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Public Investment and Fiscal Policy—Lessons from the Pilot Country Studies

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EXECUTIVE SUMMARY

In 2004, Fund staff proposed a new framework for looking at issues related to public investment.¹ In a Board paper on Public Investment and Fiscal Policy (SM/04/93), and an accompanying Board paper on Public-Private Partnerships (PPPs) (SM/04/94), the staff analyzed options for accommodating increased public investment in infrastructure in fiscal targets, while safeguarding macroeconomic stability and debt sustainability; discussed criteria under which the operations of commercially run public enterprises could be excluded from fiscal indicators and targets; and reviewed a range of issues related to the fiscal implications of PPPs.

The framework has now been applied in eight pilot country studies, namely Brazil, Chile, Colombia, Ethiopia, Ghana, India, Jordan, and Peru.² The main results from these studies are discussed in the accompanying background paper (SM/05/119). This paper focuses on the main lessons that can be drawn from the studies.

Public investment has declined in recent years in several of the pilot countries, but neither the causes nor the consequences of this decline are fully understood. Fiscal consolidation, a fall in public saving, the completion of major public infrastructure investments (e.g., highway networks), a growing preference for a smaller public sector, and the development of a private sector capable of handling a broader range of activities, are all factors that, to different degrees across countries, are likely to have contributed to the trends in public investment. The pilot studies were unable to determine to what extent growth and growth prospects may have been adversely affected by declining public investment compared to other factors (such as inadequate spending on human capital, and/or various factors affecting business climate and private investment). Further analytical and empirical work on this issue is needed, and is underway for some countries and regions in both the Fund and the World Bank.

Public infrastructure investment and rehabilitation needs appear sizeable in most of the pilot countries but are difficult to quantify. Some of the available estimates are predicated on a notion of “catching up” with more advanced countries, and do not take into account a country’s financial and macroeconomic constraints or its absorptive capacity. Analyses of specific infrastructure “bottlenecks” in a given country usually generate much smaller estimates of overall infrastructure investment requirements than the catching-up estimates.

Still, evidence from the pilot studies suggests that economic development bottlenecks are not usually restricted to infrastructure.³ Investment climate surveys carried out in four

¹ Unless noted otherwise, the term “public investment” refers to the acquisition of nonfinancial assets.

² Most missions included World Bank staff members and, in the case of Latin American countries, also Inter-American Development Bank staff members.

³ The term “bottleneck” is used mainly to refer to binding constraints on development (i.e., the most urgent needs).

of the eight pilot countries have shown that the top-ranked concerns of private investors include high tax rates, economic and regulatory policy uncertainty, macroeconomic instability, corruption, and the cost of financing. By and large, issues related to public infrastructure services ranked at the bottom of investor concerns. Hence, while increases in public infrastructure spending could have a positive short-run impact on output by increasing aggregate demand, their longer-term effects on growth would largely depend on the extent to which other key concerns of potential private investors were addressed. At the same time, in deciding overall spending allocations, governments face important trade-offs between public infrastructure spending and other public spending (e.g., in health and education). They also face a trade-off between taxes and expenditure. These various trade-offs have to be addressed on a case-by-case basis. Further work is required on how countries can improve the overall composition of public spending under existing financing and absorptive capacity constraints.

Policy options for significantly increasing public infrastructure spending by relaxing overall fiscal balance targets are limited, particularly in countries with relatively high levels of public debt and significant vulnerabilities to macroeconomic shocks. The pilot studies confirmed that in such countries, increases in public investment need to be accompanied by commensurate increases in public saving, through expenditure re-prioritization and, where appropriate, additional revenue mobilization. There may be greater room for maneuver in emerging market economies with reasonable debt burdens, and in developing countries that are able to secure sustained concessional financing. In most pilot studies, there appears to be significant scope to improve the efficiency and quality of infrastructure spending through better public investment planning and project evaluation.

Additional room for public infrastructure spending cannot be created by changes in fiscal accounting. Methodological changes to the measurement of fiscal outcomes or targets, and/or to exclude investment (or other) expenditure from the fiscal balance, cannot create room for additional spending for infrastructure (or any other type of spending) while safeguarding macroeconomic stability and fiscal sustainability. A proper assessment of the scope for increasing investment spending in any particular country requires a careful analysis of aggregate demand conditions, absorptive capacity, short-term financing constraints and medium-term public debt dynamics, as well as trade-offs with other types of expenditure in that country. The type of analysis carried out in the pilot studies can offer useful examples to guide similar analyses by mission teams in surveillance countries, and in designing the fiscal component of Fund-supported programs.

The pilot studies raised questions as to whether an assessment of the appropriateness of including individual public enterprises in fiscal indicators and targets should be based primarily on their commercial orientation. The studies concluded that hardly any public enterprise in the pilot countries meets the proposed criteria for being judged commercially run that were set out in SM/04/93. The studies also suggested, however, that in the assessment more emphasis should be placed on the extent of fiscal risks posed by individual public enterprises. Accordingly, the paper proposes revised criteria that better reflect this objective. In addition, the pilot studies pointed to a need to broaden coverage of the national statistics to allow closer monitoring of public enterprise operations in countries outside Latin

America. In many countries, this expansion of coverage will likely need to be gradual, in view of existing capacity constraints.

PPPs offer a limited avenue to increase infrastructure investment, provided that they are appropriately structured. PPPs offer an increasingly popular vehicle for providing infrastructure, but they are no panacea. It is important to ensure that PPPs are carried out for the right reasons (i.e., increasing efficiency) rather than being driven by a desire to move expenditure off budget. Strengthening the institutional framework for PPPs and adequately capturing salient features of fiscal risk in the fiscal accounting applied to PPPs should be given high priority. More generally, increasing private sector involvement in infrastructure provision will often require strengthening the institutional framework, to help ensure the rule of law and protect property rights. The paper proposes a number of steps to increase the transparency of PPP operations, and to limit the fiscal risks they entail.

I. INTRODUCTION

1. **This paper reports on findings from eight pilot country studies on public investment that were carried out during the second half of 2004.** Two staff papers discussed by the Executive Board in 2004—“Public Investment and Fiscal Policy” (SM/04/93) and “Public-Private Partnerships” (SM/04/94)—proposed a number of steps that could be taken by countries, with the support of the Fund and the multilateral development banks (MDBs), to increase public investment, especially in infrastructure, within a fiscal framework consistent with macroeconomic stability and debt sustainability. These papers also discussed the appropriate coverage of public enterprises in fiscal indicators and targets; and the role of public-private partnerships (PPPs). Directors agreed that pilot studies should be carried out, on a voluntary basis, in a range of countries, to assess in more detail the appropriateness of the proposed approach,⁴ and requested staff to provide a report on progress with the pilot country studies in the first half of 2005.

2. **The pilot country studies covered a diverse group of countries.** Specifically, they included countries in Latin America (Brazil, Chile, Colombia, and Peru), Africa (Ethiopia and Ghana), the Middle East (Jordan), and Asia (India). The choice of countries among those that volunteered to participate in the pilot was made with a view to ensuring as representative a sample as possible in terms of geographic coverage and level of development. No industrial country indicated interest in participating in the pilot. While most pilot studies covered the whole range of issues raised in the 2004 Board papers, the case study for Chile focused mainly on PPPs, since Chile’s substantial experience in this area provides especially valuable lessons for other countries. The studies were carried out on the basis of FAD-led missions that visited each of the pilot countries during May–December 2004.⁵

3. **The paper is structured as follows:** Section II reflects on the main macroeconomic findings concerning public investment and growth; Section III discusses the analytical framework governing public investment decisions; Section IV reviews issues concerning the coverage of fiscal indicators and targets; Section V examines issues related to PPPs; Section VI summarizes the conclusions of the studies; and Section VII suggests possible issues for discussion by the Executive Board.

II. INFRASTRUCTURE SPENDING, PUBLIC INVESTMENT, AND ECONOMIC GROWTH

4. **In most pilot countries there is evidence of significant infrastructure bottlenecks.** Several of these countries are characterized by relatively low infrastructure indicators (Table 1) and appear to face significant spending needs for investment in new infrastructure,

⁴ Public Information Notice (PIN) No. 04/45.

⁵ All missions had the participation of area department staff, and most missions included World Bank staff and, in the case of Latin American countries, also Inter-American Development Bank staff.

Table 1. Infrastructure Indicators, 1990–2002

	Fixed and Mobile Telephone Lines (Subscribers per 1,000 People)		Electricity Generation (kwh per capita)		Roads (km per 1,000 people)		Access to Improved Water Sources (in percent of the population)	
	1990-1994	1998-2002	1990-1994	1998-2002	1990-1994	1998-2002	1990-1994	1998-2002
	Brazil	73	306	1,585	1,971	11.3	10.2	83
Chile	97	459	1,620	2,629	5.9	5.3	90	93
Colombia	80	233	1,024	1,060	2.9	2.7	94	91
Ethiopia	3	4	24	27	0.5	0.5	25	24
Ghana	3	19	384	334	2.3	2.2	53	73
India	8	37	380	536	2.4	3.3	68	84
Jordan	73	223	1,170	1,492	1.9	1.5	97	96
Peru	29	121	642	760	3.0	3.0	74	80
High income 1/	517	1,071	16,771	17,516	14.7	14.5	...	100
Low income	8	28	321	397	2.1	1.2	66	76
Low and middle income	32	107	1,004	1,140	2.7	2.1	71	79
Middle income	52	207	1,575	1,801	3.2	2.9	76	82
World	107	219	2,253	2,483	4.6	3.4	74	81

Sources: The World Bank (2004a) and OECD (2003).

1/ Simple averages are used. Income groups are based on the World Bank classification in 2004. Data for the high-income group are based on high-income OECD countries except for electricity production, for which the average of all high-income countries is used.

as well as for rehabilitation and maintenance of existing infrastructure. In general, infrastructure bottlenecks seem most acute in the road transport sector, but they are also present in the ports, energy, telecommunications, and water and sanitation sectors. In Brazil, the growth of the transportation network has not kept pace with the moving agricultural frontier, and the recovery of activity and rapid increase in exports in the last few years have contributed to delays in road transport and at some ports. While Colombia has sustained one of the highest and most stable infrastructure investment levels among Latin American countries, road maintenance has been inadequate. In Peru, the main infrastructure investment needs are in the energy and road transport sectors. In Jordan, there are significant water supply needs. In Ghana, major bottlenecks have been identified in the energy, and water and sanitation sectors. In Ethiopia, access to potable water, electricity, and telecommunications, is extremely low, and maintenance and rehabilitation problems are pervasive.⁶

5. The existence of infrastructure bottlenecks reflects, at least in part, recent declines in public investment.⁷ For the group of pilot countries, public investment declined

⁶ The pilot studies did not identify whether more private investment could have helped address these various bottlenecks. While additional private sector investment may not be able to fully substitute for additional public investment, it would appear likely that the private sector would be willing to increase its participation in the provision of infrastructure services, if proper incentives and regulatory frameworks were in place. See, for example, Beato and Vives (2003) and World Bank (2004a).

⁷ However, the existence of infrastructure bottlenecks also frequently reflects inappropriate public pricing decisions that have resulted in poor cost recovery and waste. Underpricing for the use of public assets (e.g., port (continued...))

by 1 percent of GDP on average between 1994–98 and 1999–2003 (Table 2). In many of the countries, this drop followed earlier declines. Public investment in India, for example, was cut by almost 3¼ percent of GDP through the 1990s (on a national income accounts basis), with about half of the cut falling on infrastructure spending. In Latin America, public investment has fluctuated along a declining trend over the last two decades, with public infrastructure spending mirroring this decline. In Brazil, investment by the nonfinancial public sector dropped from 3.2 percent of GDP during 1996–98 to 2.5 percent of GDP during 1999–2004, excluding 2001, when it rose to 3.1 percent of GDP as a result of emergency investments in the wake of an energy crisis. In Colombia, while total public investment has been relatively stable in recent years, public infrastructure investment and maintenance expenditure have fallen, including in the transport sector. In contrast, in Jordan and Ethiopia, the share of public investment in GDP fluctuated around a broadly flat trend in the 1990s, but has shifted upward since 2000.

Table 2. Public and Private Investment, 1994–2003^{1/}
(In percent of GDP, annual averages)

Country	1994-1998			1999-2003			Change		
	Private	Public	Total	Private	Public	Total	Private	Public	Total
Brazil	17.4	2.6	20.0	17.0	1.8	18.7	-0.4	-0.9	-1.3
Chile	22.1	3.8	25.9	18.4	2.6	21.0	-3.7	-1.2	-5.0
Colombia	13.7	7.6	21.3	7.2	6.2	13.4	-6.5	-1.4	-7.9
Ethiopia	7.6	9.0	16.5	9.1	9.9	19.0	1.5	1.0	2.5
Ghana	8.9	13.1	22.0	13.7	9.7	23.4	4.8	-3.4	1.4
India	17.0	7.3	24.3	17.4	6.1	23.5	0.4	-1.2	-0.8
Jordan	20.7	6.9	27.6	15.5	6.8	22.3	-5.2	-0.1	-5.3
Peru	18.5	4.6	23.0	15.6	3.4	19.0	-2.9	-1.1	-4.0
Group average	15.7	6.9	22.6	14.2	5.8	20.0	-1.5	-1.0	-2.5
Group median	17.2	7.1	22.5	15.6	6.1	20.0	-1.6	-1.2	-2.6

Source: IMF (2005).

