural resources and mining revenues have increased dramatically over the past five years: they now represent 61 percent of revenues for the regions and 53 percent for municipalities. Between 2004 and 2010, the amount of natural resources and mining revenues transferred to subnational governments increased by almost 1000 percent. The *canon* is based on the corporate income tax paid by all companies authorized to exploit Peruvian mining, hydroelectric, gas, petroleum, fishing, and forestry resources. Half of all the corporate income tax collected by the central government from those companies is redistributed back to the municipalities (75 percent) and regions (25 percent) where the exploited natural resources originate, based on criteria of proximity to the exploited natural resources, population, and poverty level. Mining revenues represent the greatest share of the *canon* (18 percent), followed by oil and gas (10 percent), fishing (1 percent), and forestry (0.2 percent). *Canon* revenues are earmarked for investment expenditures (including project design and maintenance). Another important source of revenues for municipalities is the FONCOMUN (*Fondo de Compensación Municipal*). A share from the sale tax collections equivalent to two percentage points out of the 19 percent at which the sales tax is levied is distributed monthly to municipalities based on specific criteria (as defined in Supreme Decree No. 06-94-EF), including population, infant mortality rates, poverty levels (for Lima and Callao), and percentage of rural population (for the rest of the country). A similar instrument (FONCOR) was introduced for the regions. Since 2006, other financing instruments (COFIDE, FONIPREL) as well as subnational borrowing have been used by some subnationals, mostly by regions, to increase their available resources.

Figure 5-1: Evolution of intergovernmental transfers (US\$ million)



Source: MEF Transparencia website.

⁷⁷ Spanish acronym for Fondo de Desarrollo Socioeconómico de Camisea (Camisea’s Socioeconomic Development Fund). This fund is dedicated to finance infrastructure investment projects of the local and regional governments, only in the Ayacucho, Huancavelica, Ica, Ucayali and Lima regions.

⁷⁸ The *regalia minera* is defined as the economic consideration that the holders of the mining concessions pay to the State for the exploitation of mining resources.

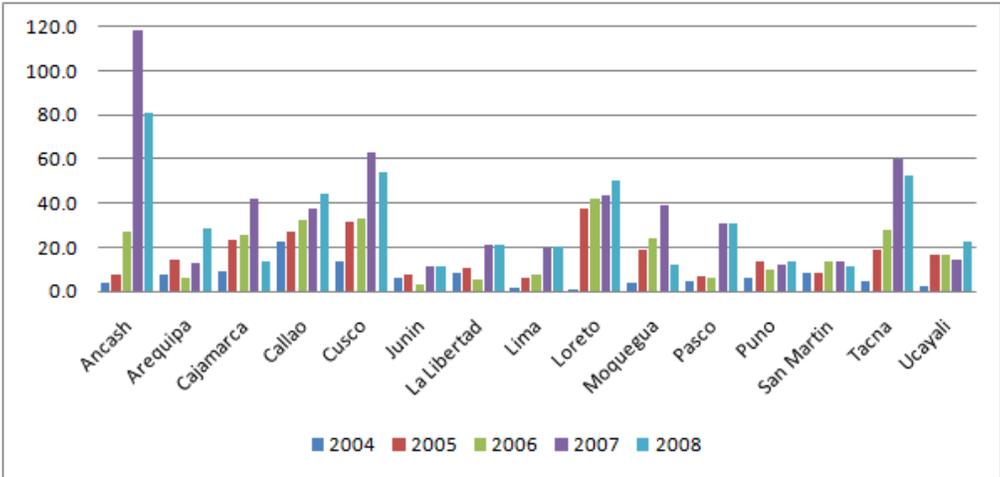
⁷⁹ Spanish acronym for *Fondo de Compensación Regional* (Regional Compensation Fund)

⁸⁰ Spanish acronym for *Fondo de Promoción a la Inversión Pública Regional y Local* (Regional and Local Investment Promoting Fund)

Regions have more resources to invest, particularly those rich in mining resources

Fifteen Peruvian regions receive 92 percent of the intergovernmental transfers with only five of them (Ancash, Callao, Cusco, Loreto, and Tacna) receiving 56 percent. The greatest increases in transfers between 2004 and 2008 were observed in Loreto, Ancash, Lima, Tacna, Ucayali, Pasco, and Cusco. As a result of increased available resources, the investment budget of regional governments has more than quadrupled in six years, increasing from S/0.6 billion (US\$170 million) in 2004 to S/2.7 billion (US\$770 million) in 2009. The share of regional governments in total investment expenditures in Peru has increased from 22 percent in 2004 to 33 percent in 2008 and 2009. The greatest increase of investment resources has been observed in regions with the greatest mining revenues (in particular *canon minero*). For example, Ancash saw its investment budget increase from S/30 million in 2004 to S/250 million in 2009. Similarly, the investment budget of Arequipa and Cusco more than quintupled over the same period.

Figure 5-2: Fifteen Peruvian regions receiving the greatest transfers (US\$ million)



Source: MEF Transparencia website.

Mining revenues are expected to continue growing significantly in a few regions

The budget resources available to regional governments are going to continue growing with a number of large mining and gas projects expected to become operational between 2010 and 2019. The expected increase in *canon* from the largest identified 18 projects exceeds US\$1 billion per year to be distributed between eight regional governments. Although the actual revenues highly depend on the level of commodity prices, the main beneficiaries of this additional transfer of mining revenues are expected to be Cajamarca (with an estimated US\$334 million increase), Junín and Apurímac (US\$137 million), Moquegua (US\$129 million), Loreto (US\$103 million), and Cusco (US\$100 million). These regions should prepare themselves for a dramatic increase of mining revenues, in particular by developing planning instruments and building up execution capacity.

Table 5-3: Future large-scale mining and gas projects to benefit regional governments

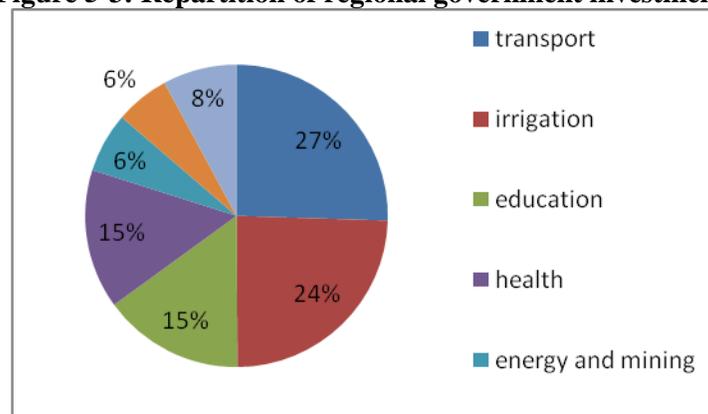
Project	Region	Investment (US\$m)	Beginning of operations	Beginning of fiscal revenues	Estimated revenues for the regions (US\$m)	Duration of revenues (years)
Mining Project						
Magistral	Ancash	402	2012	2016	20	10
La Bambas	Apurimac	1,500	2014	2018	114	20
Los Chancas	Apurimac	1,200	2016	2019	23	10
Tia Maria	Arequipa	2,108	2011	2015	57	10
Cerro Corona	Cajamarca	450	2008	2012	43	15
Galeno	Cajamarca	1,500	2012	2016	57	25
La Granja	Cajamarca	1,000	2014	2018	100	15
La Zanja	Cajamarca	60	2012	2016	14	10
Michiquillay	Cajamarca	700	2014	2016	29	15
Minas Conga	Cajamarca	1,500	2012	2017	91	15
Quechua	Cusco	490	2012	2016	14	10
Toromocho	Junin	2,152	2013	2017	143	20
Cañariaco	Lambayeque	145	2011	2017	7	25
Quellaveco	Moquegua	1,000	2012	2016	129	10
Gas projects						
Lote 67	Loreto	1,600	2010	2010	86	10
Lote 56 (Camisea II)	Cusco	2,200	2010	2010	86	30
Lote 39	Loreto	530	2012	2010	17	15
Lote 57	Cusco	TBD	2012	2010	20	30

Source: Guerra Garcia, G. (2009).

Infrastructures represent the largest share of the investments of the regional governments

Transport and irrigation represent together half of the regions' investments. Social sectors (health and education) account for 30 percent of total investments.

Figure 5-3: Repartition of regional government investments



Source: Guerra Garcia, G. (2009).

Subnational borrowing remains marginal

Over 93.4 percent of the public debt belongs to the national government, compared to 1.3 percent for the regions and 5.2 percent for the municipalities, mostly for Lima. The only subnational bonds issued to date helped securitize Lima’s toll road revenues. Only four regions have contracted debt (in fact transferred from INADE): Lambayeque with a S/80 million (US\$23 million) operation, along with San Martin, Loreto, and Cusco. In addition, two sanitation projects in Loreto and Cajamarca are being discussed with JBIC and another subnational lending operation is being explored in Piura. Unregistered debt is, however, significant and highly concentrated. Several subnational governments have acceptable credit scores (see **Table 5-4**) but a number of indebted municipalities do not comply with the Fiscal Responsibility and Transparency Law.⁸¹ The key fiscal prudence rules introduced by this law are: (i) no long-term debt (more than a year) can be owed to foreign-domiciled entities without a sovereign guarantee; (ii) total debt and total debt service on operating revenue must be respectively less than 100 and 25 percent; (iii) the average of the primary balance must be positive in the last three years; (iv) non-guaranteed debt and non-guaranteed debt service on operating revenue must be respectively less than 40 and 10 percent; (v) no debt financing can cover operating expenditures; and (vi) the real growth of primary expenditures is capped at 3 percent. While the rules are clear, they are still overly complicated and Peru still lacks an enforcement mechanism with explicit penalties for non-compliant subnationals. Peru also lacks a subnational bankruptcy code.

Table 5-4: Comparison of credit scores of selected Peruvian subnationals and benchmarks

CSF Credit Scoring Model	Weight	Lima municipality 2007	Trujillo municipality 2007	Arequipa region 2007	Bogota municipality 2007	Guatemala municipality 2006
Financial indicators	30%	90	90	75	75	55
Socio economic environment	26%	63	50	50	75	88
Institutional capacity	9%	50	67	50	83	50
Regulatory framework	32%	63	50	50	88	38

⁸¹ Ahmad and García-Escribano, 2006.

Political environment	3%	83	83	67	83	33
Total weighted score	100%	70	64	58	80	57
Expected approx. local rating		AA+	AA-/AA	A+	AAA	A/A+

Source: IFC (2008).

While being interested in cautiously exploring developing subnational borrowing, the Peruvian MEF is trying to introduce greater regulation of subnational debt and has asked its multilateral partners to support this effort. For example, the joint World Bank – IFC’s subnational finance group has established a subnational facility to help finance infrastructure projects in creditworthy subnational governments, while ensuring that financial prudential ratios are respected.

Box 5-1: Subnational borrowing in Peru - a pilot supported by the World Bank / IFC

In 2008, at the request of the Peruvian MEF, the World Bank – IFC’s subnational finance group partnered with a Peruvian commercial bank (BBVA Continental) to set up a pilot risk-sharing program with the objective of helping develop the subnational finance market in Peru and assist local governments in meeting their infrastructure financing needs. A substantial PPIAF-funded technical assistance program was also set up to assist subnational governments interested in borrowing from this risk-sharing facility. In designing the pilot, the subnational finance group could build on the results of a previous technical assistance program to a number of Peruvian municipalities (e.g., Lima, Arequipa, Trujillo) as part of a National Plan for Municipal Business Procedures Simplification, as well as on the advisory services it had provided to municipalities and regions (e.g., Cajamarca) to manage their mining revenues. BBVA Continental already holds a municipal portfolio with maturity above one year totaling US\$42 million (including a US\$40 million loan to the municipality of Lima) and it had developed a strategic interest in cautiously expanding its subnational client base outside Lima.

