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# **IMF Working Paper**

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## **Strengthening Public Investment Management in the Eastern Caribbean Currency Union: Getting more bang for the dollar!**

by Wayne Mitchell, Ann Marie Wickham, and Manuel Rosales Torres

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**I N T E R N A T I O N A L M O N E T A R Y F U N D**

**IMF Working Paper**

Western Hemisphere Department

**Strengthening Public Investment Management in the Eastern Caribbean Currency Union:  
Getting more bang for the dollar!**

Prepared by Wayne Mitchell, Ann Marie Wickham and Manuel Torres\*

Authorized for distribution by Sònia Muñoz

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**Abstract**

The quality and stock of infrastructure vary widely across countries of the Eastern Caribbean Currency Union and are inadequate to achieve the desired higher growth and social development. Given relatively low investment rates in the region, one solution is to invest more. However this paper shows that governments can also narrow their infrastructure and service gaps significantly by improving expenditure efficiency and strengthening public investment management systems.

JEL Classification Numbers: H4, H5, L5, O2

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## I. INTRODUCTION

Maintaining and upgrading public infrastructure—power, water, transport, health and education—are critical challenges confronting member countries of the Eastern Caribbean Currency Union (ECCU).<sup>1</sup> Economic growth and modernization, climate change, urbanization and the shifting socioeconomic profile, are a few of the factors intensifying infrastructure service demands to support higher growth and social development. Meanwhile, limited fiscal space over the past decade and high indebtedness has lowered resource allocations for maintenance and investment. Lastly, natural disasters, which have increased in intensity recently, have reduced the capital stock leading to higher replacement rate.

Many governments and developmental agencies have focused on accessing finance to scale up investments, particularly for climate change adaptation and increasing disaster resilience. Notwithstanding the financing needs, this paper takes the view that strengthening public investment management (PIM) systems—planning, budgeting, appraisal, selection, procurement, implementation and maintenance of capital projects—in the ECCU has the potential to increase the efficiency of existing infrastructure, improve investment spending and generate savings.

Understanding the drivers of inefficiency in the ECCU’s public investment systems should provide an objective basis for the choice of targeted interventions aimed at increasing productive public investment and its growth benefits. Assessments that quantify savings or productivity gains from improved PIM in the ECCU are scant. The ECCB’s Public Expenditure Review Commission (2012) acknowledges that small size, the prevalence of natural disasters, and inadequate insurance coverage and maintenance of assets, contribute to the negative returns on investments. They stress that these factors are either avoidable or can be minimized through adequate institutional and regional arrangements for PIM and better disaster risk mitigation. Studies of public investment multipliers by Roache (2007) and Gonzalez-Garcia et al (2013) for ECCU countries and Alichì et al (2018) for small states, indicate that generally the growth impact is positive but less than one over the medium term.<sup>2</sup> This paper aims at examining whether governments can improve spending efficiency and get more bang for the dollar.

Using the IMF’s Investment and Capital Stock Dataset, we use frontier analysis to compare the availability of public physical infrastructure in the ECCU to peer country groupings and analyze the trends in public investments and public capital stock in the region (IMF, 2015). Physical infrastructure indices suggest that indicators of access and efficiency in the ECCU are higher on average than those of small states and emerging market economies. However, anecdotal

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<sup>1</sup> These comprise member countries of the Eastern Caribbean Central Bank (ECCB), which include six sovereign countries: Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines; and the two British Overseas Territories (BOTs) of Anguilla and Montserrat. In much of this paper reference to the ECCU refers to the sovereign states where data is unavailable for the BOTs.

<sup>2</sup> Investment multipliers during episodes of fiscal expansion, recession and booms range between 1 and 1.5 in small states (Alichì et al, 2018).

evidence suggests that the quality of infrastructure is sub-optimal, and the efficiency score indicates significant scope for reducing infrastructure and services gaps.

We find that investment rates are volatile and, on average, at or lower than the replacement rate of capital. This implies that increasing the stock of capital including for climate change adaptation and building resilience to natural disaster will require greater financing and implementation effort. However, low project execution rates and high committed undisbursed balances suggest the need to address weaknesses in PIM primarily related to project preparation and implementation so that this financing can be faster accessed and better spent. A comparison with project implementation data from the InterAmerican Development Bank suggests that project implementation delays are lengthy, cost overruns are high and there is scope for expenditure savings through streamlining project delivery.

Our examination of maintenance spending on public capital using the methodology deployed by Fay and Yepes (2003) suggests that such spending is suboptimal and implies that increasing spending to appropriate levels could improve the productivity and efficiency of infrastructure (World Bank, 1994 and Rioja, 2003a and 2003b). Additionally, we assess the effects of maintenance expenditure on economic growth, using the standard Barro-type growth regression (Mankiw, Romer and Weil, 1992; Barro and Sala-i-Martin, 1995). The results indicate the existence of a long run cointegrating relationship between maintenance expenditure and real GDP but no short-run relationship. This is likely because government spending to maintain public infrastructure might not necessary increase the rate of economic growth in the short run but would certainly provide an environment to raising growth potential over time. These concerns about PIM are consistent with others in the literature including Dobbs et al (2013), Grigoli and Mills (2014) and IDB (2018).

Lastly, we utilize the IMF's Public Investment Management Assessment (PIMA) evaluation tool to broadly assess and compare PIM in ECCU countries (IMF, 2015, 2018). The PIMA seeks to identify the institutional features that minimize major risks and provide an effective process for managing public physical investments. It examines 15 key institutions that shape the three main stages of public investments. *Planning* sustainable levels of investment across the public sector; *Allocation* of investment to the right projects, the use of multiyear budgeting, and project appraisal and selection; and *Implementing* projects on time and on budget through appropriate funding, monitoring and execution as well as protecting investment through adequate maintenance. We find that there is considerable variation among the ECCU countries in PIM and that while indicators for *allocation* are about average there are notable weaknesses in *planning* and *implementation*.