1/ Reflects national income accounts data for public fixed capital formation, which may differ from the fiscal accounts data on public investment due to differences in coverage and methodology. For instance, for Colombia, while national income accounts data show a drop of 1.4 percent of GDP in average annual public investment from 1994–98 to 1999–2003, the corresponding data from the fiscal accounts show a stable average level of public investment.

6. Public investment has fallen for different reasons, including a growing preference for a smaller public sector. At least some of the observed decline in public investment has been the natural outcome of privatization (e.g., in telecommunications in Peru

fees, landing fees, and road user charges) or key inputs (e.g., domestic fuel, electricity, and water) as well as undercollection of existing fees and user charges, have contributed to over-consumption and the existence of infrastructure bottlenecks in many of the pilot countries.

and Brazil), and of the opening up of different sectors to private participation in the course of the 1990s. In Brazil, for example, the reorientation of government policies away from a national approach to industrial policy played a key role in the observed decline in public investment during the 1990s. In Peru, recent efforts to introduce a new quality control system have resulted in scaling down the investment program.

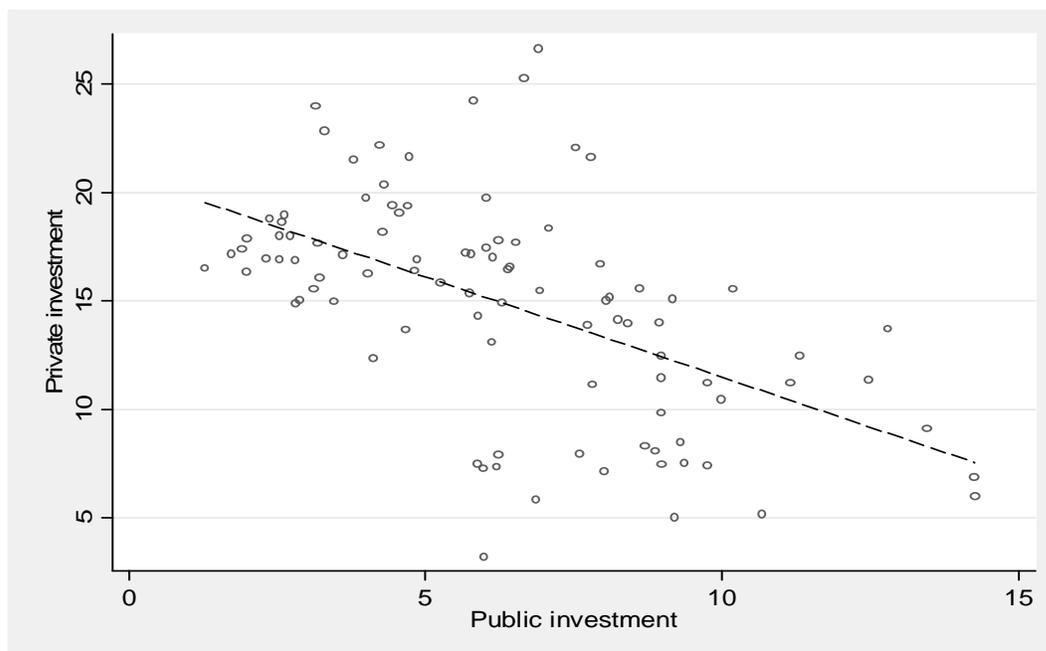
7. **National income accounts data suggest that declining public investment has not been offset by higher private investment.** For the period 1994–2003 as a whole, private and public investment in the pilot countries have been negatively correlated, i.e., less public investment has gone hand in hand with more private investment (Figure 1). However, this picture is different when comparing averages for specific subperiods (Table 2). For example, in India, private sector investment has remained broadly flat relative to GDP since the mid-1990s, which probably reflects, among other things, the continued existence of barriers to greater private involvement in specific sectors, including infrastructure. In most pilot countries, private investment has fallen in tandem with public investment (e.g., Brazil, Chile, Colombia, Jordan, and Peru), with the observed decline in average private investment during 1999–2003 likely to have been adversely affected by the drying up of external inflows following the Asian crisis in 1997 and the Russia crisis in 1998. In some countries, total private investment rose temporarily, reflecting the acquisition of assets by the private sector in the context of large privatizations, but has declined in recent years (e.g., Brazil and Peru).

8. **In contrast, sectoral data suggest that all countries experienced increases in the total value of infrastructure projects with private sector participation in the mid-1990s, followed, in most countries, by declines in subsequent years.** In Brazil, for example, total investment in infrastructure projects with private participation skyrocketed from an annual average of less than US\$1 billion during 1989–93 to an annual average of US\$25 billion during 1994–98, and then dropped back to an annual average of US\$6 billion during 1999–2003 (Table 3). The sharp swings largely reflect the proceeds generated by major privatizations that have since come to an end (e.g., in the energy and telecommunication sectors), but, in part, may also have been due to the crisis that began in the second half of 1998.⁸ Several of the other pilot countries also experienced a privatization-led private sector investment boom during the mid-1990s. It is interesting to note that, since the late 1990s, the road transport sector has emerged as the largest sector in which infrastructure projects are carried out with private sector participation in two pilot countries (Chile and Colombia).

⁸ In Brazil, during 1994–98, about 37 percent of all recorded investment in infrastructure with private sector participation reflects privatization proceeds.

Figure 1. Contemporaneous Correlations Between Private and Public Investment, 1994–2003

(In percent of GDP)



Sources: IMF (2005) and Fund staff estimates, using panel data for the eight pilot countries.

Table 3. Investment in Infrastructure Projects with Private Sector Participation, 1989–2003^{1/}

	Average Annual (US\$ million)			Main Sector and its Share (in percent of total)		
	1989-1993	1994-1998	1999-2003	1989-1993	1994-1998	1999-2003
Brazil	309	25,121	6,297	Transport (80)	Telecom (53)	Energy (58)
Chile	1,100	2,200	1,803	Telecom (54)	Energy (60)	Transport (48)
Colombia	163	2,288	304	Transport (52)	Energy (60)	Transport (74)
Ghana	9	153	14	Telecom (100)	Telecom (58)	Energy (86)
India	336	3,857	2,428	Energy (100)	Telecom (66)	Energy (46)
Jordan	..	70	203	...	Telecom (100)	Telecom (65)
Peru	73	2,105	574	Telecom (100)	Telecom (64)	Energy (55)

1/ Note that not all data were available for all countries for all years. Sector information was compiled on the basis of each project's primary sector. Data for Ethiopia were unavailable. Includes privatization proceeds. Source: World Bank (2005).

9. **In some of the pilot countries, fiscal consolidation is likely to have contributed to observed declines in public investment.**⁹ Public investment fell relative to GDP in 12 out of 24 episodes of significant budget consolidation over 1991–2003 (in seven of these cases it fell by more than other primary spending).¹⁰ For example, public investment in India was cut as part of crisis-induced fiscal adjustment efforts in the early 1990s. In Brazil, the significant fiscal adjustment effort carried out since 1999—featuring an improvement in the primary balance equivalent to nearly 5 percent of GDP—has also taken a toll on public investment, which at the federal government level declined to a low of 0.4 percent of GDP in 2003 from 1.1 percent of GDP in 1998. In Ghana, the authorities have had to resort to cuts in public investment during 1998–2000 and in 2002 to support the fiscal adjustment effort.¹¹

10. **In addition, public investment has been adversely affected by declining public saving.** In seven of the eight pilot countries, there is a positive association between public investment and public saving, as measured by the current fiscal balance relative to GDP (Table 5). The positive correlation appears particularly strong in countries with constraining debt levels (e.g., Colombia, Jordan, and India). These findings, although in the form of simple correlations, suggest that falling public saving may have played an important role in limiting public investment spending. The declining trend in public saving reflects a variety of factors related to both the revenue and expenditure sides of the budget. In some countries, it stems, to some extent, from weakening tax collections (e.g., Ghana). In general, however, it reflects an expansion of current public spending, including, for example, growing or rigid outlays for public sector wages, pensions, and transfers to households that may have been accentuated further by a generally high degree of revenue earmarking (e.g., in Brazil, Colombia, and Ghana). In Brazil, for example, the decline in public investment was accompanied by a rapid increase in primary current spending, which grew by over 2 percent of GDP during 1998–2003. Finally, in some federal countries, (e.g., India) achieving increases in public saving may also have also been constrained by a lack of fiscal discipline at subnational levels of government.

⁹ It has often been argued that politicians are biased in favor of cutting investment spending, given that cutting wages, pensions, transfers to households, and other current spending items would have a direct adverse effect on important groups of voters. Rogoff (1990) has formalized this in a model that shows how rational voters can reward governments that put the burden of fiscal adjustment on public investment rather than current spending, which may lead to an unsustainably high level of primary current spending.

¹⁰ An episode of significant budget consolidation is defined as a year when the primary balance improved by at least 1 percent of GDP. Using a threshold of 0.5 percent of GDP produced similar qualitative results, while a threshold higher than 1 percent of GDP yielded very few episodes and prevented a meaningful analysis.

¹¹ World Bank estimates suggest that about half of the fiscal adjustment in Brazil and Peru during the 1990s was accomplished by compressing investment in infrastructure (Calderón, Easterly, and Servén (2003)). These estimates are, however, sensitive to the period being considered. For example, a comparison of average changes in public investment and primary fiscal balances during 1994–98 and 1999–2003 suggests for Brazil a much smaller contribution of infrastructure compression to fiscal adjustment than that suggested by Calderón, Easterly, and Servén (2003), while data for Peru do not support their findings as a decline in public investment went hand-in-hand with a worsening of the primary balance (also see Table 4).

Table 4. The Contribution of Public Investment Compression to Fiscal Adjustment

Country	Reduction in Public Investment/ GDP 1/ [1]	Change in Primary Surplus/GDP [2]	Contribution of Reduction in Public Investment to Fiscal Adjustment (in percent) [1]/[2]
Brazil	0.9	3.7	24
Chile	1.2	-2.1	-58
Colombia	1.4	0.0	...
Ethiopia	-1.0	-4.9	20
Ghana	3.4	3.4	99
India	1.2	-1.5	-81
Jordan	0.1	-1.1	-7
Peru	1.1	-1.3	-87
Group average	1.0	-0.5	-13
Group median	1.2	-1.2	-7

Sources: IMF (2005) and IMF staff calculation.

1/ Computed as average 1994–1998 minus average 1999–2003.

Table 5. Correlation Coefficients Between Ratio of Public Investment to GDP and Selected Macroeconomic Variables, 1994–2003 1/

Country	Ratio of Private Investment to GDP	Real GDP per Capita	Real GDP Growth	Ratio of Current Fiscal Balance to GDP
Brazil	0.18	-0.72	0.50	0.45
Chile	0.47	-0.84	0.55	0.64
Colombia	0.63	0.44	0.43	0.91
Ethiopia	-0.21	0.38	-0.14	-0.05
Ghana	-0.72	-0.80	-0.38	0.66
India	-0.48	-0.87	0.66	0.91
Jordan	-0.01	0.49	-0.11	0.76
Peru	0.73	-0.57	0.28	0.61
Simple average	0.07	-0.31	0.22	0.61
Pooled group	-0.62	0.05	0.11	0.46

Source: IMF (2005) and Fund staff estimates.

1/ Contemporaneous correlations. Overall results differed insignificantly when lagged public investment was used.

11. **Empirical evidence on the impact of public investment on growth remains mixed.** While individual infrastructure projects may often generate fairly high returns on investment,¹² their impact on GDP growth is more uncertain. Empirical studies that have tried to estimate such impact have yielded widely different results, although evidence of a positive impact tends to be more robust for developing countries.¹³ In a recent survey, Romp and de Haan (2005) suggested that there is increased consensus that public capital furthers economic growth, but that the impact is substantially less than what was found in earlier studies, such as Aschauer (1989).¹⁴ However, the same authors also caution that “only a few of the enormous bulk of studies on the output effects of infrastructure base their estimates on solid theoretical models” and suggest that more research is needed on the channels through which infrastructure has an impact on growth.¹⁵ Empirical ambiguity over links between spending and growth has also been shown to exist for other types of expenditure. For example, for the case of education spending, Blankenau and Simpson (2004) argue that “the macro-level ambiguity of the expenditure-growth link need not be interpreted as evidence that expenditures are unimportant for growth. Rather it may point to the importance of acknowledging the nonmonotonic nature of the relationship.” A similar argument may be made for public investment spending.¹⁶

¹² For example, World Bank-financed infrastructure projects that had at least 95 percent of loan commitments disbursed between 1999 and 2003, had an average economic return of 35 percent, with a spread ranging from 19 percent for water and sanitation projects to 43 percent for transport projects.