Under the proposed pilot, the IFC provides a partial guarantee (without a sovereign guarantee) to loans originated by BBVA Continental and extended to subnational governments in support of infrastructure project financing. The maximum risk sharing amount is US\$55 million. The guarantee of the IFC would reduce the risk for BBVA Continental to lend to subnationals, and possibly allow better financial conditions for subnationals (e.g., longer maturity). Eligibility criteria for include respecting MEF’s fiscal prudence guidelines.

The first transaction closed under the facility was a S. 210 million loan to the Metropolitan Municipality of Lima signed at the end of May 2010 to refinance a short term loan from Banco de Credito and fund additional investments in municipal road infrastructure as well as remaining works of the Lima BRT. The deal benefited from a partial credit guarantee from the IFC for approximately 50% of the loan amount.

At the time of writing, a second deal is being prepared to finance the rehabilitation of the road Atico-Caraveli, in the region of Arequipa. Other road works in Piura and Chimbote are also being expected as potential targets for the facility.

Source: IFC – Peru Subnational Risk-sharing Program (2008).

Which regions are the readiest for subnational borrowing?

The heterogeneity of regions suggests that a wide opening to subnational borrowing may trigger significant risks in the least advanced regions. However, the most advanced ones could benefit from this possibility, which could help leverage additional resources to invest in infrastructure, and consequently prepare the ground for future economic growth. Engaging in debt operations to

finance infrastructure project could also bring significant improvements in project management, particularly when such operations associate development partners that combine lending with technical assistance and institutional-building activities. A multi-criteria analysis has been used to rank regions' readiness for subnational borrowing (see Table 5.5-5.5). The five criteria that have been used are: (i) execution performance in 2008, i.e., the amount of the budget executed, compared to the budget available as adjusted by MEF (PIM⁸²); (ii) the amount of budget available in 2008 to finance capital expenditures; (iii) progress achieved in implementing institutional reforms geared at improving the management of resources; (iv) increase of fiscal capacity available to finance infrastructure projects; and (v) prior experience with subnational borrowing (see Table 5.5-5). According to this analysis, the six Peruvian regions that could be targeted in a first phase for a subnational borrowing program include: Lambayeque, Cusco, Cajamarca, San Martin, Junín, and Loreto.

Table 5.5-5: Multi-criteria analysis of Peruvian regions' readiness for subnational borrowing

Rank	Region	Execution performance	Investment budget	Institutional reforms	Increase of fiscal capacity	Indebtedness experience	Total
1	Lambayeque	1.0	0.8	1.0	0.02	1.0	3.9
2	Cusco	0.5	1.0	1.0	0.36	1.0	3.8
3	Cajamarca	0.2	0.4	1.0	1.00	1.0	3.7
4	San Martin	0.7	0.9	1.0	-	1.0	3.6
5	Junín	0.3	0.6	1.0	0.43	1.0	3.4
6	Loreto	0.4	0.6	1.0	0.31	1.0	3.3
7	Arequipa	0.6	0.7	1.0	0.17	-	2.5
8	Apurimac	0.5	0.5	1.0	0.41	-	2.4
9	La Libertad	0.5	0.8	-	-	1.0	2.4
10	Ancash	0.1	1.0	1.0	0.06	-	2.2
11	Ayacucho	0.6	0.5	1.0	-	-	2.1
12	Piura	0.5	0.6	-	-	1.0	2.1
13	Tacna	0.2	0.2	-	-	1.0	2.0
14	Metro Lima	0.6	0.6	-	-	1.0	1.8
15	Huánuco	0.8	0.8	-	-	-	1.3
16	Amazonas	0.6	0.6	-	-	-	1.1
17	Huancavelica	0.4	0.4	-	-	-	1.1
18	Callao	0.8	0.8	-	-	-	1.1
19	Moquegua	0.3	0.3	-	0.38	-	1.0
20	Pasco	0.3	0.3	-	-	-	0.9
21	Tumbes	0.5	0.5	-	-	-	0.8
22	Lima	0.3	0.3	-	-	-	0.8

⁸² Spanish acronym for *Presupuesto Institucional Modificado*

23	Ica	0.4	0.4	-	-	-	0.8
24	Puno	0.4	0.4	-	-	-	0.8
25	Ucayali	0.2	0.2	-	-	-	0.6
26	Madre de Dios	0.3	0.3	-	-	-	0.5

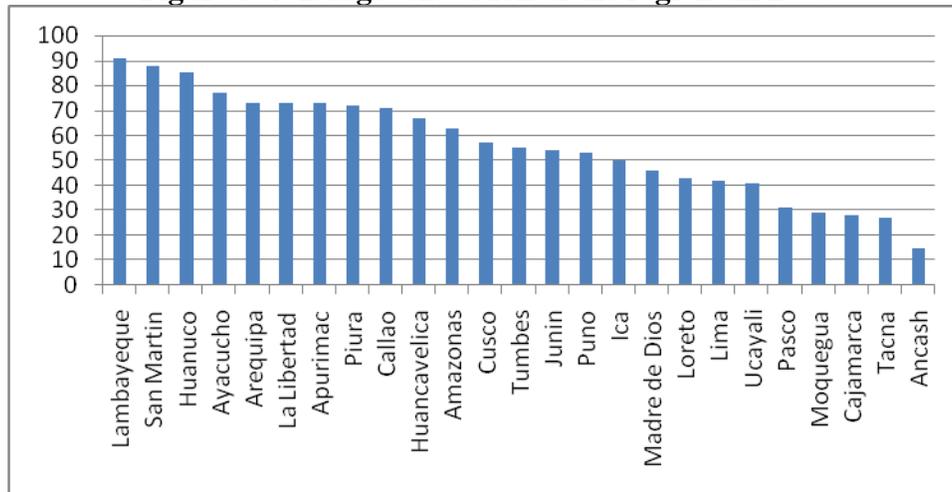
Source: Guerra Garcia, G.

BOTTLENECKS TO EFFICIENT SPENDING AT THE DECENTRALIZED LEVEL

Peruvian regions generally have a low execution performance, although there is a large diversity of situations

There are wide variations when looking at the performance of regions in spending their available budget resources. While Ancash spent only 15 percent of its budget in 2008, budget execution for Lambayeque reaches 90 percent. However, it is important to note that Ancash is the Peruvian region that receives the greatest resources while Lambayeque is among the regions receiving the lowest amounts of transfers. In 2008, 10 Peruvian regions spent less than half of their total available budget resources. Some regions clearly have had difficulties in absorbing the additional resources transferred since 2004: budget execution for all Peruvian regions was 72 percent in 2004 before dropping to 50 percent in 2008. However, this ratio is just slightly below the performance of the central government with only 52 percent of budget execution in 2008.

Figure 5-4: Budget execution of the regions in 2008



Source: Guerra Garcia, G. (2009).

In addition to the low levels of execution, decentralized expenditures in infrastructure are often characterized by an insufficient quality: insufficient attention is being paid to the sustainability of investments (ie. operation and maintenance arrangements) and many investments are overdimensioned or excessively fragmented. The poor quality of design studies (due to the lack of technical knowledge), but also political interferences with the decision-making process to select and design infrastructure investments are the main contributing factors to such reduced quality of decentralized expenditures.

In order to create an incentive to improve the quality of decentralized expenditures, the Peruvian MEF in 2006 created FONIPREL (Fund to Promote Regional and Local Public Investment). This fund can finance up to 90 percent of the cost of design studies or works for eight categories of public investments: health, nutrition, education, roads, sanitation, rural electrification, agriculture, and rural telecommunications. Subnational governments are sorted into six categories (regions or municipalities, three poverty levels for each) and then compete within these categories to access financing. Project proposals are evaluated based on five criteria: (i) the quality of the project; (ii) co-financing; (iii) cooperative arrangements with other municipalities/regions; (iv) geographic localization (projects located close to a border receive a premium); and (v) alignment with the participatory development planning instruments. In addition, projects have to comply with the technical norms of the corresponding sector ministry.

During its first year of operation, FONIPREL received 1,022 investment proposals, of which 372 were financed. Proposals were principally in education, agriculture, roads, and sanitation. Sectors with the highest rate of proposals ultimately financed were electrification, agriculture, and telecommunications. These projects have received about US\$110 million, with FONIPREL financing an average of 80 percent of the proposed investments. However, 42 percent of the available resources of FONIPREL were not used, due to the insufficient quality of the proposals received.

The FONIPREL experience highlighted the difficulties that subnational governments experience in formulating good projects and submitting acceptable-quality design studies for infrastructure projects. This suggests some assistance should be granted to subnationals in this area, in order to maximize the impact of FONIPREL. Regions like Apurimac and Ayacucho were more successful than others in leveraging resources from FONIPREL because they received help from an external agent to formulate their proposals. A better articulation of FONIPREL with other sector-specific instruments, such as the Regional Transport Decentralization Program (*Programa de Caminos Departamentales*) of the Ministry and Transport and Communications, could be explored to design and disseminate technical criteria ensuring the quality of expenditures. FONIPREL also needs to find a way to change a widespread perception that it is an attempt by the central government to take over control of decentralized funds and investment decisions. Finally, it is important to note that FONIPREL still represents only a marginal share (less than 1 percent in 2008) of transfers received by regional governments.

Multiple reasons exist for the execution delays and the reduced effectiveness of infrastructure investments managed at the subnational levels. These multiple bottlenecks strongly affect the potential benefits of the decentralization reforms. They should be addressed so that the continuing increases of resources transferred to subnational levels – in particular from mining revenues – can yield their full potential benefits. The main bottlenecks are discussed below.

Organizational shortfalls and duplication of responsibilities at the regional level

The management units (*gerencias*) of regional governments in charge of social and economic development are generally poorly equipped and insufficiently operational. A peculiarity of the organization of the regions is the coexistence of these management units together with sector directorates (*direcciones sectoriales*) which used to report to the corresponding sector ministry.

With the decentralization process, those directorates were transferred to the regions, together with the corresponding staffs and equipments, and are now duplicating the responsibilities of the *gerencias*. In the infrastructure sectors, there are three sector directorates: the regional transport directorates (*direcciones regionales de transporte*), the regional energy and mining directorates (*direcciones regionales de energía y minas*) and the regional housing and sanitation directorates (*direcciones regionales de vivienda y saneamiento*) (see Box).

In many regions, it is not yet clear which of the two institutions (*gerencias* or sector directorates) is leading the sector agenda nor which one is responsible for the regulatory functions. Coordination among the various management units as well as between the management units and the sector directorates also remains weak. Regional governments have a lack of specialized and qualified executives who could head the sector directorates and fully integrate them within the regions' organizations. A few Peruvian regions like Arequipa have managed to solve this issue by turning sector directorates into management units (*gerencia regional de infraestructura*). In the case of the transport sector, only the regions of Arequipa, Madre de Dios, and Lambayeque have managed to effectively involve the regional transport directorates (*direcciones regionales de transporte*) in the implementation of a less than negligible share (more than 4 percent) of the regions' infrastructure investments. Regional governments also include sub-regional management units (*gerencias subregionales*). However, since their coverage sometimes exclude some provinces (generally for political reasons), this has prevented the emergence of a global regional vision and has generated conflicts among provinces.

Box 5-2: Regional infrastructure sector directorates

- **Regional transport directorates** (*direcciones regionales de transporte*) used to report to the Ministry of Transport and Communications, but since 2002, have been transferred to the regions. They have the status of executing agencies with administrative autonomy, and they can count on a significant number of professional and technical staff. They mostly operate under force account arrangements although their equipment is largely obsolete. Their budget resources available for road investments are much reduced: only five of them have an investment budget exceeding US\$1 million (San Martín, Madre de Dios, Lambayeque, Arequipa, and Ancash).
- **Regional energy and mining directorates** (*direcciones regionales de energía y minas*) have in theory a wide range of responsibilities defined by law. However, they do not have the specialized staff needed to implement all these responsibilities, particularly in the areas of resource inventory, planning, policies, and evaluation of environmental impact studies. They are not executing agencies and they mostly focus their interventions on regulatory activities (e.g., licensing of gas stations). The energy investments are planned and managed by the regions' *gerencias de infraestructura*. There is very little coordination between the *gerencias de infraestructura* and the regional energy and mining directorates.
- **Regional housing and sanitation directorates** (*direcciones regionales de vivienda y saneamiento*) are not executing agencies. They have a wide range of responsibilities from giving technical and financial assistance to municipalities, formulating regional plans and policies, to promoting urban and rural housing programs. However, investments are managed by the *gerencias de infraestructura*.