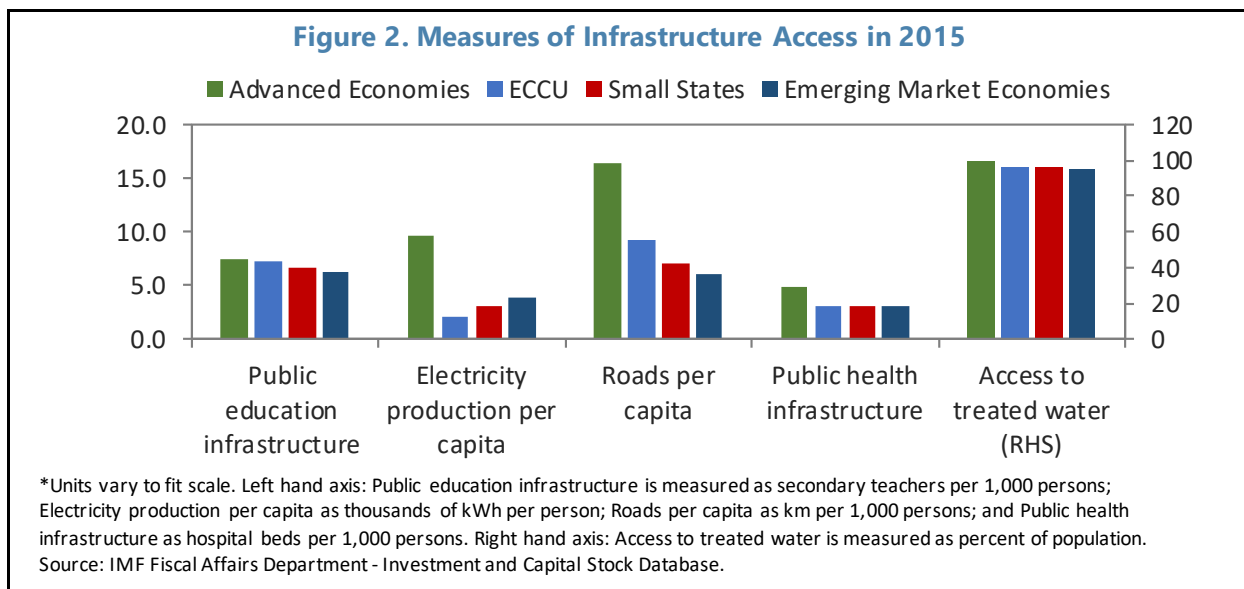
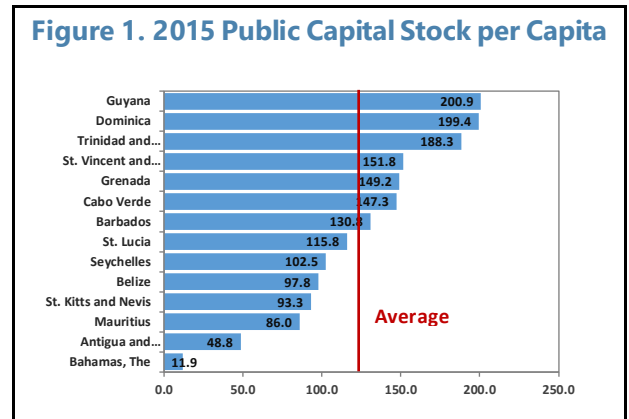
The structure of the paper is as follows. Section II analyses public physical infrastructure and capital expenditure over the past decade in public investments while section III examines the scope for bridging the infrastructure gap by addressing inefficiencies in project management and optimizing the utilization of existing assets. Regarding the latter, the impact of maintenance spending on growth in ECCU countries is assessed. Section IV presents the results of the Public

Investment Management Assessment (PIMA), highlighting the strengths and weaknesses of PIM institutions. Section V concludes.