¹³ Data reported in Briceño-Garmendia, Estache, and Shafik (2004) suggest that of 102 studies that have estimated the impact of infrastructure investment on productivity or growth, 53 percent showed a positive effect, 42 percent showed no significant effect, and 5 percent showed a negative effect. In multiple country studies, 40 percent showed a positive effect, 50 percent showed no significant effect, and 10 percent showed a negative effect. In contrast, all 12 single-country developing country studies showed a positive effect.

¹⁴ Also, see the overview presented in SM/04/93. In this context, the recent research by Calderón, Easterly, and Servén (2003) remains in contrast with much of the recent literature by arguing that reductions in infrastructure spending in Latin America in the 1990s significantly reduced longer-term growth prospects (e.g., by about 3 percentage points a year in Brazil, and 1½–2 percentage points a year in Chile, Mexico, and Peru). As various surveys caution, such estimates should be interpreted with great care as they are subject to a sizeable margin of error and have proven very sensitive to the underlying assumptions.

¹⁵ In pointing out that “government roads as such do not produce anything,” Romp and de Haan (2005) particularly caution against including infrastructure or public capital as a separate input in a production function.

¹⁶ In this context, it must be recognized, however, that governments usually face financial and absorptive capacity constraints that require them to make trade-offs between high-return projects and programs in different sectors, also including in health and education. It is difficult to refute the argument that under-funding health, nutrition, and education programs in a single year may potentially have more dire long-run consequences for human and economic development than under-funding public infrastructure projects in a single year. Still, good infrastructure may help to further increase the returns of projects in other sectors. For example, recent studies, including Willoughby (2002) and the World Bank (2004b), point to a strong link between the availability of infrastructure services and several of the Millennium Development Goals (MDGs), such as child mortality, educational achievements, and health indicators. Yet, it is precisely in the area of spending choices and trade-offs that more work and guidance for policymakers is needed.

12. **A thorough examination of the impact of infrastructure investment on growth in the pilot countries would have required an investment of staff resources clearly beyond the scope and time constraints of the exercise.** Simple statistical exercises did not show unambiguous evidence of positive correlation between public investment and growth over the last decade in these countries.¹⁷ While more sophisticated analyses may help shed additional light on the issues, the individual pilot studies also highlighted problems with the accuracy and comprehensiveness of the available data on public investment that would need to be addressed to underpin such analyses.

13. **The more general economic effects of infrastructure bottlenecks also remain difficult to quantify.** Productivity and external competitiveness are likely to have suffered in countries where road networks are in poor condition, or fundamental infrastructure services (e.g., electricity) are not available on a reliable basis. Ethiopia, for example, has one of the lowest road network density in Africa and, with about 95 percent of transport dependent on roads, has few alternative modes of transport available. Similarly, in India, the poor state of the road network has severely reduced average speeds, often to just half of the legal limits. In Brazil and Ghana, less than 40 percent of the existing road network is reported to be in good condition.¹⁸ The resulting delays and increases in transport costs may have adversely affected export performance in these countries. Still, the available evidence is largely anecdotal, and comprehensive data are usually not available.

14. **Tax issues and policy uncertainty, rather than the availability of infrastructure services, topped the list of private investor concerns in a number of the pilot countries.** World Bank Investment Climate Survey (ICS) data are available for four of the pilot countries. These data show that, among 18 indicators, those related to infrastructure scored at the bottom of investor concerns, with electricity in 12th place, transport in 17th, and telecommunication in 18th (Table 6). Only electricity in India and Ethiopia ranked among the top five concerns of investors. The top-ranked concerns of private investors in the four

¹⁷ Simple correlation exercises indicated that the relationship between public investment and real GDP growth is weak. The correlation coefficients were found to be mostly insignificant and even negative in three countries (Table 5), and only the correlation coefficient for India proved significant at the 95 percent confidence level. Still, a significant compression of public investment may adversely affect growth. Using data from 1994 to 2003 showed that in seven out of eleven cases, average GDP growth deteriorated in the two years following episodes of significant declines in public investment. In this analysis, an episode of significant investment cuts was defined as a year when public investment fell by at least 1 percent of GDP; a threshold of 0.5 percent of GDP produced similar qualitative results, while a threshold higher than 1 percent of GDP did not yield many meaningful episodes.

¹⁸ In some cases and sectors, private sector solutions have emerged to address shortfalls in public infrastructure services, although these may not always be efficient. An example of the latter would be India, where an average estimated electricity shortfall of 11 percent for regular demand and 18 percent for peak demand (with wide variations across states) has been mitigated by the relatively high reliance of Indian businesses on self-generation of power. See the World Bank's Investment Climate Survey (ICS) (World Bank, 2004c) for more information.

Table 6. Perceptions by Enterprises of Constraints on Business

Perceived Constraints on Business	Brazil		Ethiopia		India		Peru		Brazil		Ethiopia		India		Peru		Cross-Country	
	2003		2002		2002		2002		2003		2002		2002		2002		Index 1/ Ranking 2/	
	Average Within-Country Index 1/ Within-Country Ranking 2/																	
1 Telecommunications	1.6	2.5	1.6	1.4	1.8	1.1	17	12	18	11	17	1.8	18					
2 Electricity	2.2	3.1	2.6	1.7	1.6	4	2	10	16	4	2	2.4	12					
3 Transport	2.3	2.0	2.0	1.7	1.5	13	15	11	15	13	15	2.0	17					
4 Access to land	2.1	3.3	1.8	1.8	1.7	3	16	9	4	6	9	2.3	15					
5 Macroeconomic instability (inflation, FX rate)	4.1	2.9	2.2	3.6	4	6	9	2	1	1	3	3.2	6					
6 Tax rates	4.3	4.0	2.6	n.a.	6	1	3	n.a.	1	6	3	3.6	1					
7 Tax administration	3.8	3.5	2.6	n.a.	6	2	4	n.a.	12	10	13	3.3	2					
8 Customs and trade regulations	3.0	2.7	2.1	n.a.	8	17	7	n.a.	11	14	14	2.6	11					
9 Labor regulations	3.5	1.4	2.3	n.a.	7	7	7	n.a.	14	16	12	2.4	13					
10 Skills of available workers	3.1	1.9	2.0	2.1	11	14	14	8	14	16	12	2.3	14					
11 Licensing and operating permits	2.7	1.5	2.1	n.a.	14	16	12	n.a.	7	5	10	2.1	16					
12 Access to finance (e.g., collateral)	3.6	2.9	2.2	3.0	2	7	10	7	2	7	5	2.9	8					
13 Cost of finance (e.g., interest rates)	4.3	2.9	2.4	3.4	3	8	6	5	3	8	6	3.2	5					
14 Economic & regulatory policy uncertainty	4.1	2.8	2.4	3.9	5	9	1	1	3	5	1	3.3	3					
15 Corruption	3.9	2.7	2.9	3.5	10	15	11	4	10	15	11	3.3	4					
16 Crime, theft, disorder	3.4	1.7	2.2	3.3	9	12	8	6	13	12	8	2.6	10					
17 Anti-competitive/informal practices	3.5	2.5	2.2	3.5	9	9	8	3	9	9	8	2.9	7					
18 Legal system/conflict resolution	2.9	n.a.	n.a.	n.a.	13	n.a.	n.a.	n.a.	2.9	13	n.a.	2.9	9					
Within-country average	3.2	2.6	2.3	2.8					2.6									

Source: The World Bank Investment Climate Survey (World Bank, 2004c).

1/ Firms were asked to rate the importance of each potential business constraint on a five-point scale. Higher values denote a higher importance for the surveyed business unit. Infrastructure areas are highlighted in grey.

2/ Simple ordinal ranking. A lower value corresponds to higher importance. The top five concerns in each country are shown in boxes.

countries were high tax rates, followed by tax administration issues, economic and regulatory policy uncertainty, corruption, and cost of finance.¹⁹ More generally, ICS data suggest that private investment decisions may be more closely related to the strength of government institutions and policies than to the availability of public infrastructure per se. Although in some cases (e.g., Ethiopia) inadequate public infrastructure may well impact adversely the returns to private investment, the ICS data suggest that, even if more and better public infrastructure were available, the private sector may not necessarily increase its investment spending until other more pressing concerns that adversely affect the investment climate are addressed.

III. THE ANALYTICAL FRAMEWORK

A. How Much Infrastructure Investment is Needed?

15. **The magnitude of infrastructure investment needs remains uncertain in the pilot countries.** Estimates of investment needs differ widely and depend largely on the approach that is used. The two main approaches in the literature generate estimates for additional spending needs that significantly exceed present spending levels and what an analysis of critical bottlenecks would suggest.

- The “catching-up approach” used by Calderón and Servén (2004) uses “regional leader” (namely the country with best infrastructure base in a given region) benchmark data to estimate the catch-up requirements of other countries in the region. In the case of Brazil, these estimates suggest that it would cost 14 percent of GDP (or 2 percent of GDP annually over seven years) to achieve the same level of electricity generation per worker and teledensity, and one-third the level of road density as the regional leader (Costa Rica).
- An alternative approach, presented by Fay and Yepes (2003), looks at the expected demand for infrastructure associated with different assumed GDP growth rates. Under this approach, with an annual real growth rate of 5 percent during 2006–10, the total annual demand for investment spending for electricity generation, potable water and sanitation, telephones, roads, and railways in Brazil would amount to 2.8 percent of GDP.²⁰ This would be in addition to spending on operations and maintenance.²¹

¹⁹ The results are similar to those found in other countries. Results from the World Bank’s ICS program, which covers more than 26,000 firms in 53 countries, suggest that, while priority constraints can vary widely across and even within countries, policy-related risks, including policy uncertainty and macroeconomic stability are systematically ranked among top investors’ concerns (see World Bank, 2004d).

²⁰ Similarly high infrastructure investment requirements have also been estimated for other pilot countries. For example, for Ghana, the World Bank estimates that the government would have to spend about 4½ percent of GDP annually over 2004–08 to address maintenance and new infrastructure investment needs in the road sector

(continued...)

16. A shortcoming of both these approaches to measuring infrastructure investment needs is that they abstract from resource and absorption capacity constraints.

Therefore, they cannot provide concrete policy guidance on how and within what timeframe to fill such gaps. A preferable approach, detailed in what follows, would entail an assessment of the scope for mobilizing both private and public resources for infrastructure spending, within a macroeconomically sound and fiscally sustainable framework. This assessment should be followed by technically sound steps to identify the projects which, in view of their economic and social rates of return, should have priority within the overall envelope of public investment spending defined in such assessment.

B. How to Increase Infrastructure Investment

17. Different policy instruments are available to increase infrastructure investment.

These can be classified according to whether they operate primarily through the private sector or the public sector, and the time needed to implement them. Table 7 provides an overview.

Table 7. Possible Policy Instruments to Help Increase Total Infrastructure Investment

	Private Investment	Public Investment
Short- to Medium-Term	<ul style="list-style-type: none"> • Use public-private partnerships. • Provide government guarantees. 	<ul style="list-style-type: none"> • Reallocate public expenditure. • Implement tax policy measures. • Relax fiscal targets, financed by debt or the sale of state assets.
Medium- to Long-Term	<ul style="list-style-type: none"> • Implement improvements in market-supporting institutions that help strengthen the rule of law, property rights, and the regulatory framework. • Deepen financial markets. 	<ul style="list-style-type: none"> • Carry out structural reforms, incl. civil service reform and social security reform to help reduce current expenditure. • Improve tax administration and expenditure management systems to improve efficiency.

alone; addressing overall infrastructure investment needs in Ghana’s energy, water, and sanitation sectors would cost the Ghanaian government about 3½ percent of GDP annually during 2004–08.

²¹ World Bank estimates suggest that stopping a further deterioration of Brazil’s federal road network would require increasing annual road maintenance expenditure by about 20 percent (0.01 percent of GDP) over the next five years, whereas upgrading the existing network to good condition would require doubling maintenance spending to about 0.06 percent of GDP over the next five years.