Excessive fragmentation

With more than 2,000 municipalities, Peru has a very fragmented municipal sector. This fragmentation dramatically reduces the institutional capacity below the provincial level. The Peruvian district municipalities are among the smallest in South America: the average population of a district municipality in Peru is about 8,000 inhabitants, compared to about 20,000 in Argentina and Bolivia, or 26,000 in Brazil or Chile. The smallest Peruvian districts only have a population of a few hundred people.

Table 5-6: Size of municipalities in Peru and other Latin America countries

	Peru	Argentina	Bolivia	Brazil	Chile	Mexico	Venezuela
Number of municipalities	2,006	1,100	308	5,500	335	2,397	282
Population not living in capital city (million)	15.8	23.3	6.0	148.0	8.8	73.5	20.5
Average population per municipality (excluding capital city)	7,910	21,210	19,470	26,910	26,300	30,650	72,850

Source: Rural Infrastructure in Peru, World Bank (2006).

A large part of the investments implemented by the Peruvian regions are small. As a result, resources are spread too thin among multiple small projects that do not reach a sufficient scale to effectively improve production factors in the regions. For example, in Cajamarca, 57 percent of the investments amount to less than S/0.5 million (US\$143,000) and less than 2 percent amount to more than S/1 million (US\$286,000). In Junin and Arequipa, the proportions are similar. Many of these smaller-scale investments of local interest should be implemented at the municipal level. Only structuring investments of regional relevance should be prioritized and implemented at the regional level. The lack of adequate planning instruments and a governance structure that gives too much space to discretionary behaviors and interferences from local politics are important factors behind this excessive fragmentation. Another reason is the limited technical capacity of the regions to formulate large scale projects.

Unattractive compensation policies and frequent staff rotation

The existing compensation policy for civil servants working in subnational governments is not attractive enough to be able to hire highly experienced and qualified staffs and managers. In Cajamarca, for example, the new administration has reduced benefits for contracted staff by 30 percent, while the workload has grown with the increase of available investment resources. Compensation differences are noticeable, not only between the wages of civil servants working for the national government and those of subnational-level civil servants, but also within the regional governments between the *gerencias* and the sector directorates. Finally, there is little room for awards or bonuses that could introduce incentives to reward regional staffs' performance efforts and help retain the best executives.

The frequent rotation of senior executives is affecting the capacity of many regions to define and implement a continuous reform process and strategy. Rotation is explained by political instability but also by the low wages. Senior management is not only being replaced after the elections but also, very often, during the term of a regional administration. For example, in the first 22 months of the current administration in Junin, the general manager (*gerente general*), the highest non-elected official in the region, has been replaced six times. In the same period of time, Tumbes, Moquegua, and Amazonas have seen four consecutive general managers and Apurimac, Lima,

and Pasco, three *gerentes generales*. A minimum stability is needed to reform, reorganize, and strengthen regional governments, as well as to give continuity to the regional development strategy. The high rotation of staff is not only observed for senior executives, but also for operational staff as many civil servants, even when they have just been hired, continue to look for work opportunities in the private sector. Such rotation strongly reduces the effectiveness of training programs and prevents the building up of technical capacities.

Lack of technical skills and management tools

Low wages and frequent rotations contribute to a lack of technical skills. In 2003, a survey⁸³ found that only 2 percent of municipalities estimated they had both the technical skills and the financial resources to manage rural infrastructure projects (compared to 42 percent for some social programs).

Many regions also lack basic management tools, like operational manuals and integrated information systems. In most of them, standard management instruments (such as CAP, MOF, and PAP) are outdated. A few of the regions, like Lambayeque or Ayacucho, have however developed their own information systems, either fully in-house or by adapting the information systems of national agencies (such as Provías Nacional). The information technologies, as well as computer hardware and software, used by regional governments are generally outdated and incompatible with national applications. The budget limitations for operational costs and logistics are also reducing the ability of the *gerencias* to efficiently supervise the activities handled by the sector directorates. Budget constraints also prevent many regions from hiring external experts that could help restructure and modernize the regional administrations, as well as design a strategy for reform. Finally, the planning function is also hampered by the lack of accurate cartography information and GIS-based systems.

Inefficient investment evaluation processes

The decentralization of SNIP was aimed at reducing processing delays but failed to improve or even preserve the quality of expenditures.

The National Public Investment System (SNIP) has been recently decentralized, and decentralized expenditures are now reviewed directly by the “Public Investment Bureaus” (OPI⁸⁴) of the regional governments or by 777 local OPIs for municipal investments. In theory, the OPIs have to follow the evaluation norms published by the MEF. In practice, a recent evaluation has shown that about 50 percent of the all projects declared viable by the OPIs should not have passed the SNIP. This proportion is, however, comparable to what an earlier evaluation found for the national SNIP.

The poor quality of feasibility studies, the underestimation of costs, and the political pressures to accelerate execution, are likely to be the main reasons why the selection of investment projects is not as rigorous as it should be.

⁸³ Azcueta, M., 2003. “Análisis de Capacidades en los Gobiernos Locales del Perú.”

⁸⁴ Spanish acronym for Oficina de Programación e Inversiones

Investment decisions are mostly made on the basis of pre-investment studies that have to be approved by the SNIP. However, there is a variation of up to 62 percent between the cost estimates from these pre-investment studies and the actual costs. Such a difference strongly reduces the credibility and effectiveness of the prioritization process among investment alternatives. These differences are greatest in the education sector and smallest in the sanitation sector.

Table 5-7: Cost comparison at various stages of the investment cycle in Cajamarca (percent variation compared to contract's amount)

Sector	Pre-investment (SNIP)	Final design	Contract	Actual
Irrigation	-40.6	+11.1	0	+8.6
Education	-61.8	+8.0	0	+5.7
Electrification	-44.0	+0.9	0	+4.1
Sanitation	-26.6	+9.0	0	+7.3

Source: Guerra Garcia, G.

The large number of local OPIs also contributes to the high fragmentation of investments and reduces incentives to look for regional synergies. Despite the initial focus of SNIP decentralization on reducing the bureaucratic toll and processing delays for infrastructure projects, most project management instruments (SNIP but also SIAF, SEACE, etc.) still produce an excessive multiplication of bureaucratic steps that often overburden the limited institutional capacity of subnational governments. A deep reengineering of such processes is still needed to make investment selection more agile, without jeopardizing the quality of such investments. In several regional governments, there is a perception that procurement processes are not transparent enough; this perception is aggravated by the absence of an effective mechanism to fight fraud and corruption.

Use of inefficient force account practices while contracting out arrangements have not yet fulfilled their promises

Regions are using several processes to implement infrastructure. Although there is evidence that they are less efficient than other execution modalities, force account practices are still widespread. The region of Arequipa is executing almost all its infrastructure under this modality and its *gerencia regional de infraestructura* is organized accordingly, with four *subgerencias* for studies, execution, equipment maintenance, and supervision. On the other hand, some other regions, like Cajamarca, have completely phased out their force account practices and have outsourced all their infrastructure projects (including design studies and supervision). In these cases, the *gerencia* is organized with only three smaller *subgerencias* focused on contract management, supervision, and coordination. Many regions combine the two implementation modes. This is the case of Junin, where small works are executed through force account while larger works are contracted out. The *gerencia* of Junin is organized in three *subgerencias* (studies, works, and supervision).

While an evolution toward contracting out is desirable in the long term, the regions should first explore how to improve the efficiency of their execution modalities. The case of Arequipa, though being entirely based on force account, has proved to be effective in terms of budget

execution, thanks to the hiring of highly experienced executives and staffs. The execution rate of Cajamarca, on the other hand, has been penalized by a large number of unsuccessful bidding processes and by significant delays in managing procurement processes. The insufficient experience of procurement specialists has increased the risk of formal protests from bidders (*impugnaciones*). Regions should look for a strategy to improve the efficiency of their infrastructure management by contracting out, by monitoring the true efficiency and cost of their different execution modes, and by rationalizing their assignment of different implementation modes to specific tasks (e.g., contracting out large and complex works, and focusing force account on emergency maintenance).

BUILDING INSTITUTIONAL CAPACITY AT THE SUBNATIONAL LEVEL

Regions and municipalities have different roles to play in infrastructure management. In the transport sector, the legal framework is relatively clear despite some uncertainties introduced by a 2008 road reclassification: the Ministry of Transport manages the national road networks, regions the regional network and municipalities rural roads. In the water/sanitation sector, municipalities (districts and provinces) have the greatest role to play in promoting and managing access to water/sanitation services. Because of economies of scale, the national government and to some extent the regions are leading infrastructure investments in the power sector. Despite their distinct roles – which need to be clearly stated in the legal framework and actually implemented - coordination mechanisms among all three tiers of government remain essential particularly in terms of planning.

Overcoming municipal fragmentation: the positive experience of the Provincial Road Institutes

The district territorial level is not appropriate for the management of larger scale infrastructure (although it can be the right level for small water and sanitation investments). In order to be efficient, rural roads, as well as other infrastructure works, require economies of scale that can more easily be achieved at the provincial level. Moreover, institutional capacity is greater at the provincial level.

In order to overcome municipal fragmentation, the transport sector has introduced a new collaborative institutional arrangement at the provincial level. The Provincial Road Institutes (PRIs) are fully decentralized entities, hosted in provincial municipalities but reporting to a “provincial road board” consisting of all the mayors in the province. The operational costs of the PRIs are shared among participating municipalities, in proportion to the length of the rural road network under their jurisdiction. The PRIs are relatively small entities since almost all their activities are outsourced to private operators: a typical PRI would include a manager (*gerente*), a road engineer, and an assistant. The PRIs coordinate the preparation and the updating of the Participatory Provincial Road Plan and contract road maintenance activities to specialized micro-enterprises; the most advanced even contract rehabilitation works, sometimes with the technical assistance of the regional bureaus of *Provías Descentralizado* in MTC.

The first PRI was created in 2000 in Arequipa. As of 2009, 174 PRIs had been created with technical support from *Provías Descentralizado*. One-hundred and five of the PRIs are fully

operational; 34 of the most advanced ones are already involved in the management of road rehabilitation contracts. The PRI model has proved to be highly successful in fostering cooperation among municipalities and effectively decentralizing rural roads management at the municipal level. However, the scaling up of the model to almost all the Peruvian provinces has proven to be a long-term process in which institutional performance monitoring, accreditation procedures, and close technical support have played a critical role.

The success of the Provincial Road Institutes suggests that this model could be extended to other infrastructure sectors. Although the optimal territorial level may vary among sectors depending on the degree of economies of scale that can be generated by moving implementation to a higher level, the provincial level seems to be particularly appropriate for certain infrastructure activities. For example, in the water sector, the provincial level could provide training and technical support to district municipalities and communities. Some provinces (e.g., Arequipa) could thus extend the scope of their PRI and progressively set up Provincial Infrastructure Institutes (PIIs). Another advantage of the PII would be the promotion of joint infrastructure planning. Coordinated planning in the infrastructure sectors has been found to generate bundling benefits and enhance the impact of bringing infrastructure access to rural communities.

At the regional level, in the short term: Infrastructure Investment Management Committees could provide a solution to the institutional needs for effective infrastructure management.