## II. TRENDS IN FIXED CAPITAL STOCK AND PUBLIC CAPITAL INVESTMENT IN THE ECCU

### Public Capital Stock

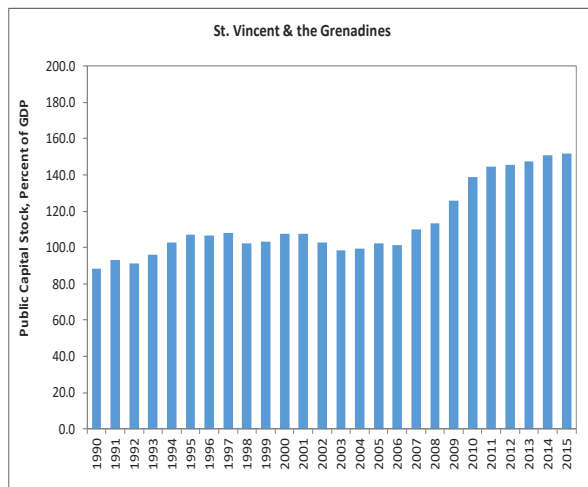
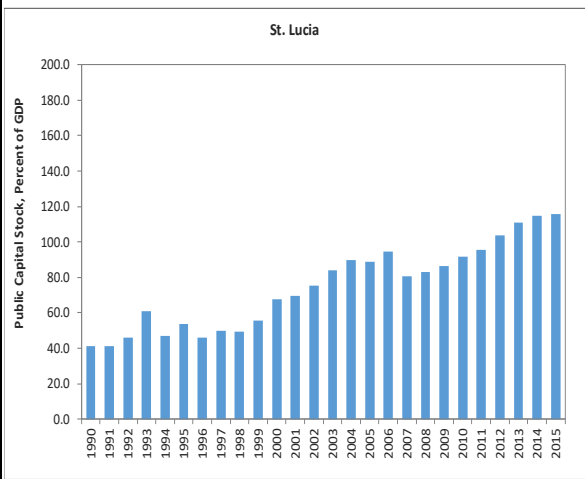
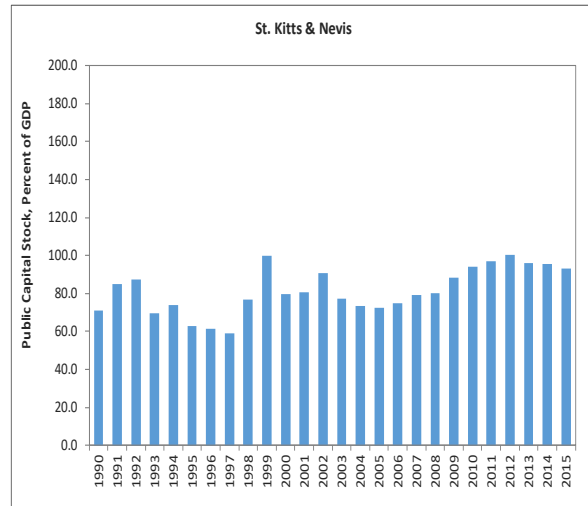
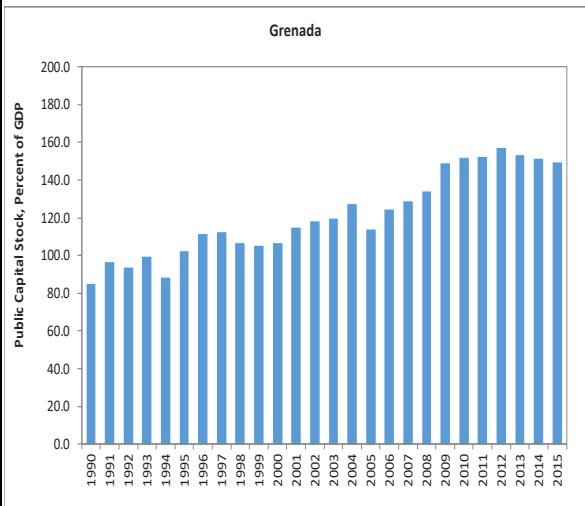
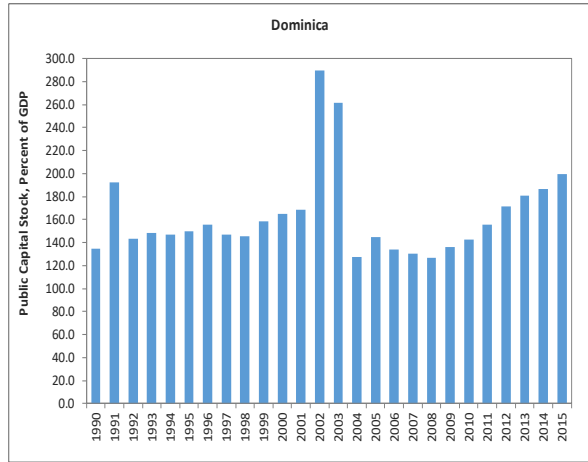
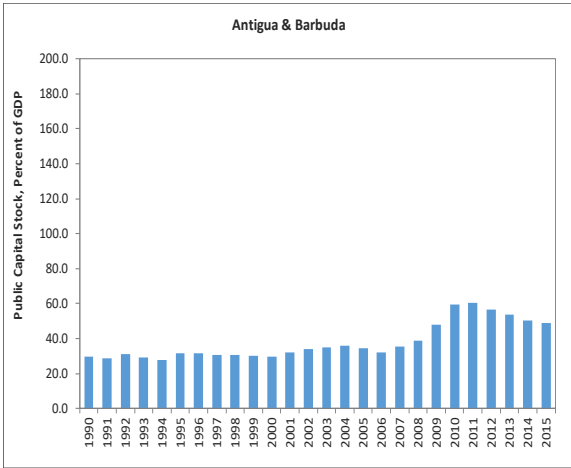
The public sector is the main provider of physical and social infrastructure in ECCU countries particularly in the areas of transport (roads, sea and airports), water supply, education and health.<sup>3</sup> Except for electricity, the access of the population to basic infrastructure is higher than the average for small states and Latin American and Caribbean Countries (LAC) and has increased over the past two decades (Figure 2).<sup>4</sup> However, public capital stocks in 3 of the ECCU displayed per capita levels below the average level observed in other Caribbean countries and the Seychelles.



<sup>3</sup> Electricity services in Antigua and Barbuda, St. Kitts and Nevis and St. Vincent and the Grenadines are provided by the public sector. The public sector in Antigua and Barbuda also provides a significant amount of communication services. The private sector in Grenada is the main provider of education infrastructure, particularly, tertiary education.