Increasing private investment in infrastructure

18. **Increasing private sector involvement in the provision of infrastructure requires a strong institutional framework.** A large body of academic research points to the importance of a strong regulatory framework, the rule of law, property rights, and the enforceability of contracts as key elements for fostering private investment and economic growth.²² This is not surprising, as private investors are more likely to respond positively to clearly defined and enforceable rules. Hence, instruments like PPPs are likely to be more successful in fostering private sector investment in infrastructure when the institutional framework is well developed, and when proper accounting practices and transparent disclosure requirements are in place.²³

19. **These findings are supported by evidence from the pilot studies, where better institutions generally coincide with higher private investment.**²⁴ This is summarized in Figure 2, which shows a close correlation between a summary governance indicator and private investment.²⁵ This may imply that, notwithstanding the existence of infrastructure bottlenecks and potentially high returns, the private sector may decide not to step in unless key market-supporting institutions are in place.²⁶

Increasing public investment in infrastructure

20. **As highlighted in SM/95/04, the scope for sustained increases in public investment in a particular country depends crucially on the prospects for debt sustainability in that country.** In countries facing acute macroeconomic imbalances due to excess demand, and/or financing constraints, the scope for increasing public investment may also be constrained by short-term financing considerations (reflected in the overall fiscal

²² See, for example, North (1990); Olsen (1993); Acemoglu and others (2003); Rodrik, Subramanian, and Trebbi (2002). These findings are also supported by findings in the World Bank's Investment Climate Surveys shown in Table 6.

²³ The role of these two instruments is studied separately in Section V and the accompanying paper on government guarantees and fiscal risk.

²⁴ These are proxied by the World Bank's *governance indicators*. The World Bank's governance indicators include six dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, the rule of law, and control of corruption. The indicators are available at <http://www.worldbank.org/wbi/governance/>.

²⁵ This is a small sample, however, and there could be other causal factors involved. Still, the relationship holds even after controlling for per-capita GDP, which could be expected to be the single most important factor in explaining differences in the sample.

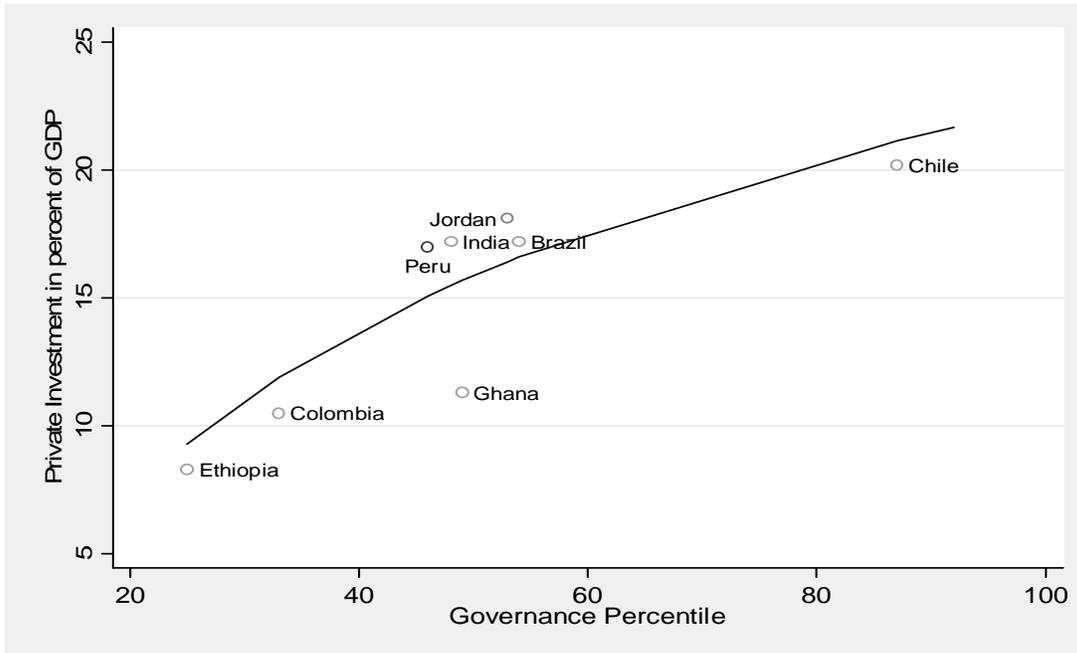
²⁶ Table 6 above suggests that there is much room in pilot countries to improve the overall business environment. Also see Table 8 for an overview of business environment indicators in the pilot countries.

Table 8. Business Environment Indicators, 2004

Country	Starting a Business			Hiring and Firing Workers			Registering Property			Getting Credit			Protecting Investors		Enforcing Contracts			
	No. of Procedures	Time (days)	Cost (percent of Income per Capita)	Difficulty of Hiring (Index)	Rigidity of Hours (Index)	Difficulty of Firing (Index)	Rigidity of Employment (Index)	Firing Costs (weeks)	No. of procedures	Time (days)	Cost of Property Value per Capita)	Cost to Create Collateral (percent of income per capita)	Legal Rights (Index)	Credit Information (Index)	Disclosure Index	No. of Procedures	Time (days)	Cost (Percent of debt)
Brazil	17	152	12	67	80	70	72	165	14	42	2	21	2	6	5	25	566	16
Chile	9	27	10	17	20	20	19	51	6	31	1	5	4	6	6	28	305	10
Colombia	14	43	27	72	60	20	51	49	7	23	4	39	4	4	2	37	363	19
Ethiopia	7	32	77	50	60	20	43	48	15	56	11	11	5	0	2	30	420	15
Ghana	12	85	88	11	40	50	34	25	7	382	4	38	5	2	2	23	200	14
India	11	89	50	33	20	90	48	79	6	67	14	11	4	0	4	40	425	43
Jordan	11	36	52	11	40	50	34	90	8	22	10	56	6	3	3	43	342	9
Peru	10	98	36	44	60	60	55	56	5	31	3	16	2	6	4	35	441	35
Average of pilot countries	11	70	44	38	48	48	45	70	9	82	6	25	4	3	4	33	383	20
East Asia & Pacific	8	52	47	20	30	22	24	52	4	51	4	2	5	1	2.6	27	316	57
OECD countries	6	25	8	26	50	26	34	40	4	34	5	5	6	5	5.6	19	229	11

Source: World Bank (2004e).

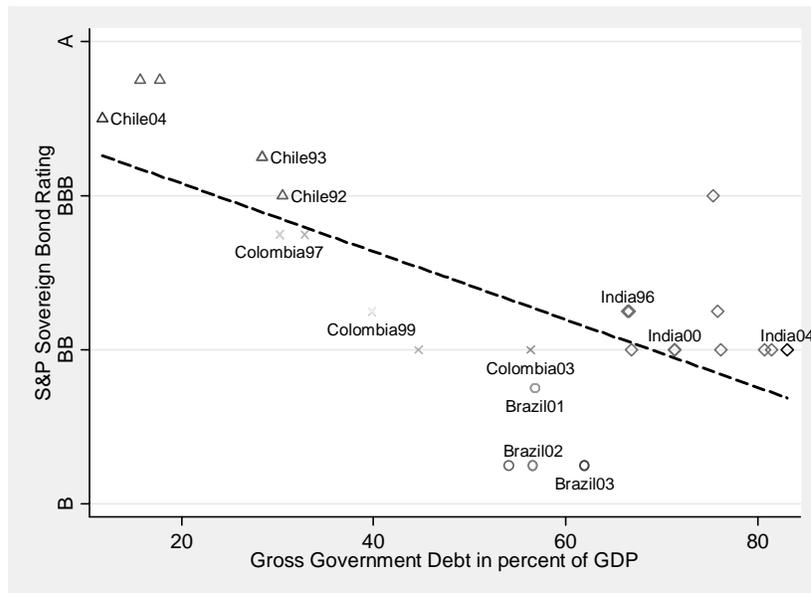
Figure 2. The Quality of Governance and Private Investment 1/



Sources: OECD (2004); IMF (2005); the World Bank (2003); and Fund staff estimates.

1/ Data refer to average private investment for 1994–2003.

Figure 3. Sovereign Bond Ratings and Gross Government Debt 1/



Sources: Standard & Poor (2005) and IMF (2005).

1/ The S&P rating closest to year-end is used. “BBB” is the minimum Investment grade.

balance).²⁷ In principle, it would be desirable to build in the assessment of medium-term public debt sustainability available robust estimates of any impact of additional infrastructure spending on growth. However, as indicated above, it was not feasible to obtain such estimates for most of the pilot countries. Therefore, the assessments of the available “fiscal space” to accommodate additional public spending in infrastructure in the pilot case countries did not assume any significant upward shift in the baseline projection for GDP growth as a result of such spending. The main results of the analysis, detailed in the accompanying background paper, can be briefly summarized as follows.

- **In Brazil**, the staff’s analysis supported the government’s commitment to maintaining sizeable public sector primary surpluses of around 4¼ percent of GDP during 2005–07, to ensure a decline in the net public debt to at most 50 percent of GDP by 2007. Such a commitment is justified by the country’s still relatively high public debt level, and its lingering, albeit reduced, vulnerability to interest rate and exchange rate shocks. The Brazilian authorities have recently set up a public investment pilot program for 2005–07 that represents an important step toward strengthening the mechanisms for appraisal, selection, monitoring, and implementation of public investment projects. Full budgetary funding for the projects included in the pilot will be linked to implementing the improved procedures. The government’s ultimate aim is to extend the program to all public investment projects, so as to improve the overall efficiency and quality of the public investment budget. The authorities would allow a modest downward adjustment of up to 0.15 percent of GDP, if needed, in their primary surplus target to accommodate the investments in the pilot. There will be no methodological changes to exclude these investments from the primary balance, or any other changes to the computation of fiscal targets and outturns. The staff’s analysis confirmed the consistency of the proposed adjustment with a macroeconomically sound and sustainable fiscal stance.
- **In Colombia**, the public debt path continues to be very sensitive to changes in key parameters, including the exchange rate, interest rates, oil prices, and deviations from the baseline primary fiscal surplus scenario. The pension system’s high actuarial deficit and public sector contingent liabilities are additional sources of vulnerability, although progress is being made in this area with proposed legislation to reduce the financial imbalance of the social security system. The staff’s discussion with the authorities in the context of the pilot investment project focused on the Medium-Term Fiscal Framework (MTFF). In that context, the staff agreed with the authorities that, in the current situation, any significant relaxation of the MTFF’s fiscal targets to accommodate increased public investment spending would be risky. Against this

²⁷ Also see Figure 3, which shows a strong negative correlation between gross public debt and sovereign bond ratings. Accordingly, additional spending, if financed by additional debt, could be expected to have an adverse impact on bond ratings (and therefore interest rates) regardless of the type of spending. Appendix Table 10 provides a general overview on fiscal policy and debt profiles of the pilot countries. Also see Reinhart, Rogoff, and Savastano (2003).

background—partly as a result of fiscal overperformance in 2004, the appreciation of the currency, and a firmer medium-term outlook for oil prices—in the new Stand-By Arrangement with Colombia, it was found that a relaxation of the fiscal targets equivalent to about one quarter of a percentage point of GDP to accommodate additional high-quality investment was compatible with sound public debt dynamics.

- In **India**, already high levels of the fiscal deficit and public debt, and the continued vulnerability of the debt dynamics to adverse macroeconomic shocks, constrain the scope for financing additional public investment through borrowing. Instead, room for needed investments in infrastructure should be found by ensuring a recovery of public sector saving, which declined by the equivalent of almost 5 percent of GDP over the last decade, and by creating favorable conditions for a sustained increase of private investment in the sector.
- In **Jordan**, debt sustainability analysis (DSA) shows public debt dynamics that remain significantly vulnerable to exogenous shocks. Staff agreed with the authorities that sustaining the recent improvement in the debt profile will require a steady reduction in the overall fiscal deficit, as well as the continuation of strong economic growth. It also shared the authorities' view that, since Jordan's physical infrastructure compared favorably in most sectors, with countries of a similar level of development, increasing the overall level of public investment in infrastructure is not the highest priority at this time. There is however scope for strengthening investment selection and prioritization mechanisms and for fostering sound PPPs in the area.
- In **Peru** as well, the public debt remains rather high in relation to revenue, and is also quite vulnerable to shocks, given its currency composition. Moreover, a significant relaxation of the fiscal deficit targets envisaged in the fiscal responsibility law would risk undermining recent advances in strengthening the institutional framework and hard-won gains in credibility. Thus, the room for increasing public investment needs to be created first and foremost through an increase in public saving, which has declined significantly in recent years.

21. **Even when debt sustainability is not a cause for concern, other considerations may make it inadvisable to accommodate additional public investment through a relaxation of fiscal targets.** In this respect, it is worth noting that in Chile, where public debt levels are low, the government has consistently strived to accommodate increases in public investment within its existing fiscal framework (which targets an annual 1 percent of GDP structural surplus), as well as to increase private investment in infrastructure through a well-structured PPP program.

22. **While the considerations above underscore the need to continue to focus on the overall fiscal balance, and its implications for macroeconomic stability and debt sustainability, in assessing the scope for increasing public investment, a complementary focus on the current fiscal balance (i.e., on public saving) can help better gauge the quality of a country's fiscal policy.** This is especially the case when an analysis of the

composition of public spending in that country suggests that additional investment in physical capital is likely to have higher dividends in terms of growth than other types of spending.