The high fragmentation of infrastructure investments, the lack of adequate infrastructure planning tools, and the poor quality of pre-investment studies reveal the need for a decision-making process that would both help ensure the quality of regional infrastructure investments and align them with the broader development strategy of the region. It is recommended that regional governments consider the creation of a small Infrastructure Investment Management Committee (*Comité de Gestión de Inversiones en Infraestructura*) that would directly report to the region's General Manager and would have a direct overview on the *gerencia de infraestructura* and the various sector directorates. This Committee should focus on: (i) promoting mid-term infrastructure planning practices that would avoid excessive fragmentation and instead promote the identification of structuring investments; (ii) requesting more realistic cost estimates through raising the quality of pre-investment studies; (iii) planning, from the pre-investment stage, the budget resources needed to ensure an adequate supervision of infrastructure projects; (iv) verifying the technical capacity of project management teams; (v) monitoring implementation and analyzing associated risks; (vi) building a specialized procurement unit (DEACE – *Dirección Encargada de las Adquisiciones y Contrataciones del Estado*) within the *gerencia de infraestructura*; (vii) implementing a contract management system integrated with the regional SIGA (procurement management system); (viii) ensuring the proper training of key project staff; and (ix) creating a GIS-based database of infrastructure projects.

At the regional level, in the longer term: restructuring the regional entities in charge of infrastructure management

The institutional duality of the *gerencias* and the sector directorates is one of the most critical bottlenecks to effective infrastructure management at the regional level. Regional governments should progressively build both an efficient planning function for infrastructure investments and

an executing body in charge of managing the implementation of these investments (preferably through contracting out).

Regarding the planning function, it is important to locate it as close as possible to the region's highest authorities so that it can effectively influence the choice of the investments that are essential to the region's development. Examples of successful high level planning functions can be found in the regional government of Callao which has successfully established a Technical Unit (*oficina técnica*) in charge of planning, or in the regional governments of Cajamarca and Junín, where a small team of senior advisors and planning experts are directly reporting to the president of the region.

Regarding the execution function, three institutional alternatives could be considered:

- i. Concentrate all infrastructure-related implementation activities in the *gerencia general de infraestructura* (design, works, supervision, maintenance), as well as the corresponding budget resources, currently spread out in the sector directorates. This would help the region comply with the requirement of the Budget Law that executing units should not manage resources below S/100,000 (in practice, budget resources are currently scattered among multiple executing units);
- ii. In the context of an external debt operation for the infrastructure sectors, create a project implementing agency that could take over the execution not only of externally financed infrastructure investments but also of the whole infrastructure investment program of the region;
- iii. Use the model of "special projects" that exists in the Peruvian legislation, and which is currently in use by some regional governments, to transfer, to the executing entities in charge, additional responsibilities such as the execution of infrastructure investments of regional relevance.

The region of Cajamarca has also explored a variation of alternative (i) above, with the creation of a "Regional Infrastructure Institute," inspired by the model of the Provincial Road Institutes.

Rewarding performance and tailoring institutional building programs

The current heterogeneity of situation between regions calls for a tailored approach rather than for a one-size-fits-all solution. While the bulk of infrastructure-related transfers should remain unchanged, in order for subnationals to have sufficient predictability of future resources, some transfer programs could introduce a performance-based approach that would give greater incentives for subnationals to improve their investment track record and their infrastructure policies.

In order to implement such an approach, transparent performance criteria would need to be established, such as the execution ratio (taking also into account the amount of resources available), the quality of the planning process, or the sustainability of investments (e.g., expenditures in road maintenance). A closer monitoring of the institutional capacity of subnational governments still needs to be implemented so that more effective technical assistance and training programs can be implemented.

A performance-based categorization of regions could allow concentrating some intergovernmental transfer programs on the best performing regions (e.g., Regional Transport

Decentralization program, FONIPREL, as well as a possible future subnational lending facility, eventually intermediated by COFIDE), while an aggressive technical assistance program (particularly targeting planning, project management and procurement issues) would be implemented for the weakest ones.

Table 5-8: Categorization of Peruvian regions

		Budget execution performance		
		High	Medium	Low
Available resources	High	Arequipa	Callao, Cusco	Loreto, Ucayali, Pasco, Tacna, Ancash
	Medium	San Martin, La Libertad	Huancavelica, Junín, Puno	Lima, Moquegua, Cajamarca
	Low	Lambayeque, Huanuco, Ayacucho, Apurimac, Piura	Amazonas, Tumbes, Ica	Madre de Dios

Balancing investment and administration funds: revisiting compensation policies

The austerity measures imposed on current expenditures, combined with the expansion of investment resources, are creating a tension that is particularly noticeable at the subnational level. Unattractive compensation policies, insufficient monetary incentives, and rigidities in the assignment of human resources between the *gerencias* and the sector directorates need to be revisited so that subnational governments can have the management tools needed to strengthen their institutional capacity and so that they can proceed with the needed restructuring.

In this area, with adequate technical and legal assistance, a few pilot regions could explore the possibility opened by the Legislative Decree No. 1026 to elaborate “reform processes” (*expedientes de reforma*), provided they are linked to: (i) elaborating an optional integrated institutional optimization regime for local and regional governments; (ii) defining the rules so that local and regional governments can choose this regime; and (iii) defining the rules to formalize the transfer of human resources from the central government to local and regional governments, within the decentralization framework. The Peruvian MEF could take the initiative to allow and support a couple of regions in piloting such reform processes under L.D. No. 1026. Pilot regions could be selected based on their commitment to engage human resources reforms and on the pre-existence of a clear plan to solve the duplication of responsibilities between the management units and the sector directorates.

FROM DECENTRALIZATION TO TERRITORIAL DEVELOPMENT

Peru’s decentralization reforms have led to the transfer of more responsibilities and resources to subnational governments. This process will continue, particularly due to the projected increase in mining revenues. Subnational governments still need to acquire the tools to optimize the use of these resources. Greater institutional capacity and adequate governance arrangements (e.g., to avoid the capture by local elites, as well as other discretionary behaviors) are still strongly needed. Better planning in particular would help subnationals set a mid- to long-term vision for the development of their territories and better identify infrastructure investment priorities that are aligned with this vision.

Participatory planning at the municipal level

Peruvian municipalities need to prepare a development plan in order to be accredited and have access to certain intergovernmental transfers. Participatory budgeting is also now widespread in Peru. In the infrastructure sectors, sector-specific municipal plans have been prepared, particularly in water/sanitation and in transport. In order to generate economies of scale, participatory planning for rural roads is handled at the provincial level. Most Peruvian provinces have prepared a participatory provincial road plan, which allows them to: identify the highest priority road projects for which financial support from the central government will be requested as part of the Rural Roads Program; identify other priority investments that could be financed from their own resources (*canon minero* in particular); and explain how road maintenance activities will be planned and implemented. Participatory provincial road plans are normally updated every five years but could be amended more frequently, as needed.

Despite the existence of planning instruments at multiple levels, an evaluation of participatory budgeting in 2008 highlighted a number of deficiencies, including: (i) a lack of strategic development priorities; (ii) a vision restricted to a “closed territory” without consideration of possible interactions with neighbor territories; (iii) inconsistencies between the various sector-specific plans and the territory development plan, that were supposed to be integrated; (iv) incompatibilities between these plans, the budget instruments, and technical policies; (v) poor technical rationale and analyses; (vi) too strong a focus on sectors and not enough on territories; and (vii) weaknesses in the regional and local coordination councils (CCR and CCL) in charge of planning.

Participatory planning at the regional level: prioritizing sound and strategic investments

Most regions now have a regional development plan but these plans are not yet streamlined in the region’s investment decisions. Many regions are looking for external support to help them prepare development plans (or sector-specific plans) that would guide investment decisions in the mid- to long term. Sector-specific plans have been prepared in the infrastructure sectors. Since the 2002 decentralization reforms, subnational governments have increased their participation in rural electrification planning. In the water/sanitation sector, a few regions have prepared integrated regional sanitation plans.

The Regional Transport Decentralization Program has finally promoted the preparation of Participatory Regional Road Plans. As of 2009, such plans have been prepared in 22 regions and three of them (in Cajamarca, Moquegua, and Tacna) were being updated to reflect in particular possible change of priorities after the regional elections. These plans provide a methodology for prioritizing among regional roads, according to the function they serve for the region’s competitiveness. Ultimately, the objective was to provide regions with tools they could use to guide the mid- to long-term planning of their investment decisions in regional transport and help promote sound asset management practices. However, these plans are still perceived by most regional governments as a methodology for selecting the two road sections that would enter the Regional Transport Decentralization Program, without consideration of their broader usefulness for managing the rest of the regional road network. If properly handled, the updating of the Participatory Regional Road Plans could represent an opportunity to better customize these plans to the regions’ needs and demonstrate their relevance as asset management tools. There is still a strong demand from the regions for comprehensive planning instruments, not only in the road sector but also in other infrastructure sectors. The absence of national planning facilitator strongly

affects the quality of public investment planning in Peru. Although CEPLAN has recently been created, as well as the Decentralization Technical Secretariat (STD) in 2007, subnational governments still receive little guidance from the national level on how to implement a sound territorial development approach. A methodology could be designed and promoted to disseminate best planning practices among subnational governments. In particular, at the regional level, such methodology should promote the selection of larger-scale, strategic investments, rather than small investments that could be better managed at the municipal level.

On the other hand, larger scale investments should be selected rigorously and, in particular, they should comply with robust economic evaluation criteria. Regional strategic investment could also include “investment programs” that bundle together several infrastructure investments that are needed to develop a particular growth cluster. “Investment programs” are still little used by regional governments: out of 136 registered investment programs in Peru, only 33 are implemented by the regions, essentially by Apurímac and Cusco (seven and six programs respectively) as well as Madre de Dios and San Martín (three programs each). The planning methodology should also give greater weight to the participation of civil society organizations, as well as to the inclusion of the environmental dimension and the protection of natural resources.

In this regard, there is evidence that the Peru’s rural roads program and its participatory planning activities have produced a greater accountability of local elected officials, through the empowerment of citizens.⁸⁵ Greater budget flexibility could also be introduced so that the budget resources available to finance pre-investment and logistic support can also be used to finance planning activities.

Finding a champion for territorial development

In a few selected regions which are the most advanced and proactive, the GoP should also start piloting either “Participatory Regional Infrastructure Plans,” that would bundle together the various infrastructure sectors, or “Participatory Territorial Development Plans.” In Chile, a similar territorial development program has proved highly effective, after an initial phase during which a deep reengineering of planning and evaluation practices had to be performed. In particular, the Chilean equivalent of the Peruvian SNIP (operated by Mideplan⁸⁶) had to review its evaluation methodology in order to be able to assess integrated rural infrastructure programs.

A territorial development approach would deepen the Peruvian decentralization reforms by furthering the still centrally driven and sector-centric practices. Natural candidate regions should include those that are expected to receive significant additional mining revenues in the coming years as well as those that could have access to sub-national borrowing.

This approach would require identifying a multi-sector champion at the national level that could promote the territorial development approach, coordinate effectively with the sector ministries and have a sufficiently close dialogue with the regions in order to be able to provide effective and targeted technical assistance to them. Despite the breadth of Peru’s decentralization reforms, such a champion remains to be clearly identified and some trade-offs would have to be addressed

⁸⁵ Remy, M. (2008) – *Impacto del Programa de Caminos Rurales sobre la Democracia y la Ciudadanía en el Ámbito Rural del Perú*

⁸⁶ Spanish acronym for Chile’s Ministerio de Planificación y Cooperación

(Chile had to face a similar situation when its territorial development program was initiated). Five possible champions could in fact be envisaged in the case of Peru:

Box 5-3: Chile's experience with infrastructure planning for territorial development

With the single exception of rural sanitation, Chile has reached very high levels of infrastructure service coverage, even in rural areas. For example, in 2009, 99 percent of the Chilean population had access to electricity services (95 percent in rural areas) and 95 percent to drinkable water. Further expansion of infrastructure coverage to more remote areas is been made difficult by the fact that because of the increasing dispersion of users investment projects do not pass traditional economic evaluation instruments (managed by MIDEPLAN). These instruments, that are sector-specific, do not account for the potential complementarities that may arise between the infrastructure services needed to develop the productive potential of a territory.