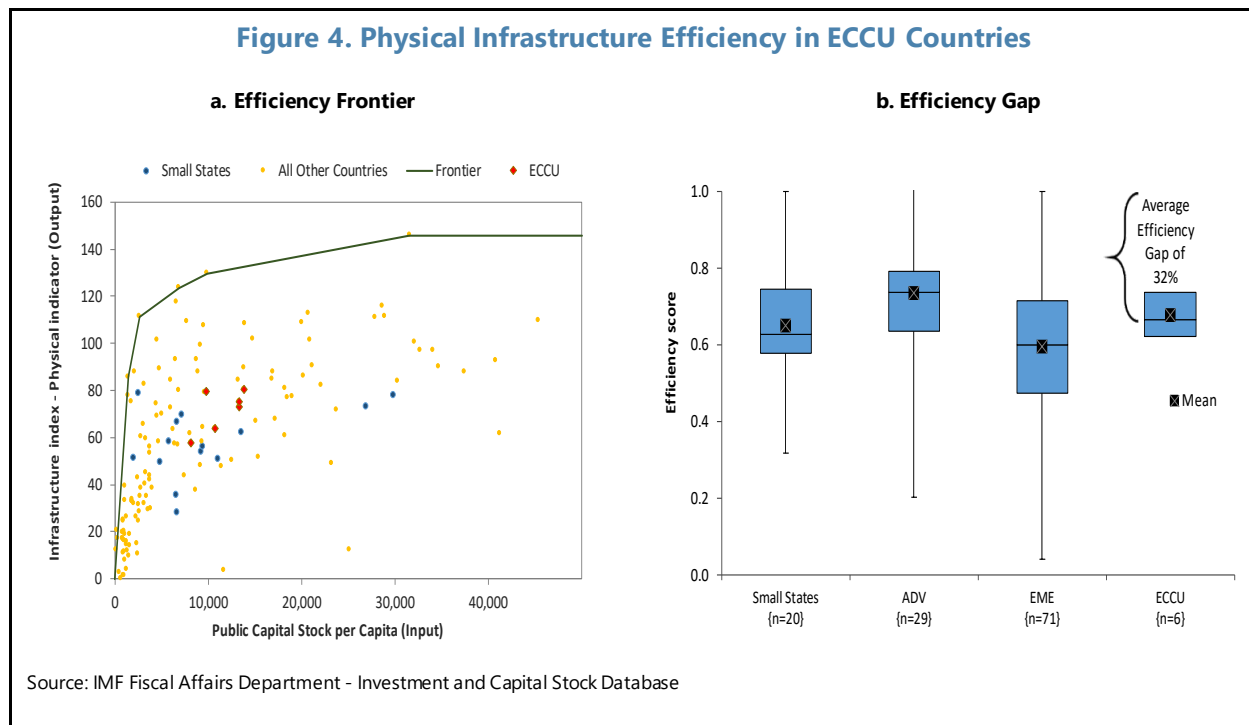
<sup>4</sup> Small states (34), comprise of countries with a population below 1.5 million that are not advanced market economies (according to the World Economic Outlook's classification) or high-income oil exporting countries (following the World Bank's categorization). Data for 20 countries was available.

**Figure 3: Public Investment in ECCU Countries (nominal, percent of GDP)**



Source: IMF Fiscal Affairs Department - Investment and Capital Stock Dataset

Public physical capital stocks, measured using the perpetual investment method, declined or stagnated over 2010–15 with capital stocks in Antigua and Barbuda and St. Kitts and Nevis lower than 100 percent of GDP (Figure 3).<sup>5</sup> These estimates, which use a standard 2.5 - 3.5 percent annual depreciation, ignore ECCU countries' topography, attrition from climate and weather-related factors including natural disasters and low maintenance, and likely overstate capital stocks. Thacker et al (2012) and Guerson et al (2016), in conducting endogenous growth models for the Caribbean, adjust physical capital stocks to reflect the adverse impact of natural disasters and inclement weather on the quality and level of physical capital stock. The latter suggests that the reduction in the capital stock by 2014 would range from 2 percent in St. Lucia and St. Vincent and the Grenadines to 15 percent and 19 percent in Dominica and Grenada, respectively. These estimates suggest average depreciation rates above the standard 3.5 percent used in the perpetual investment method.



Using the IMF's Investment and Capital Stock Dataset we assess the efficiency of physical infrastructure in sovereign ECCU countries. This compares a country's index of the output of public investment to its per capita public capital stock relative to countries that have achieved the highest output per unit of input (IMF, 2015).<sup>6</sup> Here output is an aggregate physical indicator which combines the volume of physical infrastructure networks and social infrastructure.

<sup>5</sup> The estimates of the public capital stock are constructed by the IMF using the perpetual inventory method. See IMF (2015) for detailed methodology.

<sup>6</sup> See IMF (2015) for the definition and calculation of the PIE-X indicator. An estimation of the efficiency of public investment index hybrid, the PIE-X, which measures the relationship between the value of the public capital stock as well as the measured physical coverage and quality of infrastructure assets, could not be estimated because of inadequate data.



Countries are given efficiency scores based on their distance from the frontier of best performers. The results in Figure 4 indicate that the efficiency of physical public infrastructure in ECCU countries is 68 percent (or an efficiency gap of 32 percent), better than the average of other small states (62 percent) but lower than the average for advanced economies (74 percent). While the index is subject to several caveats, the results suggest there is significant room for improving the use of existing assets.

Notwithstanding recent significant investments and rehabilitation of airports much of the other infrastructure, particularly in water and sanitation, roads, health, education and electricity are aging and or inefficient. Under-investments and poor maintenance means that infrastructure rehabilitation and upgrading is required so that countries can provide higher service standards and be more competitive and productive. The CDB (2014) and McIntyre et al (2016) indicate the following stylized facts:

- *Electricity*: most countries have good access to electricity, but costs are high relative to peers — in 2017 about 30 US cents per kWh compared to 16 US cents/kWh in OECD countries— and the reliability of service and the length of time to get a new connection (ranged from 18 to 61 days in 2013) needs to improve. Many have embarked on initiatives to supplement electricity generation with renewable energy such as solar energy (McIntyre et al, 2016).

- *Roads*: paved roads as a percentage of total road networks is very diverse ranging between 33 percent to 89 percent and falls within comparator averages for Low-Middle Income and High-Income countries.<sup>7</sup> Unpaved roads are associated with low quality, safety hazards and inefficient transport services.