23. **Policy options for increasing public saving depend on country-specific circumstances.** In general, countries should avoid ad-hoc revenue or expenditure measures that cannot (for political reasons) or should not (because of economic efficiency or equity concerns) be sustained over the medium term. In most cases, durable increases in public saving can only be achieved through reforms that broaden the tax base, raise efficiency in tax collection and reduce tax evasion, reduce budget rigidities, rationalize the civil service and social security systems, and strengthen public expenditure management (to better assess the productivity of public spending programs). The experience from the pilot studies points to three main types of situations:

- **In countries with an already high tax effort**, increased public saving should come first and foremost from reducing current expenditure. A case in point is Brazil, where further structural reforms are needed to facilitate a sustainable reduction of current spending. Such reforms should focus in particular on the pension system and the civil service, and on the pervasive revenue earmarking mechanisms (with a view to reducing budget rigidities). Further efforts to strengthen the capacity to evaluate, plan, and prioritize current non-entitlement spending programs would also help in this respect.
- **In countries with a comparatively low tax effort**, increases in public saving should be achieved by a combination of tax and expenditure measures. In India, for example, general government revenue is low by international standards. A government-appointed reform commission has emphasized recently the need to overhaul sales taxes, broaden the tax base to better capture services, and further strengthen tax enforcement. However, revenue measures alone may not be sufficient to both meet the fiscal targets envisaged in the fiscal responsibility law, and allow for higher spending on investment and maintenance. Efforts to contain current spending should focus especially on rationalizing poorly targeted subsidies and moderating the growth of the civil service wage bill.
- **In low-income countries**, it is often not obvious that public investment should take precedence over current spending. Ethiopia, for example, has very large investment needs in infrastructure (e.g., roads, electricity, telecommunications, and water and sanitation), but it also has urgent current spending needs in the education sector (where student-teacher ratios often exceed 100 to 1) and the health care sector (which only has one doctor for every 50,000 persons). Improving the quality of public primary education and public health care would probably require higher current spending (to employ more teachers, doctors, and nurses), even after allowance for needed efficiency gains in these areas. Overall, it is not clear whether infrastructure investments per se would have higher returns than current spending, and it seems

likely that these will have to go hand in hand, to avoid creating new bottlenecks to economic growth.

24. **Governments seeking to increase public investment faster than public saving should ensure that macroeconomic sustainability is safeguarded.** First, public investment increases should be limited to amounts that remain consistent with a moderate or declining debt-to-GDP ratio over the medium term under a meaningful range of stress-test scenarios. Second, increases should be concentrated on high-priority and high-return projects in bottleneck sectors. Identifying such projects usually requires strengthening technical capacities to evaluate and prioritize potential projects; achieving the anticipated returns will often also require improvements in project oversight and management. Third, complementarities between different infrastructure and non-infrastructure investment need to be taken into account, when increasing or reprioritizing public investment spending. Fourth, sound cost-benefit analysis will often suggest that it is preferable to invest in the rehabilitation and upkeep of existing infrastructure rather than in new projects (which may have greater political appeal). Also, in most cases (i.e., except for clearly wasteful projects) priority should be given to the timely completion of ongoing projects, rather than the initiation of new ones, as interruption or delays in the execution of investment tend to result in cost overruns. And, finally, in assessing the appropriateness of new investment, it is important to take into account the recurrent costs involved in the operation and maintenance of completed infrastructure.

C. Improving Institutions for Investment Planning and Project Evaluation

25. **Having in place effective project appraisal procedures is fundamental for obtaining value for money.** A first step in evaluating potential public investment projects is to determine whether they are worthwhile on the basis of standard cost-benefit criteria. This involves assessing economic and social returns to the project. The extent to which the government can capture the economic returns—directly through user charges or indirectly through higher taxes—then has to be assessed. Finally, the net (economic or social) returns should exceed the government’s marginal cost of borrowing. Making each of these calculations is complicated, and only Chile among the pilot countries has established a solid reputation for quality project appraisal, although the importance of strengthening capacity in this area is clearly recognized in other countries as well.

26. **More generally, sound public investment decisions require effective institutions for investment planning and project evaluation.** In most countries, there is significant scope for improvement in this area.²⁸ Several broad lessons can be extracted from the analysis of country experiences.

- **Even in countries with a long-standing tradition of public investment planning (e.g., Brazil), inadequate priority is often given, in allocating budgetary**

²⁸ Appendix Table 11 shows country experiences with investment planning and evaluation systems.

resources, to the maintenance and rehabilitation of existing infrastructure. Also, politicians tend to favor new projects, at the cost of delaying the completion of ongoing ones.²⁹

- **A “bottom-up” sectoral approach, where different ministries propose their own priority projects may be useful, provided it is accompanied by a strong oversight agency or central institution responsible for screening and further prioritizing proposed sectoral public investment projects.** The Chilean experience, which provides for a strong role of the Budget Department of the Ministry of Finance in the assessment and prioritization of new projects proposed by sectoral ministries, represents a useful model in this respect.
- **There is a need to establish mechanisms to closely monitor projects under execution and to evaluate them ex-post.** It is not unusual for projects that are initially projected to be profitable, to suffer implementation problems that reduce their overall profitability. In any case, ministries of finance need to coordinate closely with both the relevant sectoral ministries and other oversight agencies (e.g., a planning ministry or department) in the process of implementation.
- **Finally, in low-income countries (e.g., Ethiopia and Ghana) it is important to develop domestic mechanisms for investment planning.** Public investment planning seems to be working reasonably well, mainly because of donor involvement: given that the majority of investment projects are financed through external resources, donors usually carry out the cost-benefit analyses and other planning and monitoring functions. However, donor oversight is not a substitute for strengthened domestic institutions. With increasing domestically financed capital expenditure, it is particularly important to strengthen domestic capacity and institutions for selecting, implementing, and monitoring these investments.

27. **International financial institutions can provide assistance to their member countries in strengthening capacity in these areas through appropriate technical assistance and training activities.** In particular, the World Bank and other multilateral development banks can play a key role in this area, given their expertise in project evaluation and implementation. Fund staff, in cooperation with these agencies, is planning a series of high-level seminars in the course of FY2006 on strengthening public investment planning, budgeting, and implementation, as well as on fiscal issues relating to PPPs. The first of these seminars, for Latin American officials, is scheduled for April 25–27, 2005 in Brasilia.

²⁹ This may also require changing incentives for politicians. Robinson and Torvik (2005) have shown that it may be more beneficial for politicians to spend funds on new white elephant projects rather than on maintenance of existing efficient projects whenever white elephant projects influence political outcomes and a large value is attached to being in power.

Box 1. India and Brazil: Challenges for Increasing Public Saving in a Federation

Given the currently relatively high levels of the public debt in India and Brazil, a sustained increase in public investment will largely depend on increasing public saving in both countries. The federal nature of these countries, and the substantial degree of spending decentralization in both, make this objective especially challenging.

In India, the central government needs to strengthen incentives for subnational governments to increase their savings. Almost 60 percent of public investment in India is implemented by the states and much of it is mandated by the constitution. However, states face significant fiscal constraints to increase investment through borrowing, given high and rising levels of debt in most of them. Options to increase state savings should focus on revenue mobilization (in particular through the introduction of a VAT), but expenditure restraint is also crucial. Some states have begun to reduce wages, increase user charges to limit subsidies, and reform pension systems for their employees. Others, however, are lagging behind, and at the aggregate level, states are still running significant current deficits. Appropriate fiscal responsibility legislation could help sustain and broaden this effort. However, sanctions for non-performance are needed. For instance, a comprehensive borrowing cap could help close off-budget borrowing loopholes exploited by states in the past. Also, it is vital to increase the share of transfers to states that are conditional on good fiscal performance. At the municipal level, revenue and expenditure assignments need to be reviewed, to ensure appropriate matching between spending responsibilities and resources, in particular given the expected continued growth in urbanization.

In Brazil, the Fiscal Responsibility Law has been instrumental in improving fiscal performance at the subnational level. As in India, subnational governments are responsible for a large share of public investment in Brazil. However, in contrast to the experience in India, fiscal performance has improved significantly at the subnational level in recent years, with the primary balance of states and municipalities shifting from a deficit of 0.5 percent of GDP in 1997 to a surplus of about 1 percent of GDP in 2004. The improvement in the finances of subnational governments was underpinned by the successful restructuring of the states' debt in the late 1990s and by the Fiscal Responsibility Law (FRL of 2000),¹ which envisaged ceilings on subnational debt and on payroll spending in relation to revenues, and stipulated strict transparency and reporting requirements for the subnational, as well as the national, governments. Despite this improvement, debt levels remain high in several states, requiring higher savings to finance additional investments. As at the federal level, increasing savings would critically depend on reforms of the civil service, the pension system, and revenue earmarking in states and municipalities.

¹ In Brazil, the FRL sets a general framework for budgetary planning, execution, and reporting, applicable to all levels of government and supported by strict sanctions for non-compliance.

IV. THE COVERAGE OF FISCAL INDICATORS AND TARGETS

A. Background

29. **The coverage of national fiscal statistics varies significantly across the Fund membership.** While in Latin America fiscal statistics tend to encompass the general government and the public enterprises (PEs), in other regions coverage is frequently restricted to the general government, or even to the central government when information on the operations of subnational governments is of poor quality or subject to long delays. As documented in SM/04/93, the uneven coverage of national fiscal statistics is generally mirrored in fiscal indicators used for Fund surveillance and fiscal targets under Fund-supported programs.

30. **Inadequate coverage of PE's operations in the fiscal accounts can, however, pose significant fiscal risks, and weaken the effectiveness of surveillance and program conditionality.** In many countries, some or most PEs undertake quasi-fiscal activities (QFAs) without appropriate and transparent compensation through the budget; and often they are subject to political interference or mismanagement that leads them to borrow irresponsibly and undermines their profitability. Historical experience suggests that PEs which consistently run losses and/or accumulate excessive debt frequently end up being bailed out by governments (as their main or sole shareholder). Given that PEs are at least a potential source of fiscal risk, it is important that, at a minimum, their operations are systematically monitored by governments, and reported to the public with adequate frequency and a degree of detail that allows a proper evaluation of such risk. For this reason, the *2001 Government Finance Statistics Manual (GFSM 2001)* recommends the compilation of accrual-based statistics on the operations of PEs and the nonfinancial public sector.³⁰

31. **A related question is whether PEs should be covered by the fiscal indicators and targets on which national fiscal policies, Fund surveillance, and Fund-supported programs are based.** Those who favor limiting the coverage of fiscal indicators and targets to government operations argue that subjecting commercially run PEs to fiscally motivated constraints can distort their business decisions, and in particular limit their freedom to invest in economically sound projects, with potentially adverse consequences on their ability to compete domestically or internationally. Those who favor covering PEs emphasize the risks their operations can pose for government finances. One way to address both sets of concerns

³⁰ *GFSM 2001* refers to a PE as a nonfinancial public corporation, defined as a corporation controlled by a general government unit. Government control can mean majority government ownership, government appointment of the board and management, or government authority or substantial influence over business decisions and operations. Government-controlled entities that sell most of their output at "economically significant prices" (i.e., prices that influence supply and demand) are classified as nonfinancial public corporations. Otherwise, they are classified as general government units. *GFSM 2001* also requires the compilation of fiscal statistics on a cash basis and their reconciliation with accrual data.

would be to reflect in fiscal indicators and targets only the QFAs of public enterprises and the contingent liabilities they impose on government. However, the quantification of QFAs, and to a lesser extent contingent liabilities, poses challenges that make this approach impractical. This being the case, SM/04/93 recommended the exclusion of the operations of commercially run PEs from fiscal indicators and targets.

32. **To this end, the staff outlined nine criteria that could be used in assessing whether or not individual PEs are commercially run.** These criteria related to four broad areas of performance:

- Managerial independence—(1) pricing and (2) employment policies;
- Relations with the government—(3) subsidies and transfers, and (4) regulatory and tax regime;
- Financial conditions—(5) profitability and (6) creditworthiness; and
- Governance structure—(7) stock listing, (8) outside audits and annual reports, and (9) shareholders' rights.

A PE would be considered commercially run if it met criteria (1)–(4), and at least one each of criteria (5)–(6) and (7)–(9). It was proposed that these criteria would be tested in the pilot studies, and the staff would report to the Board on any changes/refinements that would appear appropriate on the basis of these tests.

B. Results from the Pilot Country Studies

33. **The commercial orientation of public enterprises was assessed in six of the pilot country studies, using the criteria listed above.**³¹ The results are summarized in Box 2 and Table 9. Out of 115 PEs assessed, only three were judged to be commercially run—a Colombian electricity firm (ISA), and two Jordanian firms (Arab Potash and Jordan Telecom). An implication of these results is that there would appear to be little scope to provide additional room for investment in the pilot countries by excluding commercially run PEs from the coverage of fiscal indicators and targets. Rather, the approach proposed in SM/04/93 would seem to justify the retention of PEs in the coverage of fiscal indicators and targets in the pilot countries in Latin America, and to point to the need to broaden such coverage to PEs in the other countries.