In order to continue expanding service coverage, Chile in 2005 designed a "Rural Infrastructure for Territorial Development Program" (PIRDT in Spanish), implemented by SUBDERE. Rural territories with the greatest economic development potential are selected by regional stakeholders and Territorial Development Framework Plans (PMDTs) are prepared in a participatory manner. MIDEPLAN's economic evaluation methodology was also revised so that rural infrastructure investments can be assessed in an integrated fashion and prioritized according to their productive impact. According to the new methodology, a pipeline of rural infrastructure investments is assessed globally, looking at the growth perspectives of productive clusters identified in the selected territory. As of 2009, 18 PMDTs have been prepared and the infrastructure gap in the corresponding territories has been reduced by 42 percent for water/sanitation, 14 percent for electricity, and 54 percent for transport. In addition to providing a methodology for cost-effective infrastructure service expansion, the program has empowered poor communities and subnational governments, thus contributing to the government's objective of progressively decentralizing more responsibilities at the regional level. Fourteen additional PMDTs are currently under preparation.

- (i) The Decentralization Technical Secretariat (STD) would be the most logical candidate. However, this is a relatively new institution with no local presence and no administrative and executive capacity, as well as no financial leverage. A considerable amount of institutional building would be needed before the STD could effectively provide the technical support needed by the regions;
- (ii) The MEF – FONIPREL team would be another natural candidate, with the advantage that MEF is both experienced in dealing with sector ministries and with subnational governments. Moreover, although still marginal in terms of amounts transferred to the regions, the FONIPREL could be a powerful seed fund to help catalyze the territorial approach. However, MEF today has very little influence in planning and is mostly perceived by subnational governments as a controlling entity rather than a technical assistance partner;
- (iii) The CEPLAN could be a third option although, like STD, this is also a relatively new entity with no local presence and no administrative and executive capacity, as well as no financial leverage. CEPLAN could have a natural legitimacy to promote a revised planning approach but it would require strongly developing its dialogue interfaces with subnationals;
- (iv) If a subnational lending facility were to be established, possibly with the support of a multilateral partner, the intermediating financial institution could be a fourth possibility. A financing institution like COFIDE is already managing Peru's newly created infrastructure fund and is counting a growing – though relatively small - number of subnational governments among its clients. COFIDE would however need to develop the technical assistance skills needed to promote the territorial development approach, or

- find a strategic partner to do so.
- (v) A fifth alternative would be to use a sector-specific institution that is sufficiently experienced in promoting the decentralized management of rural infrastructure. Proviás Descentralizado has for instance accumulated significant and successful experience in promoting the decentralization of rural transport policies at the provincial level. However, the mixed results obtained so far by this institution at the regional level, as well as the unavoidable sector-centrism suggest that this option should only be considered as a second-best.

Key recommendations: Service Decentralization

Increasing Peru's capacity to successfully implement the stimulus package	Preparing the ground for the post-stimulus phase
<ul style="list-style-type: none"> • Promote the establishment of Infrastructure Management Committees • Cautiously explore developing subnational borrowing, starting with the six Peruvian regions that could best benefit from such a possibility • Design a program supporting the preparation of high quality pre-investment studies for infrastructure investments at the subnational level whose implementation could be financed from a variety of financing sources • Design incentive programs to continue phasing out ineffective force account practices • Revise the functioning of FONIPREL with greater consideration of the relative performance of regions 	<ul style="list-style-type: none"> • Start piloting the evolution towards Provincial Infrastructure Institutes • Improve subnational debt registering and enforce compliance with the Fiscal Responsibility and Transparency Law • Promote infrastructure planning approaches that limit the fragmentation of investments by rewarding investments of territorial relevance and of a sufficient scale • Pilot a territorial development approach, based on the successful experience of Chile, after having identified the right champion to lead that agenda in Peru or through working with individual regions • Design and implement a program to build the capacity of the decentralized SNIP

CHAPTER 6 : PRIVATE SECTOR PARTICIPATION IN INFRASTRUCTURE

This chapter gives an overview of Peru's experience with private sector participation in infrastructure. After an extensive privatization program in the 1990s – particularly in the energy sector, Peru has been trying to implement an ambitious concession and PPP agenda. While some positive results have been obtained over the past two decades, the Peru PPP program has not still reached its expected results nor its steady state. The chapter identifies six critical issues that still constitute important bottlenecks for the PPP program to move faster. These issues range from the lack of standardization, coordination problems, a substantive shortage of institutional capacity, lacunae in the legal framework but also to concerns on regulatory oversight as well as an insufficient communication and communication involvement. The chapter concludes by proposing specific solutions to each of these six issues which could lead Peru towards a mature market for PPP and growing investment attractiveness.

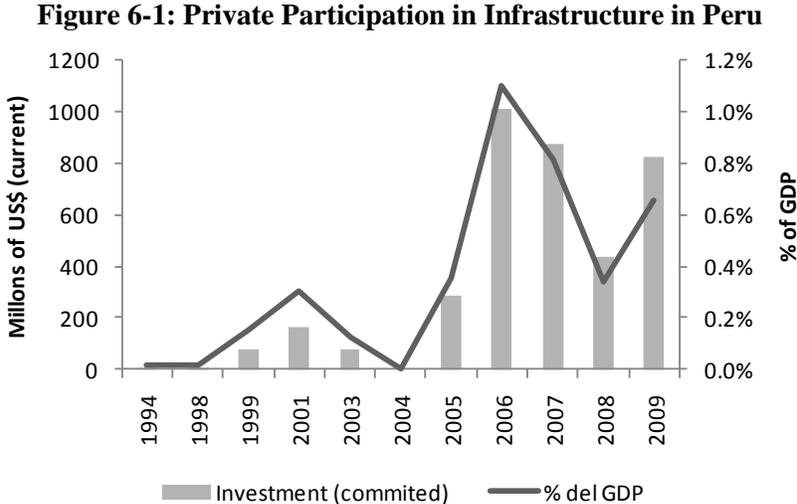
EXTENT AND ACCOMPLISHMENTS OF PERU PPP PROGRAM

Private sector participation has been significant.

Portfolio of Projects. Since the early 1990s, Peru has been at the forefront of Latin American countries opening infrastructure to private sector participation through, in particular, the use of public-private partnerships (PPPs). In the first phase of the program the private participation was mostly through divestitures, yet from the late 1990s through now has been through concessions or PPP rather than divestitures or sales. As of 2010, the electricity sector has registered the highest level of privatizations, with 70 percent of firms generating capacity (some 3,542 MW) in the hands of the private sector; 100 percent of the high voltage transmission system fully privatized, and with 1.92 million customers (out of 4.35 million) served by private distribution companies. The transport sector has registered the highest amount of concessions and PPP, with drastic increases since 2003. An ambitious roads, ports, and airports concession program is being implemented with significant progress to date. The railway network was concessioned to the private sector in the earlier phase of the program in the late 1990s. Port concessions have been granted for the ports of Matarani, Callao, and Paita, with a few others in the pipeline. The Lima airport as well as the northern ones has been concessioned, the latter as a package, as well with other southern airports. The water and sanitation sector remains the least advanced in terms of private participation, with only three concessions awarded to date, two for water treatment plants and the other for full distribution service. In addition there have been a number of PPP on the gas and on the irrigation sectors. And now Peru is also moving into PPP in non-traditional sectors, social, administration and so on. Sub-national governments are also moving into PPP, (quasi) on their own through either canon/transfer funds or through the payment by taxes modality. Thus Peru has and is committed to use PPP as a critical instrument to advance its infrastructure agenda.

Complementary Developments in the PPP program. Other developments supporting the PPP program in Peru have been the enacting in 2008/9, of a new legislative framework for PPPs, and the creation and implementation of two infrastructure investment funds to support Peru PPP project, one fully private and funded and managed by the Peruvian Pension Plans, and another a hybrid of public, multilateral and private funding, but privately managed. Within the context of the PPP program, Peru has also develop a few innovative finance instruments such as the CRPAO and the payment (recovery of investments) by taxes modalities (the latter only available and capped for sub-national governments), that in certain contexts can be quite effective, yet in orders, might facilitate rent capture and reduced risk transfer to the private sector. The stimulus package implemented in 2009 and 2010 has also allowed the fast-tracked a number of priority infrastructure investments.

Overall PPP Framework. Finally on the legal and institutional side, the Peru PPP program is supported, on paper, by one of the better frameworks in the LAC Region. It is anchored on a Concession/PPP Law, it has a long standing PPP unit, ProInversion, responsible for bringing projects to market and a autonomous regulatory system responsible for the project oversight and contract compliance. Moreover it has an Inter Ministerial Council (the Board of Pro-inversion) led by the Ministry of Finance (MEF) which acts as a filter, since all projects have to be approved by that Board and decides on government financial contributions to the project. Yet how it works in practice is indeed another issue.



Source: PPI Database, World Bank.

Yet the Peru PPP program has not reached desired, expected and needed levels.

Low Flow of PPP Projects. As shown in **Table 6-1** below, the number of PPP projects in infrastructure awarded has been on average 1.8 projects per year. That indeed falls short of the desired and needed number if PPP are to play a major role in closing the gap and addressing Peru infrastructure needs. And it has not been for a lack of a solid pipeline or interest from the private sector. Since the late 1990s, Peru had identified a pipeline of near 40 PPP projects. For a number of reasons the Government has not been able to bring to the market more PPP projects. Save rare exceptions projects tendered were awarded. Overall investment in infrastructure in Peru while it has increase over the last five years, still hovers around 2% of GDP and that is insufficient for

Peru to meet its needs, when it needs to aim at investment levels of 5 to 6% of GDP levels. Of that investment, the share of private sector investment in infrastructure, PPP, is about 20 to 30%, respectable but still low. As an example in two of the PPP most successful countries, Chile and Korea, the share of PPP on total infrastructure investment is about 70%

**Table 6-1: Major Public-Private Concession Projects in Water, Transport, and Power Sectors
18 projects in 10 years (1999-2008)**

Date	Company/Project	Sector	Transaction (thousand USD)	Planned Investment (thousand USD)
31.05.99	Terminal Port of Matarani	Transport	10,892.00	7,847.00
21.07.99	Railway System (center, south, and southeast)	Transport		157,000.00
11.01.00	Chillón Project	Sanitation		80,000.00
16.02.00	Camisea Natural Gas Project: Exploitation	Hydrocarbon		1,600,000.00
20.10.00	Camisea Natural Gas Project: Transport and Distribution	Hydrocarbon		1,100,000.00
15.11.00	Jorge Chávez International Airport	Transport		1,214,000.00
16.02.01	L.E. Pachachaca-Oroya-Carhuamayo-D. Antamina y Aquaylia-Pucallpa	Electricity		65,400.00
24.05.02	Ancón-Huacho-Pativilca Road	Transport		61,400.00
05.06.02	ETECEN – ETESUR	Electricity	258,873.00	10,500.00
05.05.05	North Amazon Multimodal Axis IIRSA	Transport		223,000.00
23.06.05	South Interoceanic Road Corridor (Sections 2,3,4)	Transport		810,000.00
20.07.05	Pucusana Bridge-Cerro Azul-Chinca-Pisco-Ica Road Section	Transport		192,000.00
22.07.05	Water and sewage service of Tumbes	Sanitation		73,000.00
19.06.06	Terminal Port of Callao-New Container Terminal-South Pier	Transport		61,000.00
18.08.06	Regional Airports	Transport		120,000.00
31.10.06	Buenos Aires-Canchaque Road	Transport		31,000.00
29.08.07	South Interoceanic Corridor(Sections 1-5)	Transport		282,000.00
26.02.08	Carhuamayo- Paragsha-Conococha-Huallanca-Cajamarca- Cerro Corona-Carhuaquero Electric transmission lines	Electricity		106,141.00

Source: ProInversión.