**Table 1. The Condition of Road Infrastructure**

	Paved Roads Percentage of Total Roads	Year
Antigua and Barbuda	33	2002
Dominica	50	2001
Grenada	42	2018
St. Kitts and Nevis	43	2002
St. Lucia	70	2011
St. Vincent and the Grenadines	90	2013
Low Income Country	21	2009
Lower Middle Income Country	49	2009
Latin America and the Caribbea	22	2009
High Income	81	2009

Source: Caribbean Development Bank, World Bank and Country Authorities.

- *Water*: access to water services is generally good although Anguilla, Antigua and Barbuda, and St. Kitts and Nevis all have very low levels of renewable freshwater resources. Anguilla and Antigua and Barbuda rely on high-cost desalination plants to meet their domestic water needs. Technical losses due to water leakage and commercial losses—where water is delivered to customers without revenue being received—are high (>30 percent of production) and reduce utilities' financial performance and service levels.

<sup>7</sup> Data from CDB (2014) and responses from country authorities reflect assessments done between 2002 and 2018. The percentage of paved roads contains little information regarding the quality and resistance to weather, which is challenge.

- Sanitation: several countries need to improve access to sanitation and many need to invest in improved wastewater treatment facilities.

### Capital Expenditure<sup>8</sup>

Gross public investment in the ECCU as a share of GDP over 2006 to 2015 was higher than other country groups—about 8.9 percent compared to 6 to 8 percent—(Table 2).<sup>9</sup> However, this is much lower than the net annual investment of 9 percent of GDP required of ECCU governments as their contribution to a net national investment of 30 percent of GDP to achieve annual economic growth of 6 percent at a desired capital output ratio of 5 (ECCB 2012). This benchmark suggests that the countries in the ECCU region have a significant infrastructure deficit. While we do not attempt to ascertain whether addressing the infrastructure deficit is necessary or feasible, it would suffice to indicate that the financing requirements would be significant and challenging given the fiscal situation and debt sustainability concerns.

**Table 2. Public Investment as a percentage of GDP**

Country Groups	2006–15
Small States	7.9
ECCU	8.9
Latin America and the Caribbean	6.2
Emerging Markets	7.0
Source: IMF Fiscal Affairs Department - Investment and Capital Stock Database.	

Capital spending varied widely among ECCU countries and a declining trend was observed over the period 2006 to 2018. Significant increases in expenditure for reconstruction in Dominica and Montserrat following natural disasters mask the declining trend in capital expenditure that averaged 7.2 percent of GDP from 2006 to 2018 and 6.8 percent of GDP from 2016 to 2018 (Figure 5).<sup>10</sup> The median, excluding these two countries, is 4.6 percent and 3.3 percent of GDP, respectively during two periods.<sup>11</sup> The declines also reflect Grenada's adoption of fiscal rules in 2016, particularly the real primary expenditure growth rule, which has restricted non-grant financed capital spending, as well as a correction of its chart of accounts to exclude recurrent expenses from capital spending.<sup>12</sup> This latter issue needs to be emphasized as capital

<sup>8</sup> A comparable measure of infrastructure spending is not available across countries and capital spending is used as a proxy.

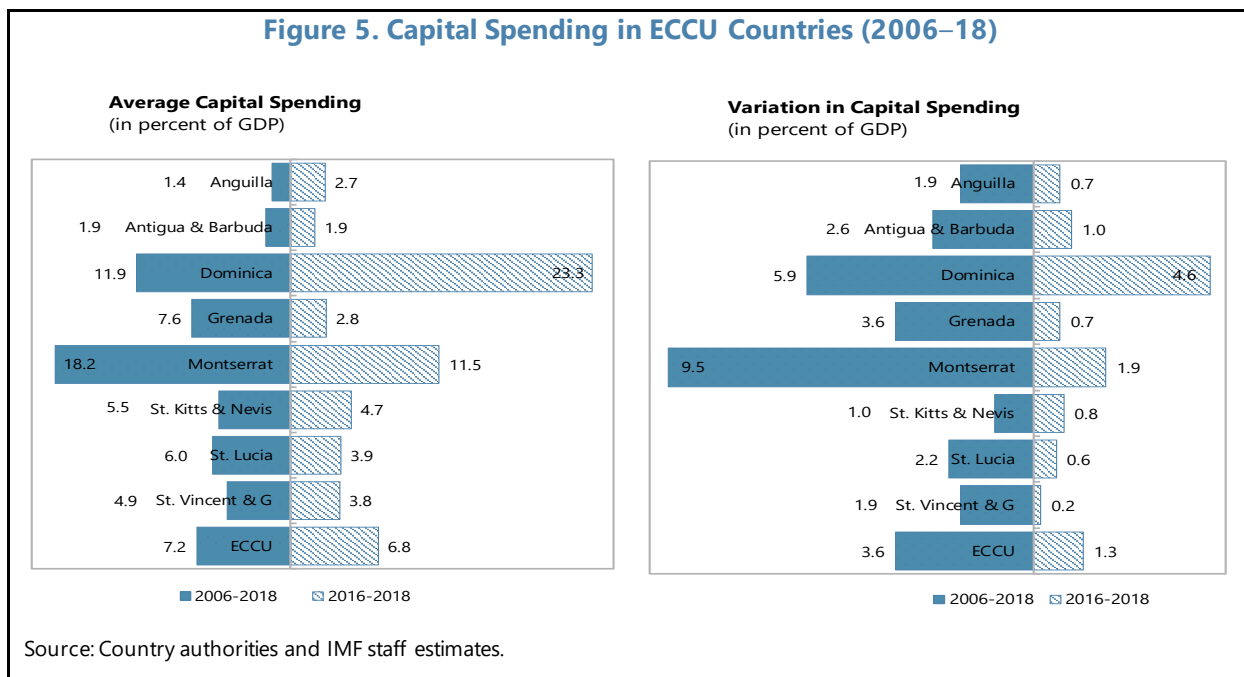
<sup>9</sup> This spending ratio compares favorably with estimates from ECLAC that investment equivalent to 7.9 percent of GDP from 2006 to 2020 is necessary to raise infrastructure in the LAC region to the standard of developed East Asian countries (ECLAC, 2011).