³¹ In India, which has a large PE sector, data availability prevented an assessment. However, in India PEs are sorted into two main groups, with one enjoying broader autonomy in response to a demonstrated record of efficiency. Those PEs deemed undeserving of a higher degree of autonomy run deficits of the order of 1.5 percent of GDP a year, primarily due to QFAs and overstaffing.

Box 2. Highlights of Country Analyses of Public Enterprises

Brazil. Fiscal aggregates include public enterprises at all levels of government. No PE was found to fully meet the criteria set out in SM/04/93. Among others, this reflected the fact that all federal enterprises must submit their wage policies for government approval (the government also controls the employment policies of most enterprises), their investment plans require the approval of Congress, their top managers are often replaced when the government changes, and their financial management is subject to certain restrictions. In addition, some PEs have been making losses and engage in quasi-fiscal activities. Brazil's most recent arrangement with the Fund included an adjustor which allowed the profitable national oil company, Petrobrás, to increase its investment relative to the program baseline without requiring offsetting fiscal measures.

Colombia. The main fiscal account data include most large PEs; recently, a utility company, ISA, was removed from the fiscal accounts, using the criteria set out in SM/04/93. The authorities want to reform some PEs to enhance their commercial orientation and limit fiscal risks.

Ethiopia. The main fiscal account data exclude PEs, which are numerous and account for a significant fraction of economic activity (6 percent of GDP). Several of the largest PEs were examined, and not one met the criteria set out in SM/04/93. The PEs examined tended to show signs of excess employment, and to engage in quasi-fiscal activities, including through cross-subsidization. None is listed in a stock exchange, and many enjoy important tax advantages. Most of them, however, seemed to be tightly controlled through government appointment of their boards, which may limit their fiscal risks.

Ghana. There is a large number of wholly- or majority-owned PEs that are excluded from the main fiscal aggregates. These were generally found to engage in quasi-fiscal activities, mainly the implementation of social policies by pricing below cost. There is no central monitoring of PEs.

Jordan. There is a large number of PEs, none of which is covered in the main fiscal aggregate. Some are tightly controlled, with their budgets approved by the cabinet. Some of the largest ones are run more autonomously, even though they still operate under some entity in the government. Two large enterprises appeared to meet the criteria for commercial orientation.

Peru. As set out in the fiscal responsibility law (FRL), all PEs at all government levels must be included in reported fiscal aggregates. At the national level, there are more than 30 PEs, which are controlled by a holding company. The holding company sets annual limits on the wage bill and targets for financial results of its affiliates, consistent with the achievement of the fiscal balance targets required by the FRL. Many PEs have very low profit rates, and all must have their investment programs approved; but they are largely free of debt and, where applicable, are treated by regulators on a par with private competitors. No PE fully met the criteria set out in SM/04/93.

Box 3. Revised Criteria for Assessing Fiscal Risks of Public Enterprises

I. Managerial independence

Pricing policy. For producers of traded goods and services, were average prices over the last year within 10 percent of the relevant international benchmark? For producers of nontraded goods, are prices set to cover costs? In regulated sectors, is the tariff setting regime compatible with the long-term sustainability of the PE, and is it the same for private firms in the sector?

Employment policy. Is personnel policy independent of civil service laws? Does the government intervene in wage setting and hiring, and, if there is government intervention, is it clearly justified by the need to address specific risks (for example, is it a response to overstaffing pressures)?

II. Relations with the government

Subsidies and transfers. Over the last three years: (i) has the government provided direct or indirect subsidies and/or explicit or implicit loan guarantees which go beyond those given to private enterprises (either in the same industry or elsewhere, as applicable)?; and (ii) has the PE made any special transfers to the government?

Quasi-fiscal activities. During the last three years, has the PE performed uncompensated functions or absorbed costs which were not directly related to its business objective and/or substituted for government spending?

Regulatory and tax regime. Is the PE subject to the same regulations and taxes as private firms in the industry?

III. Governance structure

Periodic outside audits. Are these carried out by a reputable *private* accounting firm applying international standards, and published? Are large PEs audited by a major international firm?

Publication of comprehensive annual reports. Are annual reports published, and do they include the audited balance sheets, profit and loss statements, information on off-balance sheet liabilities, levels and changes in the PE's overall activity, employment and investment, and comparisons against other firms in the industry and against international benchmarks?

Shareholders' rights. Are minority shareholders' rights protected? What form does this protection take?

IV. Financial conditions and sustainability

Market access. Is the cost of debt over the last three years within one standard deviation of the industry-wide average over the same period? Can the PE presently borrow at rates similar to those faced by private firms without a government loan guarantee?

Less-than-full leveraging. Is the PE's debt-to-asset ratio comparable to the industry average?

Profitability. During the last three years, has the ratio of operating balance to assets been significantly below the industry average? Where no relevant comparator is available, this ratio should be positive and higher than the average cost of debt.

Record of past investments. Can the PE provide evaluations of past investments, demonstrating an average rate of return at least equivalent to that required by cost-benefit analysis to approve new projects?

V. Other risk factors

Vulnerability. Does the PE have sizeable contingent liabilities relative to its operating balance? Is there a currency mismatch between the enterprise's main sources of revenue and its debt?

Importance. Is the PE large in some significant dimension (for example, debt service, employment, customer base)? Does it provide essential services?

Table 9. Assessment of the Commercial Orientation of Public Enterprises

Country	Enter-prises assessed	Number judged to be commercially run	Average number of criteria met	Number meeting all areas except independence	Area of weakest performance
Brazil	21	0	4.0	8	Managerial independence
Colombia	14	1	4.5	8	Managerial independence
Ethiopia	4	0	2.3	0	Managerial independence
Ghana	32	0	4.5	2	Relations with government Financial conditions
Jordan	11	2	4.5	4	Managerial independence
Peru	33	0	5.5	13	Managerial independence

Source: IMF staff estimates.

34. **The pilot studies, however, also raised questions as to whether all the criteria proposed are appropriate indicators of the degree of fiscal risk posed by PEs.** In revisiting the criteria, those related to managerial independence warrant particular attention. It is apparent from Table 9 that this is in almost all cases the area of weakest performance. However, this may be the inevitable consequence of public ownership. The intent of these criteria was to isolate government interference as the root cause of QFAs. However, the pilot studies revealed that there may be legitimate reasons for governments to limit the independence of PEs. These may include: to regulate pricing policies of PEs in monopoly positions; to constrain their wage increases as part of an incomes policy; and even to impose certain QFAs, e.g., for social reasons, as long as they are compensated through transparent transfers from the budget.

35. **In the course of the pilot studies, country authorities also highlighted other ways in which the criteria could be refined.** More specifically, they suggested that:

- greater emphasis could be given to economic and financial performance, including rates of return on past investments, and to the sustainability of PEs, including whether they are investing enough to remain viable;
- more importance could also be attached to transparency in the form of observance of codes of good governance and the completion of audits by reputable private firms adhering to international standards;
- the review of pricing policies should be sensitive to the fact that some PEs operate in regulated sectors. In these cases, the key question may be whether tariff-setting rules for private firms and PEs are the same;
- the assessment of profitability should focus on the operating balance. Also, some PEs have no obvious comparator in the private sector and their accounting may be difficult to interpret, which would call for using broader benchmarks of performance; and finally,

- the analysis of subsidies should recognize that even some private firms perform QFAs and receive subsidies. It is therefore important to look at whether subsidies to PEs are transparent, implemented through the budget, and available to private competitors.

C. The Way Forward

36. **Based on the considerations above, the staff proposes a modified approach to the coverage issue.** Specifically:

- **Over time, all member countries should begin to systematically compile and disseminate statistics on the operations of their PEs according to *GFSM 2001* standards.** It is recognized that, in many countries, given existing data and capacity limitations, this process is likely to take time. This being the case, priority should be given to covering those PEs that are relatively large and/or are for other reasons judged to pose substantial fiscal risks. It would be desirable that industrial countries, where information on individual PEs is more generally available, lead the way in the compilation of aggregated statistics on a consistent basis for their PEs. In future Article IV consultations, staff should discuss with the authorities, and report to the Board, the governments' plans and time horizon for this task. Within available resources, the Fund could provide technical assistance to countries with more limited capacity, to help them implement these plans.
- **The coverage of PEs (or a subset thereof) in fiscal indicators and targets on which national fiscal policies, Fund surveillance, and Fund-supported programs are based, should be informed by an assessment of the degree of fiscal risk posed by their operations.** To assist in such an assessment by both national authorities and Fund missions, the staff has revised the criteria tested in the pilot studies, to better adapt them to diagnose fiscal risks, and to take into account the comments received from country authorities. In the case of managerial independence, the criteria have been refined to allow a judgment as to whether certain government interventions (e.g., in wage and employment policies) can be justified on the basis of legitimate public policy objectives and are not likely to adversely affect PE finances. Also, the consideration of pricing policy explicitly allows for sound regulatory interventions. In the case of governance, greater emphasis has been placed on the standards to be observed in connection with outside audits and reporting. In the case of financial conditions, the focus is on the consistency of signals from the various indicators, with a view to gathering a critical mass of evidence about the financial health and robustness of a PE. Finally, some additional specific sources of risk have been identified, which should be used to put into perspective the strengths and weaknesses identified in applying the other criteria.

37. **The comprehensive information that would be elicited by applying the revised criteria should provide the basis for a better judgment of the fiscal risks posed by individual PEs, and consequently for a more appropriate decision on their inclusion in**

fiscal indicators and targets. It should be recognized, however, that the revised criteria are more demanding analytically and informationally than the criteria tested in the pilots, and making a judgment on their basis, rather than applying a mechanical rule, will require greater care. Therefore, their use may involve significant resource costs in both surveillance and program design by Fund staff. To help gauge such costs, it is proposed that the revised criteria be used by upcoming Article IV consultation mission teams—where necessary with additional support from FAD—in a sample (say two or three per region) of advanced economies, emerging market economies, and developing countries across all area departments, to identify major PEs that are judged to pose sufficiently large fiscal risks to warrant their inclusion in fiscal indicators used for surveillance and fiscal targets under Fund-supported programs. In countries, such as those in Latin America, where focus is at present on the consolidated public sector, the revised criteria can be used to analyze whether the exclusion of certain PEs from fiscal indicators and targets would appear to be justified by the low degree of fiscal risk posed by them. The results of these analyses would be reported to the Board in the relevant Article IV consultation papers. The experience so accumulated may justify further refinements of the criteria in the future. It is important that the coverage of fiscal indicators and targets in individual countries be kept under review, and be modified, as needed, if new information were to change the assessment vis-à-vis the criteria in Box 3, or otherwise suggest a significant change in fiscal risks posed by some PEs.

38. **The exclusion of certain PEs currently covered by fiscal indicators and targets should in principle provide additional room for these enterprises to increase their investment.** This is, of course, subject to the proviso that any additional borrowing incurred to finance such investment is consistent with maintaining sound financial (debt and profitability) indicators. Still, if the retained earnings of these PEs had made significant positive contributions to the government's fiscal position, their exclusion from the fiscal targets may point to a need for tightening the government's fiscal stance to ensure fiscal sustainability.³² To the extent that the required improvement in the fiscal position would be achieved through an increase in government saving (rather than a cut in government investment), the exclusion of these PEs from fiscal targets could well lead to an overall increase in investment. As regards investment undertaken by PEs which continue to be included in fiscal indicators and targets, the scope for such investment should be assessed in the same way as with investment by the government.

39. **Finally, a flexible approach is proposed to the consolidation of the operations of covered PEs with the general government in specifying fiscal indicators and targets.** Consolidated public sector accounts certainly have value in terms of measuring the overall fiscal impact of public sector operations, while the component parts of consolidated public sector accounts should be reported separately anyway, so that fiscal developments can be traced to their source. But the decision on whether fiscal reporting and monitoring, and fiscal

³² This may well be the case in some Latin American countries, where e.g., the oil companies account for a sizeable share of the consolidated public sector primary surplus, but for little of its debt.

indicators and targets, should focus on the consolidated public sector, or the general government and PE sectors separately, is one that should be taken on a country-by-country basis. Relevant factors that could influence such a decision include the compatibility of data for the two sectors, the headline fiscal indicators that are most relevant to each sector, the desirability of setting explicit fiscal targets for the PE sector as a way of influencing directly its financial performance, and the extent to which retaining current headline fiscal indicators for the government may make country authorities more prepared to extend coverage to PEs.

V. PUBLIC-PRIVATE PARTNERSHIPS

40. **A number of the pilot countries have embarked upon PPPs to promote the private sector supply of infrastructure assets and infrastructure-based services.** These include Chile and Colombia, which have had PPP programs for a number of years, and Peru, which is relaunching its PPP program. In addition, Brazil and India are beginning to move in this direction.