IMPACT OF PPP PROGRAM

The impact of PPP projects, once in operation has generally been net positive, although the process in many projects has been plagued with high incidence of problems and conflicts and a number of PPP transactions have experienced significant difficulties and delays.

Sector Improvements. Following the privatizations of the 1990s, distribution losses decreased from 20 to 8 percent over the period 1995-2007. Private participation in roads construction, rehabilitation and management resulted in both the improvement of road conditions and in the provision of new services to road users. For example, the concession between Ancón and Pativilca brought sound routine maintenance and improved signalization, but also emergency telephone services, which are connected to ambulance services or mechanical help centers. The concession of the Panamerican roads segments and the IIRSA North has already shown significant benefits-direct and indirect- and reduction of logistic costs. For example a recent study by the Universidad del Pacifico, of the economic impact of the IIRSA North, shows that with the contracted investment of about US\$225 million it generates over US\$712 million, and when couple with the development of the ports of Paita in the Pacific and that of the fluvial port of Yurimagua the total benefits exceed US1 billion. The study also shows that those projects will add 0.2 percentage points per annum to GDP growth. The concession of the Lima airport is at last performing according to expectations yet after a number of difficult years and contract renegotiations favoring the private sponsor. Overall there have been significant improvements in productivity and quality of service provision and on coverage.

Incidence of Problems in PPP Projects. Successful PPPs in Peru have been achieved through sound project development processes good contract design (including effective risk allocation and efficient contract structures), coordination among public actors, and strong competition. But unfortunately that has not been the norm, but, one is tempted to say, that it was the exceptions. In a number of cases, some quite visible and major projects (such as LAP, IIRSA South, IIRSA Centro-twice failed to be awarded-Taboada, Olmos, Paita, Muelle Norte etc) the experience has been less than successful, and plagued with significant problems, delays and conflicts. Key contributing factors include the lack of robust feasibility studies, poor coordination among key public entities, poor contract design, questionable risk allocation, hurried processes, and strong political interference. The experience stresses the need for enhanced cooperation among public actors, integrated project management, capacity building activities, good governance, accountability, streamlining of procedures sound communication, and consultation mechanisms.

Box 6-1: A successful project: the Callao Port concession

The US\$439 million *Muelle Sur* concession entailed the development of a new container terminal in the Callao Port. The concession was structured as a 30-year BOOT⁸⁷ to be developed in two phases. Phase 1 concerned the construction of a one million TEU⁸⁸ port with two berths while Phase 2 would increase terminal capacity to 1.5

⁸⁷ Build, Own, Operate and Transfer

⁸⁸ Twenty-foot equivalent units

million TEU. The procurement process saw one of the highest numbers of bidders (including at the presentation of technical and economic offers phase) for concessions of this magnitude. The bidding documents included a competition tie-breaking clause (*factor de competencia*) that considered an additional offer for complementary investment (in addition to the amount required for the investment within the framework's pre-fixed tariff brackets). This structure has become the pattern for subsequent concession contracts.

A difficult project: The IIRSA Sur road concession.

The IIRSA Sur concession, with similar sponsors and financial structure of the IIRSA Norte, involved the construction and rehabilitation of a 2,586 km road corridor that connects ports on the southern Peruvian coast with the small town of Iñapari (Madre de Dios) in the Amazon forest, near the Brazilian border. One of the main problems faced by the IIRSA Sur resulted from the underestimation of costs that came out of the pre-feasibility study initially performed. In order to speed up execution under a context of high political pressure to start the works, most of the standard Peruvian quality control measures were bypassed and no detailed engineering studies and strategic environmental evaluation were prepared by the time of approval. In addition, the project was not assessed by the National System for Public Investment (SNIP⁸⁹); this was because IIRSA Sur was not able to meet the SNIP requirements (social profitability and an IRR of at least 14 percent). In fact its location in a low density area made it difficult for the project to meet the minimum profitability, considering the public investment needed. To this regard, it was argued that if benefits generated in the rural areas crossed by the highway had been included in the cost-benefit analysis, the project would have passed the SNIP assessment. The prior assessment of these estimated benefits by SNIP auditors led to the exemption from such analysis, according to section 10.4 of the SNIP guidelines. The PPP contract was designed on a build-finance scheme basis with little additional risk transfer to the concessionaire, allocating most of the possible cost overrun to the government. In 2008, a US\$750 million financing gap was estimated to complete the works (amounting to approximately 82 percent over the forecasted investment), which may end up being even higher considering that the remaining sections will be the most difficult to build. Both because of the size of the works and their location (some sections cross the Peruvian Selva, an area of high environmental sensitivity), the IIRSA Sur has received a lot of attention from civil society. Three Congressional commissions have reviewed the IIRSA Sur and criticisms have been formulated regarding some aspects related to design and implementation.

Incidence of Renegotiations. Peruvian concessions, as has been the case in most LAC countries, have been plagued by renegotiation, particularly in the transport sector. Renegotiations, tends to discredit PPP programs, weakens the benefits of competitive bidding, decreases transparency of program and weakens the users support for the program. The possibility of renegotiation has facilitated opportunistic behaviors of predatory bidders which often made aggressive-non financially viable- bids (such as in the Lima Airport PPP), assuming that their commitments would be readjusted after the awarding through renegotiation. In the transport sector the first addenda/renegotiation to the contract usually has taken place within a few months following the awarding. This has generated changes to the “rules of the game” after a short period of time and in the conditions offered by the concessionaire. These addenda/renegotiations have been strongly criticized by the public and the main unions of the country, particularly in relation to the lack of transparency in the renegotiation process, undermining the support and credibility of the PPP program. The granteur, line Ministry or/and MEF has not systemically taken a hard line position of dissuading or not accepting renegotiation claims at least until the first quinquennial tariff review, which in turns has de facto encouraged private sector requests to renegotiate the contract. The lack of detailed analysis and inability to reject aggressive bids, and the absence of contractual stipulation specifying under which circumstances revisions to the original agreement may be considered, have further increase the incidence of renegotiations.

⁸⁹ Spanish acronym for *Sistema de Nacional de Inversiones Públicas*

Box 6-2: The Lima airport concession

The procurement project for the airport, originally including a package of five airports (for an investment of over US\$500 million), was disassembled; only the Callao Airport was procured because of its high expected return, competition in the bidding, and anticipated profits for the state. The project was split into two different phases to allow the project financing. There were more than seventy modifications to the original Lima Airport concession contract in just three years. Most of the important changes made it easier for the concessionaire to obtain loans to fulfill its investment obligations and changed the conditions of the financial-economic equilibrium clause. Changes were also made to ensure that certain creditors would be paid back in any circumstance. This was mainly due to the impact that the terrorist attacks of September 11, 2001 had on the environment for financing airport assets and expansion. Indeed, although Lima was not directly affected, lending institutions were not disposed to take on additional aviation sector risk along with the Peruvian country risk. In addition, the political context of the transaction had a critical impact on the transaction. In fact, it led to the change of ministers and members of COPRI in the midst of the procurement process and added uncertainty over the proposed modifications to the contract introduced before the signing. The concessionaire nevertheless reached a financial closing and disbursement with the support of OPIC and Kreditanstalt für Wiederaufbau (KfW), stand-by guarantees of the sponsors, a relatively tight debt-equity ratio of 60 to 40, and a customized amortization structure. The Lima Airport concession was the only airport in Latin America to reach financial closing in 2003 under these difficult circumstances. But even after financial closure the contract has been renegotiated more than five times, with each renegotiation improving the terms for the sponsor.

Communications and Social Issues: Backlash against PPP. Yet despite the reported benefits of the PPP program, overall it has not been extensively supported by its citizens. In fact there was a strong rejection sentiment that reached its peak in the early 2000s. There have been three of the critical design factors absent in the PPP Peru program in the past and to a large extent responsible for the backlash against PPP. Rarely projects accounted for social issues (when relevant), such as social tariffs or access subsidies, that was expected to be handled separately or that tariffs would decrease enough for it to be irrelevant. That did not happen. Also the government did not implement an effective communication campaign to inform its citizens of the reasons behind the PPP program, or of the benefits secured. And last consultations with affected communities were not the norm, creating increase polarization, prompting opposition and so on. Moving forward, is imperative that social issues are accounted explicitly in the PPP projects, tariffs, access, employment etc; that there in place an effective communication strategy with periodic briefings to all relevant state-holders and that the involved communities are brought in early enough and their buy-in secured. All this are critical ingredients for the success of a PPP program.

Overall Peru's PPP program has not yet matured and reached steady state despite twenty years of experience.

Slow Progress. Despite near 20 years of experience, Peru keeps struggling to move forward and settle down into a steady and mature PPP program. Evidence is the limited number of projects awarded on average annually (1 to 2), length of time of process (over two years), level of conflict, recurrent problems and acrimonious relation with private sector, systemic delays, lack of bonafide consensus, periodic legislative changes and so on. Bringing a new project to the table is a struggle when it should be a given and a quasi- business routine. Peru could and should have had by now at least twice the number of PPP in operations that it has now with its corresponding high impact on productivity, growth and poverty alleviation. There is a still a fair amount of work for Peru to reach PPP maturity and steady state, but it can and should be done.

DETERMINANTS OF PERFORMANCE OF PERU PPP PROGRAM

Main determinants of Peru PPP program lackluster performance.

While, as mentioned, the Peru PPP framework appears quite appropriate, particularly in terms of the legal and institutional underpinnings, its implementation can and should be improved. There are a number of factors responsible for the lackluster performance and for the indicators described above. Most of the factors have to do with implementations issues and others on lacunae in the law and with the lack of attention to some critical issues. The main factors are: *First*, a lack of standardized contracts and risk allocation guidelines, and convoluted, circular and chaotic procedures in moving a project from identification to award, *Second*, a lack of coordination and ambiguous jurisdictions across the various involved institutions, *Third*, a lack of capacity across all of the involved institutions, *Fourth*, a few lacunas in the legal framework, *Fifth*, regulatory oversight, and *Sixth*, a lack of attention to social issues and communication.

Issue 1: Lack of Standardization in the PPP Program: Contract design, procedures, procurement processes and contract management need to be significantly improved.

This is a critical and major flaw of the Peru PPP program and in need of urgent redress: i) *Contract design:* For each transaction practically the contract design starts from scratch, rather on building on past knowledge and experience, there is no usage of model contracts or clauses or a set of guidelines to follow.; ii) *Processes:* The processes to bring a PPP to market from project identification are extremely cumbersome, circular rather than linear-even within the same institution, lengthy and inefficient; iii) *Timing:* Processes and decisions are not time bound, particularly for those involving clearances and opinions, on both internal to institutions and external; iv) *Project Preparation:* To all that, it can be added that as often bidding processes have started with incomplete technical feasibility analysis and the bidding schedule has often been unrealistic, having to be continuously postponed, design and clearances redone, and increasing delays and uncertainty for potential bidders; v) *Decision making:* To some extent as a result of the timing issue and of the fear of legal responsibilities, decision making is extremely guarded and time consuming, and induces excessive corroborations and clearances; vi) *Differentiated Treatment of Projects:* a lack of not sufficient differentiated treatment of projects, by size, origin, sector, type.

Box 6-3: The de-risked pattern for IIRSA and other concessions' financial structures

Both IIRSA Norte and Sur projects have been co-financed by the state through time-deferred payment (PDT), in the form of Annual Payment for Works (PAO) and Annual Payment for Operation and Maintenance (PAMO). PAOs have paid the concessioner investment for the completion of the works and PAMOs have paid the O&M cost to the extent bid in the procurement and not provided by the tolls. The GoP has compensated the concessionaire for construction progress with annual payments which are originated from the securitization of PAO deferred payments (CRPAOs) prorated to the advancement of the works. The securitization served to provide liquidity to the constructor. However this has made the adopted concession scheme resemble the OPF financing scheme in Mexico or the General Contractor scheme in Italy, which both provide a build-finance project with little additional risk

transfer.