<sup>10</sup> Montserrat government's average investment-to-GDP ratio of 20 percent between 2006 and 2018 primarily reflects rehabilitation, relocation, rebuilding infrastructure following the damage caused by volcanic eruption, substantially exceeds that in all countries while that for Dominica (22 percent of GDP) between 2016 and 2018 were for related to storm damage.

<sup>11</sup> Gross capital spending in Guyana, Trinidad and Tobago, Barbados and Jamaica are 7.3, 4.6, 2.3 and 2 percent of GDP, respectively.

<sup>12</sup> A revision of Grenada's Chart of Accounts in 2016 resulted in a 3.5 percent of GDP reduction in capital expenditure to 4.2 percent of GDP, below the regional average. Consequently, estimates of public sector capital stock and capital investment multipliers using the aggregate capital expenditure data are likely to be incorrect.

spending in Dominica and St. Lucia are also overstated and are not comparable across countries (ECCB, 2012). Properly accounting for capital expenditure has important implications. If standard capital depreciation rates on average vary between 3.5 percent – 6 percent, befitting the conditions in the ECCU, then capital spending in many of the 6 ECCU countries would be lower on average than capital depreciation which we estimate at about 4.3 percent and 6.5 percent of GDP. Consequently, the level (and/or quality) of public capital stocks-to-GDP in many ECCU countries may be lower than estimated and declining as net government investment is negative, and vertical and horizontal infrastructure gaps might be widening.<sup>13</sup> Additional spending will be needed to close infrastructure gaps so that countries can increase economic growth, provide essential services and build resilience to natural disasters.



### III. CHALLENGES IN CLOSING THE INFRASTRUCTURE GAP

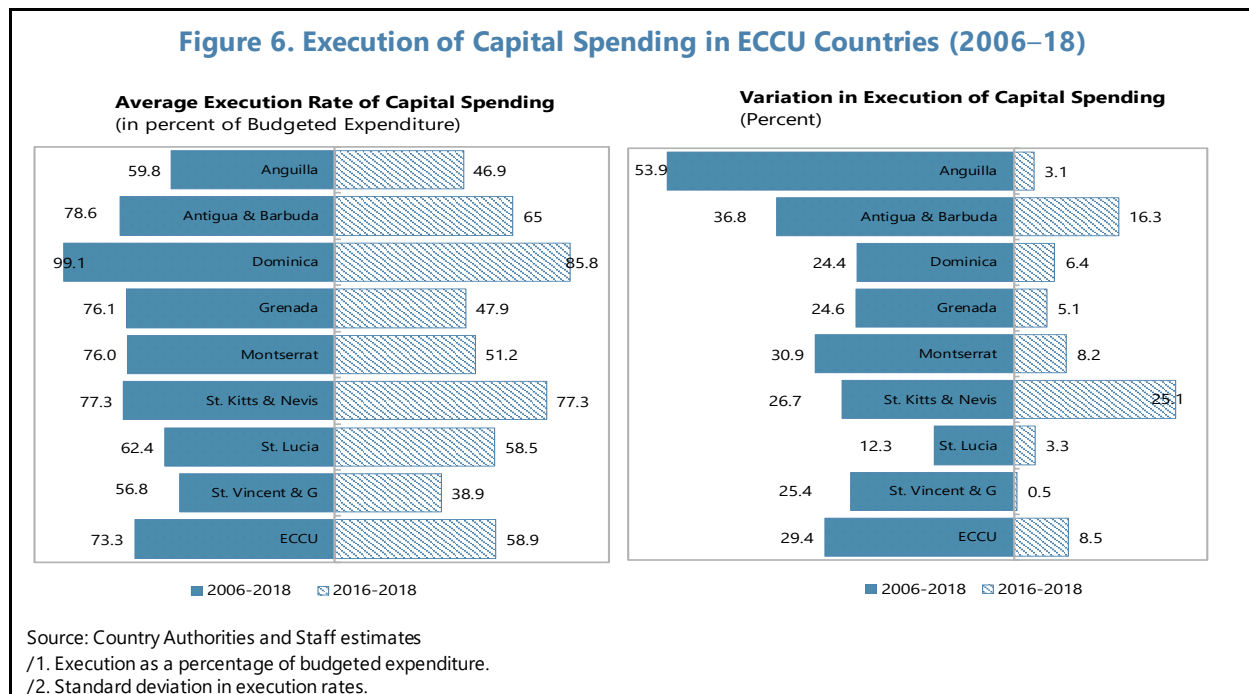
There is substantial scope to improve capital spending effectiveness and efficiency to close the infrastructure gap. Governments can enhance PIM capabilities and oversight to better access financing, augment project selection, reduce bottlenecks, and streamline project delivery. Additionally, governments can get more out of existing assets by optimizing maintenance and through demand-management measures rather than building new capacity.

#### Enhancing Project Management

Determining the relative contribution of financing availability and absorptive capacity to capital spending is a challenge because of the paucity of data. However, we can make some

<sup>13</sup> Dobbs et al(2013).

generalizations from aggregate data. Antigua and Barbuda and St. Kitts and Nevis are middle income countries and are ineligible for concessional financing. Their ability to secure domestic financing (tax or Citizen-by-Investment (CBI) revenues) for capital expenditure depends significantly on budget discipline and CBI inflows.<sup>14</sup> The availability of concessional financing appears less of an issue in the remaining countries. Capital spending in Anguilla and Monserrat—British Overseas Territories (BOTs)—is primarily grant financed; and concessional loan financed in the remaining countries except for Dominica since 2016 where CBI revenues made up most of the financing.