41. **The pilot countries studies largely confirmed the validity of the main conclusions related to PPPs in SM/04/93.** In summary, these were the following.

- Well-structured and implemented PPPs offer the prospect of sizeable efficiency gains in the construction of infrastructure assets and the provision of infrastructure-based services. However, key requirements for success in this regard are that: the quality of services be contractible; there be competition or incentive-based regulation; there be adequate risk transfer from the government to the private sector; the institutional framework be characterized by political commitment, good governance, and clear supporting legislation; and the government be able to effectively appraise and prioritize public infrastructure projects, and correctly select those that should be undertaken as PPPs.
- While PPPs can ease fiscal constraints on infrastructure investment, they can also be used to bypass spending controls, and to move public investment off budget and debt off the government balance sheet. If this is the case, the government can be left bearing most of the risk involved in PPPs and facing potentially large fiscal costs over the medium to long term.
- In the absence of an internationally agreed fiscal accounting and reporting standard for PPPs, the known future costs of PPPs deriving from the government's contractual obligation to purchase services from the private sector, as well as the potential future costs associated with the provision of government guarantees to private operators, should be disclosed and taken into account when undertaking DSA.

42. **The case studies nevertheless provided some useful further insights into the design and implementation of PPP programs.** These relate to: institutional requirements; the coverage of PPPs; risk transfer, government guarantees, and fiscal risk; disclosure requirements; and debt sustainability.

A. Institutional Requirements

43. **The case studies point to the importance of a sound legal framework that covers all aspects of the PPP process.** In particular, the comparative success of Chile's concessions program can be attributed in significant measure to the fact that it is backed by a comprehensive concessions law that addresses not only the basic requirements for effective concessions (the bidding process, rights and obligations of parties, property appropriation etc.), but also the treatment of possible disputes and the cancellation and transfer of contracts. The importance of a sound legislative framework is widely recognized. Thus, PPPs in Colombia have been governed so far by the law on public sector contracting, but this is to be replaced by an omnibus law that draws on relevant provisions in other laws, including a new law on investor confidence. Brazil has recently enacted a PPP law, although some forms of PPPs were already governed in part by legislation on concessions and procurement, and by the transparency requirements of the fiscal responsibility legislation. In Peru, it is acknowledged that the relaunching of the concessions program needs to be accompanied by a strengthening of a lax legal framework. In India, while there is a recognition of the need for a comprehensive legal framework, the current emphasis is more on reducing regulatory barriers and demonstrating sustained political commitment to private sector involvement.

44. **In addition, the decision to undertake a PPP has to be well informed.** This is a two-stage process. The first stage is to decide whether a particular project is worthwhile, and this decision should be based on sound investment planning and project appraisal system, as discussed in Section III. The second stage is to decide whether a worthwhile project should be undertaken by the government directly or as a PPP. This decision should be based on a comparison of traditional public investment, and government or contracted-out supply of services, with the PPP alternative. To inform such a decision, the government should prepare a *public sector comparator* indicating the cost of public provision, which can be used as a benchmark for determining whether the best private sector bid for a PPP contract—which will reflect the efficiency gains from private provision, higher private sector borrowing costs, and the costs to be borne by the government under the PPP—offers better value for money for the government. The use of public sector comparators is the norm in advanced economies with considerable experience with PPPs, and Chile is making increasing use of them to ensure that PPP projects offer good value for money.

45. **Taken together, a sound legal framework and well-informed decision-making should help to address problems with PPP programs to date.** In Latin America and elsewhere, PPP projects have suffered design flaws, which have resulted in extensive guarantees and frequent renegotiation; bad projects have not successfully been filtered out, and winning bidders have sometimes been the best connected, with overall value for money suffering as a consequence. However, to fully respond to these problems, it is also necessary to ensure that bidding is openly competitive, contract design provides the government and the private sector with the right incentives, and winners are appropriately regulated.

B. Coverage of PPPs

46. **Experience suggests that PPPs may be well suited to providing economic infrastructure.** This is primarily the case for three reasons. First, sound projects that address clear bottlenecks in roads, railways, ports, power, etc., are likely to have high economic rates of return, and therefore to be attractive to the private sector. Second, in economic infrastructure projects, the private sector can be made responsible not only for constructing the infrastructure, but also for providing the principal services related to it, and tailoring asset design specifically to this purpose. Third, to the extent that these services are supplied directly to final users, charging is both feasible and, from an efficiency standpoint, desirable. Thus, the emphasis on using PPPs to build and operate toll roads in Chile, Colombia, Peru, and elsewhere seems justified. However, such a judgment should be supported by reference to the results of technically sound project appraisal and the application of a public sector comparator, and it does not imply that PPP-built and -operated toll roads are the sole answer to road transport bottlenecks in these countries.

47. **Social infrastructure is somewhat different, and may be a less appropriate candidate for PPPs than economic infrastructure.** While it is clear that many social investment projects are worthwhile, the private sector is not usually the principal supplier of social services. Thus, PPPs may be formed to build public schools and hospitals and to maintain them, but education and health care are still provided by the government. Moreover, charging for government-supplied social services is not commonplace. Hence, it is less likely than with economic infrastructure that PPPs are more efficient than public investment or than contracting out maintenance of schools, hospitals and other social infrastructure.³³ This is clearly recognized in Chile, where greater use is being made of public sector comparators because proposals for PPPs are made increasingly in areas outside core economic infrastructure, and where there is likely to be public resistance to charging.

C. Risk Transfer, Government Guarantees, and Fiscal Risk

48. **Project risk should be borne by the party that can manage it best, and the fact that construction and operating risk is typically borne by the private sector reflects this.** However, there are risks that the government controls and has to bear—most obviously political and regulatory risks—and risks that it can influence but may or may not have to bear—such as demand, exchange rate, and residual value risks. Colombia is particularly clear in outlining which party should bear which type of risk. As discussed in the background paper on Government Guarantees and Fiscal Risk (SM/05/120), the provision of a government guarantee to private operators may be an appropriate public policy response when the government bears risk. However, guarantees must be well designed, in the sense of being appropriate and limited to the risk that they are intended to address. Also, it should be

³³ With prisons, private construction and operation are possible. There are doubts, however, as to whether all prison services are contractible; this is clearly the case for detention, but less obviously so for rehabilitation.

recognized that guarantees create contingent liabilities which are a source of fiscal risk, and that this risk needs to be evaluated and factored into DSA.

49. **The key to assessing the fiscal risk posed by guarantees is valuation, in the sense of estimating likely spending on called guarantees or pricing the guarantee as a financial instrument (and more specifically as an option).** Techniques are available to do this, but they are demanding in terms of technical capacity and information requirements. The accompanying background paper on Government Guarantees and Fiscal Risk (SM/05/120) describes these techniques and illustrates their application in Chile, where it is estimated that the contingent liabilities associated with minimum revenue guarantees provided to concession firms amount to only about ¼ percent of GDP in expected value terms. The maximum exposure is about 5½ percent of GDP, while total investment under the concessions program is around 6¼ percent of GDP. Interestingly, similar techniques applied in Colombia yield contingent liability estimates of similar orders of magnitude for a PPP program of much the same size. Both countries also set aside funds to meet the costs of called guarantees, Chile partially through an infrastructure fund, and Colombia more fully through a deposit plan which ensures that funds are available to cover 95 percent of the government's maximum risk exposure.³⁴ The latter approach would generally be more advisable where it is difficult to quantify expected calls on guarantees.

D. Accounting and Disclosure of PPPs and Incorporation in DSA

50. **As noted in SM/04/93 and SM/04/94, there is currently no internationally accepted general accounting and reporting standard for PPPs, except when they can be characterized as leases.**³⁵ In 2004, the EU Statistical Agency (EUROSTAT) issued a ruling allowing to record as private investment PPPs that transfer to the private sector the bulk of construction risk and either of the performance or demand risk. As noted in SM/04/93, this accounting treatment will likely result in the majority of PPPs being recorded as private investment (as the private sector typically bears construction and performance risk), with no recording of the fiscal implications of such operations when they are first undertaken. Although discussions are ongoing in various international accounting and statistical standard-setting bodies on the appropriate treatment of PPPs, current indications are that this treatment will eventually likely be based on the degree of risk transfer to the private sector. While it is to be hoped that the standard that will emerge from these discussions will be tighter than the one set by EUROSTAT, there remains a substantial risk that some governments may be tempted to tailor PPPs to meet the requirements for their classification as private investment, by trading off higher project costs for increased risk transfer to the

³⁴ The recently enacted PPP law in Brazil also provides for the setting up of a fund, backed by marketable government assets. But, in this case, the aim is to shield PPP investors from the risk of nonpayment by the government of future contractual obligations.

³⁵ There are also emerging private sector disclosure requirements for service concession arrangements that could influence an eventual public sector standard.

private sector. This would both defeat the objective of using PPPs for efficiency gains, and disguise the medium-to-long-term implications of many PPPs for the public finances.

51. **With a view to counteracting these risks, the staff proposes an approach which would emphasize both comprehensive disclosure of the known and potential future costs of all PPPs for the public finances, and their incorporation in DSA.** Specifically, as regards disclosure, Box 4 sets out proposed requirements, including the details to be provided in a statement on PPPs to be included as an annex to budget documents and end-year financial reports.

52. **As regards the incorporation of PPPs that are accounted as private investments in DSA, it is recommended that future payments by the government under PPP contracts and expected future payments arising from called guarantees be counted as future primary spending,** in calculating the primary balance path required for debt sustainability. This contrasts with the recommendation contained in SM/04/93, that they be counted as liabilities and added to the debt when the PPP is undertaken. These two approaches are analytically equivalent, but counting future payments by the government under PPP contracts as a liability is unlikely to be accepted by accountants and statisticians. For PPPs that are accounted as public investment, the service component of future payments by the government under the contracts should be counted as primary spending, while the debt service component should be separated out and included in the overall projected interest and amortization payments. Where contingent liabilities associated with PPPs cannot be reliably quantified, the emphasis should be on scenario analysis to stress-test baseline debt projections with respect to different assumptions about calls on guarantees, with a general presumption that, all other things being equal, DSA should be more cautious in countries that have provided extensive guarantees.

53. **If the DSA points to significant risks being entailed by a proposed PPP program, staff should recommend to the authorities, in the context of surveillance, the imposition of a cap on the overall size of the program. For countries under a Fund-supported program, such a cap could be included in program conditionality.** The ceiling could usefully be specified in relation to the capacity of the country to service future obligations under the PPP program, proxied by its future stream of revenues. Noteworthy in this respect is the stipulation in the recently enacted PPP law in Brazil that prohibits undertaking new PPPs if the projected stream of payments under the program exceeds 1 percent of government revenue in any future year.

Box 4. Comprehensive Disclosure Requirements for PPPs

Information on PPPs should be disclosed in budget documents and end-year financial reports. In countries with significant PPP programs, disclosure could be in the form of a *Statement on PPPs*. In addition to an outline of the objectives of the current and planned PPP program, and the capital value of PPP projects that are at an advanced stage of bidding, for each PPP project or group of similar projects, information should be provided on:

- Future payment obligations for the following periods: 1–5 years; 5–10 years; 10–20 years; over 20 years.
- Significant terms of the project(s) that may affect the amount, timing, and certainty of future cash flows, valued to the extent feasible (e.g., contingent liabilities, the period of a concession, the basis upon which renegotiation is determined).
- The nature and extent of rights to use specified assets (e.g. quantity, time period, or amount as appropriate), obligations to provide or rights to expect provision of services, arrangements to receive specified assets at the end of the concession period, and renewal and termination options.
- Whether the PPP assets (or any part thereof) are recognized as assets on the government's balance sheet, and how the project affects the reported fiscal balance and public debt.
- Whether the PPP assets (or any part thereof) are recognized as assets either on the balance sheet of any special purpose vehicle, or in the private partner's financial statements.¹
- Any preferential financing for PPPs provided through government on-lending or via public financial institutions.
- Future expected or contingent government revenue, such as lease receipts, revenue or profit-sharing arrangements, or concession fees.
- Any project financing or off-balance sheet elements such as contingent liabilities provided by entities owned or controlled by government.

Signed PPP contracts should be made publicly available. Within-year fiscal reports should indicate major new contracts that have a short-term fiscal impact.

¹/ The suggested disclosure of the private partner's accounting treatment has been made by Heald (2003). While there is no question of enforcing symmetrical accounting treatment by the government and private partner, any lack of symmetry may point to areas worthy of scrutiny, especially if no part of the PPP asset is on either balance sheet.