Solutions: The streamlining and standardization of PPP process ought to have the following elements: i) contract standardization and model clauses, by sectors, and standard feasibility study models, should be promoted and adopted, based on best practices, and guidelines explaining how to select procurement methods for public infrastructure projects could be usefully developed; iii) streamline procedures internal and external mainly in a linear fashion rather than circular as they are now-particularly in MEF and ProInversion; iv) time bound procedures to reduce delays and induce compliance; particularly on comments and clearances v) use multiples windows at MEF shaped by project size and context, and origin much less onerous for smaller projects shaped by project size and context, and origin much less onerous particularly for smaller projects and simpler (in terms of degree of risk bearing). Even within the SNIP, there should be several tracks, with different levels of evaluation. Make the temporary measures permanent; vi) the implementation of a risk management unit at the MEF to be the single entry and window for the financial decisions; vii) clarification of jurisdictions, so entities only comment on matters of their jurisdictions; viii) the use of external expert panels to validate economic and feasibility analysis, so that public servants are protected by future legal suits; ix). regulators should also advice early enough in contract design to better reflect lessons learned and avoid future conflicts with other public agencies involved, and ex-post contract management problems; x) there is also a need to move towards contracts for level of service or and output-based infrastructure services. The corresponding methodology ought to be developed.

Box 6-4: IIRSA Centro modifications of the deal at the procurement stage

The IIRSA Centro was supposed to be the model for self-sustainable PPP concessions. The IIRSA Centro was conceived as a 30-year self-sustainable concession entailing the upgrading, operation, and maintenance of the 867km national highway between the city of Pucallpa (Ucayali region), Tingo María (Huánuco), La Oroya (Junín) and Puente Ricardo Palma (Lima). The project also includes construction of new works on the highway. The concessionaire was expected to raise approximately 87 million USD to cover the initial investment and provide the maintenance of the road. The concessionaire was expected to recover its investment and O&M costs exclusively through the collection of the tolls. To facilitate the financing the GoP (via the MEF) offered an optional minimum revenue guaranteed for up to 98 percent of the projected revenue. The GoP would have been able to terminate the contract earlier had the winning bidder achieved its revenue goals before the expiration of the 30-year contract. Further demand and engineering studies increased the initial investment needed to US\$115 million and made the transaction advisor recommend the inclusion of a relatively small government subsidy in order to make the project financially viable and bankable. ProInversión requested the business model be modified to completely eliminate this need for a government subsidy. This was achieved by spreading the rehabilitation and construction of certain segments of the road over a seven-year period, instead of the original three years, and by using far more aggressive assumptions regarding the financing terms and conditions (USAID). This was considered to be achievable if an AAA multilateral partial credit guarantee was available to potential bidders. The advisor designed additional business models, in order to incorporate the updated demand study, as income projections were modified by the new tariff differentiation policy implemented in the meantime by the GoP. The modification of the project, including the elimination of the Puente Chino-Puente Pumahuasi segment from the concessionaire's investment responsibility, was also reflected in the new model. This scaled back the forecasted required investment to US\$88 million. The delay in the closing of the transaction, as well as the changes in technical and financial structure, required additional engineering studies. All of these modifications were carried out within a context of great pressure from the government to conclude the process rapidly. However, they were tested with the prequalified bidder to assure that they were still sufficiently comfortable with the new version of the contract. The MTC ultimately demanded the radical transformation of the transaction structure in the middle of the procurement process by requesting the advisor to develop an additional business model to incorporate the PAO/PAMO mechanism. This complicated

substantially the financial engineering; it also signified the changing of the concession's financial structure from self-sustainable to co-financed by the state, which was not supported by the MEF. All the three prequalified bidders withdrew from the procurement, questioning the business and financial model ex post, as well as the performances required.

Issue 2: Coordination Problems - The institutional framework involves a complex network of public actors - Urgent need to improve the governance and coordination of the PPP Program.

The PPP process involves a plethora of institutions. The line ministries (MTC⁹⁰, MINVIV⁹¹, MINEM⁹²), the Ministry of Economy and Finance (MEF), regulators (SUNASS, OSINERG, OSITRAN), the promotion/transaction agency (ProInversión), the Contraloría as well as other public agencies involved directly or indirectly in private participation in infrastructure (e.g., FONAFE). There are serious coordination problems across institutions and even within each organization. The significant number of public players involved in the PPP development process has made the interaction between these players particularly complex. The lack of synergies and integrated management, and the use of linear processes, has favored a segmented approach of the PPP development process, whereby each actor pursues its own objectives rather than a common infrastructure policy. Both the lack of cohesion of purposes and coordination of actions has normally favored private parties that have benefitted from a fragmented and unaligned public sector. ProInversión and the MEF have recently coordinated the temporary supervision of the project pipeline included in the *Decreto 047-2008*; the SNIP, line ministers, regulators and the Office of the National Auditor remain unaligned with other actors. The existing procedures have favored the use of separate managers, according to area of micro-specialization, for each stage in the development of a project: feasibility, design, construction, and sectoral regulation. This has provided for disjointed implementation, stress on communication among teams, and lack of accountability. It has also inhibited the accurate collection of information about the investments, making regulation difficult. For example several offices within the MEF are called to participate during the PPP development and operational stages. The DGPM⁹³ is mainly involved in the multi-year budget planning and SNIP assessment; the DNPP⁹⁴ is involved in the debt approval of public entities; the DNCP⁹⁵ manage public debt; and DGAEICIP⁹⁶ oversees national policy related to PPPs. DGAES⁹⁷ is in charge of formulating and supervising the economic policy, including the infrastructure policy. All these offices have had an uncoordinated approach toward the PPP constitution process. The offices did not share an informatics platform to concentrate the information, and no project coordinators have so far been appointed. This has resulted in delays, normally generated by redundant processes, linear evaluations, and inefficient information management. To make matters worse, there is still lack of clarity in the subject jurisdiction of the different institutions in the PPP program. As a result institutions submit opinions on a range of subjects beyond their natural mandate and that Pro-Inversion feels compel to address resulting in increasing delays. An example is the Contraloría commenting on technical matters and risk allocation in the contract.

⁹⁰ Ministerio de Transporte y Comunicaciones

⁹¹ Ministerio de Vivienda

⁹² Ministerio de Energía y Minas

⁹³ Spanish acronym for *Dirección General de Programación Multianual*

⁹⁴ Dirección Nacional del Presupuesto Público

⁹⁵ Dirección Nacional de la Contabilidad Pública

⁹⁶ Dirección General de Asuntos de Economía Internacional, Competencia e Inversión Privada

⁹⁷ Dirección General de Asuntos Económicos y Sociales

Solutions: i) Across institutions: For each PPP projects “virtual” project team should be set up, with one member for each relevant institution (Line Ministry/Subnational government, MEF, Pro-Inversion, Regulatory Agency, Contraloria) in the team; ii) To insure the projects move smoothly and with the proper analysis and clearances within each institution a single individual should be designated to navigate the project within its relevant different units; iii) Pro-Inversion should designate a Project Manager per project responsible for moving the project forward and resolving impasses; ivi) MEF should consider the creation of a risk management unit which would be responsible for the evaluation clearances and contingent liability management related to PPP.

Issue 3: A Substantive Shortage of Capacity and Experience in most Institutions:

This is one of the most critical issues, lack and capacity, experience and knowledge in practically all of the involved institutions, Line Ministries, Sub-national governments, MEF, Pro-Inversion, Regulatory agencies, Contraloria. The capacity- as measured by staffing levels, resources, experience and knowledge- of such institutions to handle and design and evaluate PPP transactions remains quite limited, and even more so at sub-national levels. ProInversion remains by and large a national promoting agency, influenced by its original function⁹⁸ of privatizing SOEs and with a strong transaction-oriented culture. Its technical capacity is limited in a number of areas, and of highest concern is its high turnover rate on its staff. In its last four years it has had five different Executive Directors, and a large and frequent turnover of also intermediate level staff. The content and knowledge of PPP is not a quick learning experience. It is complex and there is a long learning curve. The lack of a retention policy, connecting career and salary advancement to training and expertise increases, have made most of the young qualified staff leave for the private sector. Moreover, Pro-Inversion has not avail itself, of external consultants and subcontracting of task in a systemic manner, to address its capacity issue. All those factors in this type of agencies extremely damaging and one could venture to say responsible to a large extent over the slow pace of the PPP program. Similar problems exist in MEF, at least for the sections responsible for PPP analysis and clearances, high turnover rates, limited experience and knowledge on PPP issues and so on. Likewise for line ministries and to some extent in regulatory agencies and even more dramatic is the case for the Contraloria, particularly in the case of experience and knowledge on PPP. Now the new PPP law has reduced the jurisdiction of ProInversión and seeks to empower line ministries and subnational governments, as they now are entitled to implement their PPP projects without going to go through ProInversion. The concern is that those two institutions, particularly the latter have very little capacity to execute their new mandate, much less than Pro-Inversion.

Solutions. i) A major effort ought to be undertaken by Pro-inversion, consisting on recruiting highly qualified individual knowledgeable on PPP matters to form a core team.; ii) pursuing a strategy to significantly subcontracting a number of their task, procurement process and commissioning studies to external consultants; iii) the use of external professional expert panels to validate economic, financial and feasibility analysis, so that public servants have coverage

⁹⁸ COPRI (Comisión para la Promoción de la Inversión Privada) has been leading the private participation agenda since 1991. In 1997, PROMCEPRI (Comisión de Promoción de Concesiones Privadas) was created to promote concession contracts. Then COPRI absorbed PROMCEPRI in 1999, CONITE and PROMPERU (Gerencia de Promoción Económica) in 2002. In 2003, it took the name of ProInversión.

from future legal suits; iv). ProInversión should enact a specific regulation for commissioning studies from consulting firms.. The procurement regulation concerning the studies is simplified and implemented by close invitation to tender, and to negotiate agreements with external organizations, including multilaterals for commissioning studies. The outsourcing of expertise should allow ProInversión to use project-specific consultants. Similar recommendations apply for Line Ministries, Sub-national governments and MEF; v) resources ought to be allocated to support the capacity efforts.