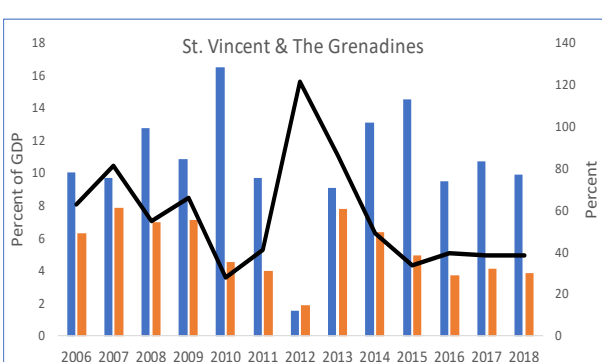
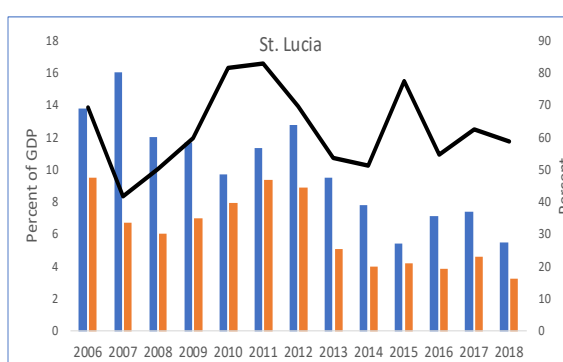
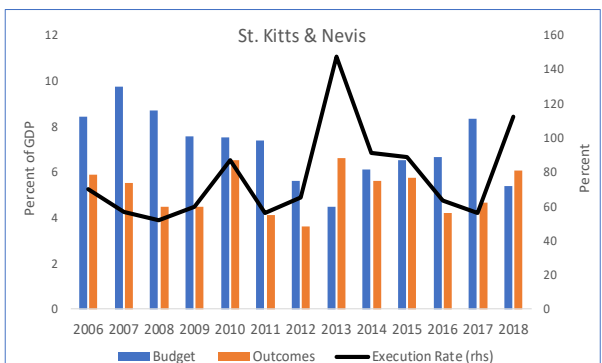
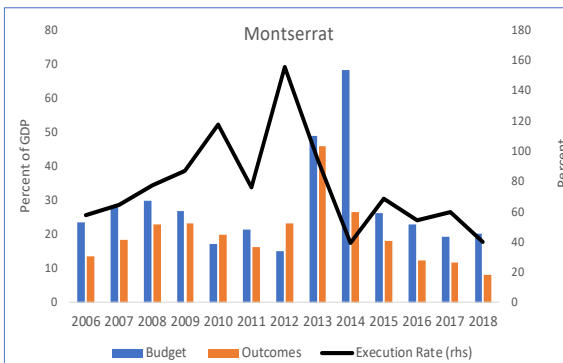
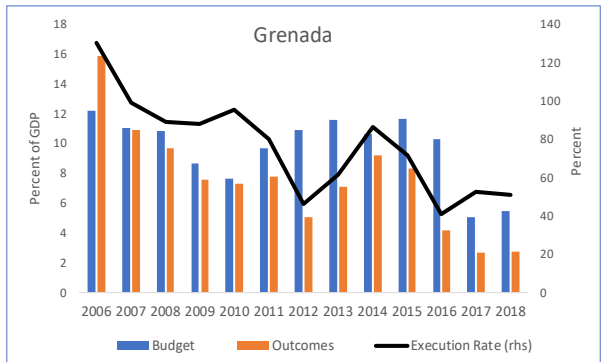
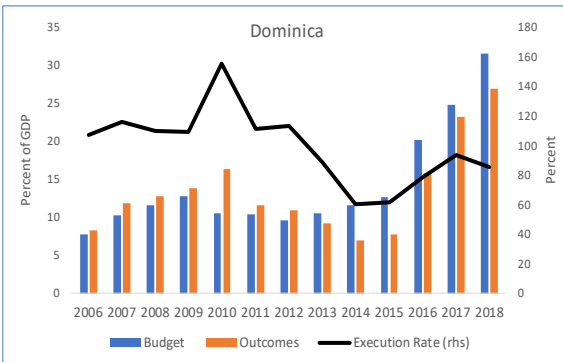
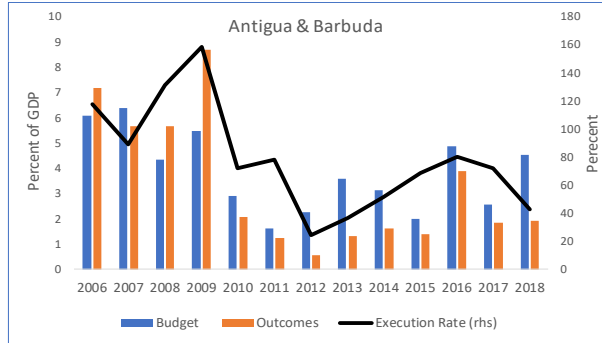
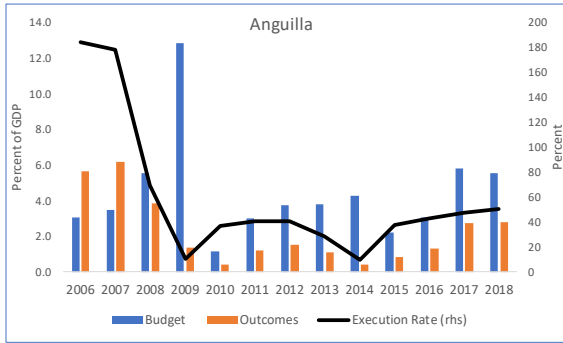
The execution rate of capital expenditure relative to budget intentions is an important indicator of PIM performance and efficiency. Execution rates vary significantly across ECCU countries but have generally declined over the 13-year period from 73 percent to 59 percent from 2016 to 2018 notwithstanding the decline in budget allocations for the investment portfolio (Figure 6).<sup>15</sup> While the variability in execution (measured by the standard deviation) has significantly improved on average it is still very high in Antigua and Barbuda and St. Kitts and Nevis. Underperformance in project execution generally reflects optimism in budget projections as well as delayed disbursements because of absorptive capacity constraints, such as inadequate project readiness and implementation capacity.<sup>16</sup> These factors reduce the reliability of budget year and outer-year capital spending estimates.