VI. CONCLUSIONS

54. **Public infrastructure investment and rehabilitation needs are sizeable in most pilot study countries, but they are difficult to quantify.** Estimates show a wide variance, are usually predicated on an assumption of catching up with more advanced countries, and do not take into account a country's financial and macroeconomic constraints or its absorptive capacity. Yet, there are clear infrastructure bottlenecks in many of the pilot countries.

55. **Although sustained changes in public investment can be expected to affect economic growth over time, establishing such a relation in the pilot countries was hampered by data limitations and staff resource constraints.** Ambiguous evidence from simple statistical exercises does not of course mean that such a relationship does not exist. Rather it likely points to the complex and nonmonotonic nature of the relationship, and to the need to carry out further research on the channels through which public investment affects economic growth. Robust results from further research in this area in turn could eventually be used as inputs into debt sustainability analyses by countries, as well as by the Fund staff.

56. **The pilot studies confirm that many countries have limited scope for increasing public investment by relaxing overall fiscal targets.** This is particularly true for countries with an already high public debt burden, and significant vulnerabilities to adverse shocks. In these countries, increases in public investment will need to be accompanied by a commensurate increase in public saving through expenditure reprioritization, and, where appropriate, revenue mobilization. Countries with a relatively low debt burden or countries that can secure additional concessional financing on a sustained basis, consistent with long-term debt sustainability, would have more policy options available. In increasing public investment, priority should often be given to maintaining and rehabilitating existing infrastructure, over embarking on new projects.

57. **In most of the pilot countries, there appears to be a clear need to improve the quality and efficiency of public investment.** In deciding overall spending allocations, governments usually face important trade-offs between public infrastructure spending and other public spending (e.g., in health and education). More generally, they also face a trade-off between taxes and expenditure. These various trade-offs will have to be addressed on a case-by-case basis. This requires strong budgetary procedures and institutional frameworks, including for prioritizing, implementing, and monitoring public investment projects and programs. Given their expertise in these areas, the World Bank and other MDBs should continue to take the lead in assisting countries in strengthening their capacity to carry out these tasks. At the same time, further research is needed on how countries can improve the composition of public spending, given existing financing and absorptive capacity constraints.

58. **In addition, in many of the pilot countries there is also a need to strengthen the policy and institutional frameworks affecting private investment.** Investment climate surveys that have been carried out in four of the eight pilot countries have shown that the top-ranked concerns of private investors included high tax rates; economic and regulatory policy uncertainty; macroeconomic instability; corruption; and the cost of financing.

Infrastructure-related issues ranked at the bottom of investor concerns. This is not unlike the findings for the whole sample of 53 countries surveyed by the World Bank, which showed policy uncertainty and macroeconomic stability as the top-ranked investor concerns. Hence, while more public infrastructure spending would have a positive short-run impact on output by increasing aggregate demand, its longer-term effects on growth would largely depend on the extent that other key concerns of potential private investors are addressed.

59. **The pilot studies raised questions as to whether an assessment of the appropriateness of including public enterprises in fiscal policy indicators and targets should be based solely on their commercial orientation.** The pilot studies concluded that hardly any public enterprise meets the criteria proposed in the previous staff paper (SM/04/93) for being judged commercially run. The studies also suggested, however, that in the assessment more emphasis should be placed on the extent of fiscal risks posed by the operations of individual public enterprises. The staff is therefore proposing a more flexible approach, whereby the inclusion of all or a subset of public enterprises in fiscal indicators and targets used by national authorities, and by Fund staff in surveillance and program design, should be based on the assessment of the fiscal risk they entail. This assessment would be informed by a revised set of criteria (detailed in Section IV above). The staff continues to urge a progressive extension of the coverage of national statistics to all public enterprises, to ensure timely reporting and monitoring of their finances.

60. **PPPs are often viewed as offering an alternative to public investment, but they are no panacea and raise important concerns for the fiscal accounts.** While the demand for PPPs will continue to grow, it is important to ensure that PPPs are carried out for the right reasons (i.e., increasing efficiency) rather than driven by desires to move expenditure off budget. Strengthening the institutional framework for PPPs (including disclosure requirements and, when appropriate, ceilings on PPP programs) so as to limit contingent liabilities and other fiscal risks, should be given high priority.

61. **Finally, it should be noted that the recommendations in this paper may have significant resource implications.** On the basis of BRS/TRS data, the eight pilot studies are estimated to have involved FAD resources equivalent to 880 staff days (or 3.4 staff years) or an average of 110 staff days (or 0.4 staff years) per study.³⁶ This covers preparatory work, missions, and report writing. The comprehensive studies for Brazil, Colombia, India, and Peru were the most resource-intensive, averaging 140 staff days (or over half of a staff year). While it is difficult to break these down by the different issues covered by the pilots, the assessment of the commercial-orientation of public enterprises appears to have been more time consuming than other activities. This being the case, the staff's recommendations in this area are likely to require significant additional staff input that has to be recognized and budgeted for at the outset. The approach proposed by the staff in Section IV above, which envisages testing the criteria in a limited but representative sample of upcoming Article IV

³⁶ The contributions made by staff from other Fund departments, and the staffs of the World Bank and the IDB, all of which were indispensable for the overall work, are not included in these estimates.

consultations, should allow a better quantification of such costs over the longer term, and the design of a strategy for moving forward in this task, consistent with resource limitations.

VII. ISSUES FOR DISCUSSION

- What importance do Directors attribute to the absence of unambiguous evidence on the relation between public investment and growth in the pilot countries? What priority should be given to further analytical and empirical work on this topic, including on the channels through which infrastructure investment affects growth?
- Do Directors agree that concerns about macroeconomic stability and debt sustainability often imply that increased public saving is required to create the room for additional public investment? Furthermore, given the difficulties involved in achieving sustainable increases in revenue in many countries, do Directors agree that the emphasis should be on expenditure prioritization, and that, where necessary, project appraisal and implementation capacity should be strengthened to ensure that new investment is productive? This being the case, how do Directors view the role of different MDBs in this area?
- Do Directors support the staff's call for a comprehensive coverage of public enterprises in national statistics, preferably within the *GFSM 2001* framework? Do they endorse the proposed gradual approach to extending the coverage of public enterprises in fiscal indicators and targets? Do they agree with the proposed shift of focus from assessing the commercial orientation of public enterprises to assessing their fiscal risk potential? Do they view the revised criteria proposed by the staff as appropriate in this respect?
- Do Directors endorse the suggested disclosure and reporting requirements for PPPs? Do they agree that countries should make an effort to quantify potential costs arising from guarantees provided to the private sector under PPPs, along the lines suggested in SM/05/120? Do Directors support the staff recommendation that these guarantees and long-term payment commitments under PPP contracts, should be taken into account in debt sustainability analyses, and that in appropriate circumstances, it may be desirable to set caps on the size of the PPP program?

Appendix Table 10. Fiscal Policy and Debt Profiles

Brazil	Fiscal performance has recently been strong and debt dynamics are currently positive, but the level of net public debt is still high (about 57 percent at end-2004) and quite sensitive to interest rates and exchange rate risk. Changes in fiscal targets need to be small and take into account market perceptions about the government's continued commitment to fiscal discipline.
Colombia	The authorities are committed to a Medium-Term Fiscal Framework which aims at a gradual reduction of the public debt from 56 percent of GDP at end-2003 to 45 percent of GDP by 2010. This significantly limits the scope for relaxing fiscal targets.
India	The fiscal situation is very vulnerable and debt sustainability an issue of major concern. The general government debt has risen to 81.5 percent of GDP and contingent liabilities could be as high as 20 percent of GDP. The general government deficit exceeds 9 percent of GDP. As a result, there seems to be no space to relax fiscal targets
Jordan	Reducing the sizeable public debt burden (about 93 percent of GDP in 2004) remains a key priority for fiscal policy. DSA suggest that the debt dynamics are highly vulnerable to exogenous shocks. A sustained improvement in the debt profile requires a steady reduction in the overall fiscal deficit.
Ethiopia	Despite reaching the HIPC completion point, debt sustainability currently remains precarious. Even after HIPC, the NPV of the public debt is still 55 percent of GDP, 34 percentage points of which is domestic debt.
Ghana	The debt outlook has improved considerably over the past few years thanks to strong fiscal adjustment and HIPC completion point. However, a steady and brisk decline in the extended fiscal deficit would be required under anything but the most favorable financing scenarios.
Peru	The public debt ratio in 2004 is likely to be below 44 percent of GDP and is projected to decline further to 41 percent by 2006. Despite the recent positive debt dynamics, it would not be advisable at this point for Peru to raise public investment by increasing public debt. The public debt is still high given the fact that it is mostly denominated in foreign currency. In the short run, the conversion of debt into local currency can only happen on a small scale and at the price of shortening maturities and increasing interest rates.
Chile	At 12 percent of GDP, the public debt ratio in Chile poses no problem. Increasing public investment is not, however, a matter of immediate priority for the authorities, given the high levels of private investment and the relative success of the existing PPP schemes.

Appendix Table 11. Country Experiences with Institutions of Investment Planning and Evaluation

Brazil	A strong tradition of planning has created a comprehensive system of public financial management that can reliably track budget expenditure, but much less attention has been paid to improving public investment selection, prioritization, and management. As a result, there is a pressing need to improve the economic and financial evaluation of projects. Improvements are needed in allocating resources to infrastructure maintenance and rehabilitation, and in speeding up the execution of ongoing projects, which are often subject to long delays and in some cases never completed.
Chile	Chile has a long tradition in public expenditure evaluation, which is part of a broader government-wide performance measurement and evaluation system. About 60 percent of government expenditure is subject to some form of evaluation. Project appraisal started in the mid-1970s, and all investment projects are now subject to cost-benefit analysis. Other key tools include cost-effectiveness analysis, shadow price estimation, training in project design and evaluation, and an online integrated project databank. Project selection is done at a ministry/agency level and only projects that meet a minimum social rate of return are eligible for public funds. Chile is also advancing in ex-post performance monitoring and evaluation.
Colombia	At the national level, projects are evaluated by ministries and agencies and, once approved by the relevant unit and the Planning Department, they are included in a database of national investment projects. Investments in the annual budget are prioritized and selected from the database in consultation with the relevant ministries. The process suffers from a lack of ex-post evaluation of the performance of completed investments, and from the occasional inclusion in the budget of projects that have not gone through the due process. While similar project selection and evaluation procedures apply to investments by subnational governments, local mechanisms for project selection and evaluation are underdeveloped and hampered by capacity constraints and excessive personnel turnover.
Ethiopia	Project evaluation procedures are overall appropriate. Most infrastructure projects are externally financed. Documents are prepared by sectoral ministries and reviewed by the budget department of the Ministry of Finance and Economic Development and then submitted for approval to the Council of Ministers. Since most of the projects are subject to foreign scrutiny, the evaluations are conducted according to standard international practices. World Bank projects, for example, require a minimum rate of return of 12 percent.
Ghana	While the process of developing public sector investment plans is reasonably well developed, there is a need to strengthen the institutions and mechanisms to appraise public investment projects. While many investment projects are donor-financed and thus typically subject to international appraisal procedures, as well as sector level cost-benefit, cost-effectiveness, risk, financial, and sustainability analyses, there is a need to develop domestic capacity in this area so that the same processes can be applied to domestically-financed capital projects.
India	There have been recent improvements in the system of appraisal, selection and monitoring of investment projects at the central government level. This included establishing a two-stage approval process; weeding out unviable projects; appointing a responsible officer for each project; establishing a computerized monitoring database; setting up a standing committee in each ministry to address time and cost overruns. The authorities have also set up semiautonomous agencies to manage the construction, maintenance, and use of infrastructure assets. They have been relatively successful but need to be fully consolidated into general government accounts. However, budget processes have not captured the recurrent implications of capital spending, in part due to a focus on annual budgets. A new multi-year rolling budget is being piloted in the Ministry of Finance, but only a handful of states have implemented such a framework to date.

Appendix Table 10 (concluded). Country Experiences with Institutions of Investment Planning and Evaluation

Jordan	<p>Mechanisms for investment prioritization seem to be working reasonably well. The Ministry of Planning, jointly with the line ministries, is entrusted with developing the government capital investment plan, which is set out in rolling three-year investment plans approved by the cabinet. The Planning Ministry's prioritization model takes into account economic, social, and capacity implementation factors. There is still scope for improvement. So far, the budget department has had little input into investment evaluation beyond its influence in the context of the yearly budget negotiations, suggesting that the Ministry of Finance should probably be more involved in determining investment priorities.</p>
Peru	<p>There exists a bottom-up approach whereby the expenditure units (including the different ministries, public enterprises, and subnational governments) prepare investment proposals. These are then assessed by a government agency (SNIP) in charge of approving the investment projects. The main problem with the system is the absence of a prior top-down mechanism of resource allocation that informs expenditure units of the maximum resource envelope within which their proposals need to be bound. The absence of this mechanism generates an excessive amount of investment proposals and reduces the need to prioritize at the sectoral level, as there is an incentive to include any project that might have some social return.</p>

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