Issue 4 : Lacunae in the Legal Framework

Peru's new PPP legislation still needs to be fully implemented and does have some important lacunae that need to be addressed. The Peruvian legal framework remains highly complex, fragmented, and moveable, which may deter some international investors. There were a number of interesting elements in the new law, but that as valuable as they are they do rise some concerns mostly on implementation. The main ones are; i) the PPP law and its secondary regulation introduced public investment decision-making based on value for money (with project-cycle cost-benefit analysis and public sector comparators-PSC-, in principle a desired addition. The PSC is an instrument for assessing the value of delivering infrastructure services via PPP, as an alternative to traditional public procurement. Projects over 100.000 UIT, with co-financing at over 30 percent, should be mandatory compared with a Public Sector Comparator (PSC), which estimates the hypothetical risk-adjusted cost of a project, if it were to be financed, owned, and implemented by the awarding entity However, there are issues of capacity and complexity, timing, delays and value added and it has generated controversy and as a result the implications of these principles still need to be translated into processes and regular practices. The lack of expertise and sufficient training in the public administration puts at risk the applicability of the PSC, and has exposed this complex instrument to criticism. So far, the MEF has not published the methodology for running the comparator. All projects that involve co-financing are required to pass a cost-benefit analysis (the SNIP assessment), provided by the Direction General de Programación Multianual (DGPM) incorporated into the MEF; ii)The SNIP has been the object of harsh criticism for two main reasons: first, its evaluation process is time-consuming and may delay the works up to several years (and by that may extend the project development beyond political cycles); second, its social thresholds are rigid and normally unable to capture the strategic value of projects. Several major projects – such as the IIRSA Sur and Norte, and the Railway Huancayo-Huancavelica - have been exempted from the SNIP due to political pressures. The rising demand for SNIP exceptions jeopardizes the quality of project assessments and public expenditure reviews. The issue is to improve the internal process and working procedures so as to make much more project friendly without hampering its fiduciary responsibilities. There is also a perverse effect induced by trying to design projects such that they do not have to go through the SNIP. This has happened and obviously leads to much sub-optimal design and risk allocation. An example is the IIRSA Centro, where the objective was to come up with a project design that was financially sustaining at all costs so it would not have to go through the SNIP. The decision was to identify a range (breaking down the project) within the path of the IIRSA Centro that would be financially viable. Then the rest of the road, well, to be discussed or more likely to be done through public works; iii) As the new law allows line Ministries and Sub-national governments to execute projects, without going through Pro-inversion, there is also a lack of clarity on the jurisdiction to classify project as self-sufficient, in particular when coming from subnational governments and on the assessment of risks

probabilities critical for clarifying the projects. And also about the responsibility in the event of a shortfall; iv) the issue of unsolicited proposal remains contentious and needs revisiting for clarity and rational. According to the PPP law, unsolicited proposals have to be self-sustainable and therefore cannot be funded from public resources, although non-financing guarantees can be granted for up to 10 percent of the total cost, for the first five years of operation. This is a cautious approach, yet often difficult to implement/enforce, but made necessary by the asymmetries of information between the public and private sector, to address the increased opportunities for capture and rent transfers and the possible risk of excessive contingent liabilities. That might merit revisiting, since with the proper oversight and filters, unsolicited proposal could play a role in accelerating the infrastructure agenda, and address capacity constraints in ProInversión. And given the difficulty on assessing reliable probabilities, the classification perhaps ought to be made not by levels of probabilities but by the typology of risks assumed; v) the PPP law has substantially increased the role of the MEF, with establishing a registry for contingent liabilities and limits to its exposure, with view to control if not limit the fiscal risk of unaccounted contingent liabilities. However, the methodology which has been developed to assess contingent liabilities is still pending implementation. Non-financial guarantees should be better assessed, since contractual commitments have created the most cost overruns in Peru's PPPs.

Box 6-5: Chronology of Laws/Regulations Fostering Public-Private Partnerships

The GoP has enacted several measures aimed at allowing and regulating public support to concessions. If the *Decreto Supremo 059*, of 1996, designed the institutional framework and the procurement process for awarding self-sustainable concessions, the *Ley General del Sistema Nacional de Endeudamiento N. 28563* of 2005 allowed the Ministry of Finance to provide guaranties for concessions (mainly as credit enhancement instruments for the lenders or bondholders) when requested by national promoting agency ProInversión. This served to set the foundation for the "co-financed" PPP. The legal framework for PPPs was finally defined by the *Decreto Legislativo 1012*, in 2008. As a consequence of the 2009 financial crisis, the GoP enacted a package of urgency measures aimed at providing an economic stimulus to the slowing growth. These measures included a special regime designed to cut the red tape on the development and implementation of a predefined list of PPP projects already in the pipeline.

Solutions: i) Improving the legal stability, the scope and clarity of the PPP legal framework should be considered a priority for Peruvian policy makers. Peruvian authorities should therefore pursue their efforts in developing and publishing clearer PPP policies and guidelines; ii) the principle and operationality of the PSC should be reconsider, at least as appropriate capacity is in place; iii) a revision of the workings of the SNIP is long overdue; iv) revisit the concept and eligibility conditions for unsolicited proposal, with better filters in place; v) implement the methodology for assessing and registering contingent liabilities and their variations along the lifecycle of PPP project.

Box 6-6: The National System for Public Investment (SNIP)

The SNIP was created on the heels of the *Sistema Nacional de Planificación* that disappeared when the Ministry of Planning (in charge of running such a system) was dissolved. The SNIP was implemented only in 2000 and decentralized in various stages, first through delegation from MEF to local governments and then through a total decentralization in 2007. The SNIP assessment serves to evaluate the social viability of the projects but does not give an evaluation of the most suitable delivery model (i.e., PPPs, traditional public procurement, etc.) or check the

consistency with multiannual sectoral programs for investments.

Issue 5: Concerns on Regulatory Oversight and Autonomy of Regulatory Agencies.

The law governing regulatory bodies (*Ley Marco de los Organismos Reguladores de la Inversión Privada en los Servicios Públicos* N. 27332 of 2000) introduced a homogeneous institutional framework for regulating infrastructure services, promoting competition, and providing independence of the regulatory bodies from the government and other stakeholders. Regulatory bodies were created as decentralized public bodies reporting to the President of the Council of Ministers. They are public law representatives endowed with administrative, operational, technical, economic, and financial independence. The Peruvian regulators have demonstrated a high degree of transparency enforced through the Law of Transparency and Access to Information, the law that regulates the income and asset reports to be filed by public servants and public officials, the Law of Code of Ethics and its Rules, the Law of Public Contracts and Acquisition and the Law on Interest Management. They also have occupied the highest position in recent regional rankings in relation to autonomy. However the overlapping jurisdiction of the sectors and the National Auditor on several PPP-related regulatory issues, summed to the lively interest of the Congress in concessions (through congressional hearings and ad hoc investigating commissions) has often put in danger the authority of the regulators. As a result, regulators – who are among the most advanced in the LAC region due to their transparency practices in particular - now have diminished authority and the appointments-or better lack of appointments to their Board of Directors-there are a large number of unfilled vacancies in the various Boards- is riddled with political interference.

Box 6-7: The governance of regulatory bodies

Regulatory bodies independent from the government. The managing council of each regulatory agency consists of five members appointed by supreme resolution, ratified by the President of the Council of Ministers (PCM), by the Ministry of Economy and Finance, and by the ministry of the sector of the applicable regulated economic activity. One director is nominated by the National Institute for the Protection of Intellectual Property and Antitrust Policies (*Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual*); two are nominated by PCM (including the president); one director is nominated by the Ministry of Economy and Finance and another one by the applicable ministry. The members of the council may be removed by grounded resolution, ratified by the PCM, by the Ministry of Economy and Finance, and by the ministry of the sector of the applicable regulated economic activity. Members may only be removed in cases of serious fault, proven and grounded. Regulatory bodies may impose a regulatory fee on the companies and entities subject to their regulation to guarantee budgetary independence. The personnel of regulatory bodies are subject to the labor laws applicable to private activities.

Regulatory bodies independent from stakeholders. The regulatory bodies shall comply with rules designed to prevent conflicts of interest, such as banning staff from certain activities, including shareholdings in regulated companies, accepting substantial gifts from suppliers or engaging in activities on their own account which are linked to works for suppliers or which the regulatory body has procured under contract. The Framework Law of Regulatory Bodies⁹⁹, Decreto No. 019-2002-PCM, and Decreto No. 023-99-PCM, established respectively the incompatibilities applicable to the members of the Managing Council, public officials and servants, and to any other person providing services to the state under any kind of contract. In addition, the Law of Code of Ethics of the Public Function establishes the ethical prohibitions, duties, and principles applicable to public servants working in entities of the administration.

⁹⁹ *Ley Marco de los Organismos Reguladores*, in Spanish

Solutions. i) Clarify the jurisdictions and boundaries of the different institutional bodies involved in the process; ii) Fill the vacancies in the Boards of the various Regulatory agencies, with technically recognized professionals; iii). regarding contract management, regulatory bodies need to be strengthened to address the lack sufficient resources to hire experienced personnel with the knowledge to handle relations with the private sector, as well as to acquire computerized tools, regulatory instruments and redefine internal processes; .

Issue 6. Addressing Social Concerns, Communications and Community Involvement.

As mentioned, the PPP program, overall, has not been extensively supported by its citizens. In fact there was a strong rejection sentiment that reached its peak in the early 2000s. There have been three of the critical design factors absent in the PPP Peru program in the past and to a large extent responsible for the backlash against PPP. Rarely projects accounted for social issues (when relevant), such as social tariffs or access subsidies, that was expected to be handled separately or that tariffs would decrease enough for it to be irrelevant. That did not happen. Also the government did not implement an effective communication campaign to inform its citizens of the reasons behind the PPP program, or of the benefits secured. And last, consultations with affected communities were not the norm, creating increase polarization and so on.

Solutions. Moving forward is imperative that social issues are accounted explicitly in the PPP projects, tariffs, access, employment etc; that there in place an effective communication strategy with periodic briefings to all relevant state-holders and that the involved communities are brought in early enough and their buy-in secured. All this are critical ingredients for the success of a PPP program.

FUTURE PERSPECTIVES ON THE PPP MARKET

On the road to a mature market for PPPs.

The Peruvian market for PPPs is moving forward. The government of Peru (GoP) has established a new legislative framework for PPP and has developed deal structures that have gradually transferred risks to the private sector. Discouraging early experiences in the transport sector are currently being overtaken by a second generation of projects that have partially applied lessons learned from successful projects. More sophisticated international investors (Dubai Ports, Hutchinson Group etc) are entering the PPP market, and new sources of funds have been leveraged in the local market, which in contrast to other countries are not suffering liquidity problems in the current financial crisis. Pension funds and infrastructure funds are fervently searching for investment opportunities in highly collateralized deals.

Growing investment attractiveness for Peruvian PPPs.

Recent reports by the WB¹⁰⁰, IADB¹⁰¹, and WEF¹⁰² have captured the GoP’s significant progress in enhancing the investment climate for PPI. Private investment attractiveness has been boosted by a fairly stable macroeconomic environment, a moderately advanced legal framework, a proper institutional framework, good litigation track records (with few project cancelled or distressed and almost no contract termination by the government without fair compensation), and one of the best regulatory frameworks in the region. Yet the implementation has been riddled with problems and conflicts. Despite having one of the highest levels of government readiness for private investment, Peru is still lacking an infrastructure plan, and procedures, capable of generating a pipeline of mature projects; in addition, the institutional capacity for developing projects is low, and the risk that political interferences occur remains moderate.

Overall, in order to reach maturity and further secure and leverage private sector participation, Peru will need to work in three policy areas: (i) enhancing its legal and regulatory framework; (ii) strengthening, building capacity in its institutions and reducing turnover; and (iii) streamlining the PPP process, including improving contract design, PPP procedures, procurement processes and contract management.

Key recommendations: Private Sector Participation

Increasing Peru’s capacity to successfully implement the PPP program	Preparing the ground for the PPP program post-stimulus phase
<ul style="list-style-type: none"> • Promote a greater coordination among public actors involved in PPPs for example through establishing “virtual” task forces on specific PPP transactions • Develop and publish clear PPP policy guidelines that can help effectively implement the principles already stated in Peru’s legal framework for PPPs • Fully implement the methodology to assess contingent liabilities, including from non-financial guarantees • Strengthen ProInversión’s capacity • Design and implement a communication strategy for PPPs • Ensure that bidding schedules of PPP projects are more realistic • Account for social issues (when relevant) in contracts • Set up a risk management unit in MEF • Clarify jurisdictions of corresponding institutions 	<ul style="list-style-type: none"> • Promote the preparation of a pipeline of robust and well-designed projects with credible feasibility studies that can pass the SNIP process • Publish and disseminate the methodology needed to use the public sector comparator • Strengthen the institutional capacity of regulators so that they can better guide the design of PPP transaction and better ensure that contractual obligations are actually implemented • Promote PPP process standardization, including model contract and clauses, streamlining of procedures, time bound decisions and so on • Prepare and publish guidelines on the selection of procurement methods for PPPs • Ensure that regulators advice early enough in contract design • Design a methodology to design contracts based on level of service and to supervise output-based infrastructure services

¹⁰⁰ World Bank

¹⁰¹ Inter-American Development Bank

¹⁰² World Economic Forum

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