<sup>14</sup> Citizenship-by-Investment is the process of obtaining a second citizenship and passport by investing in or providing a donation to the economy of the host country.

<sup>15</sup> Project implementation rates in Guyana, Trinidad and Tobago, Barbados and Jamaica are 20 percent, 61 percent, 33 percent and 86 percent, respectively.

<sup>16</sup> Montserrat and more recently Dominica addressed absorptive capacity constraints through the importation of project-related services.

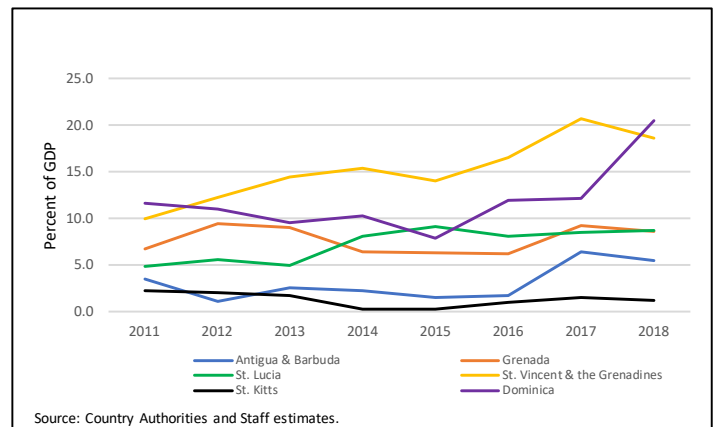
Figure 7. Capital Expenditure Budget and Execution in ECCU Countries



Source: WEO and IMF staff calculations.

The significance of committed undisbursed balances (CUB) of external project loans is another indicator of PIM efficiency. Our review of CUB data in the independent countries from 2011 to 2018 indicates that these are 2 to 3 times higher than actual capital spending. This suggests that access to financing was not the critical constraint to infrastructure investment in Dominica, Grenada, St. Lucia and St. Vincent and the Grenadines as these countries could have increased spending by 1 percent to 2.3 percent of GDP annually in the intervening period. Governments need to strengthen institutional and implementation capacity to access the financing that is already contracted.

**Figure 8: Stock of Committed Undisbursed Balances**



There are additional indicators of project management efficiency. Project implementation delays, for instance, immobilizes physical and financial capital and increase project supervision costs to the lender and project management costs to the borrower.<sup>17</sup> During the interlude unit prices of components can increase, trained staff leave, and needs and priorities can change with adverse effects on construction costs. Consequently, implementation delays lower the rate of return on projects and invalidate the rationale for their selection. Since we do not have quantitative estimates on project implementation delays in ECCU member countries, we use general data from the CDB (ECCU countries are member borrowing countries) and from the IDB (2018) to make inferences. We distinguish two types of implementation delays:

- *Delays in authorization.* The length of time between loan approval by the CDB and loan effectiveness by the executive or legislative branch of government has generally declined from 9 months to 8 months, between 2015 and 2017. This is still higher than the observations by the IDB (2018) of the average time between approval and eligibility by its members in Latin America and the Caribbean of about 7 months in 2015. It is also longer than the 4-month delay in the Bahamas.
- *Delays in disbursements.* They occur prior to the first disbursement (because of inadequate project preparation) and during project implementation (where projects initially estimated to

<sup>17</sup> Creditors charge a commitment fee on undrawn balances. For regular loan resources this is typically 1 percent but are much lower, even 0%, on concessional loans to small economies. Commitment fees in most ECCU countries are on average low (less than 0.1%) reflecting the high concessionality of loans, but in a few cases were as high as 1.8 percent.

take 4 to 6 years on average could be delayed by 2 to 3 years).<sup>18</sup> The former includes delays in establishing project implementation units, engaging project coordinators and managers, procuring services of engineers, establishing project steering committees, getting relevant approvals within executing agencies, and obtaining relevant planning and building permits.<sup>19</sup> The gap between the optimal and actual disbursement curve is larger for physical infrastructure projects than it is for other sectors, such as education and health. Delays during project implementation generally reflect delays in procurement and contracting processes, weak institutional capacity of executing agencies, and weak inter-agency coordination.

Project cost overruns are another major and widespread problem of PIM efficiency. The IDB (2018) notes that cost overruns are common and are to be expected not because of inexperience, ineptitude or corruption but rather because building infrastructure is challenging and sometimes reflects investment complexities and risks in infrastructure construction. Incomplete information and the occurrence of contingencies such as natural disasters, physical and social constraints (resettlement processes that might trigger legal disputes), complex geology which contribute to forecast errors and to changes in project scope are unavoidable. Other factors are avoidable, or their incidence can be reduced—poor project design and incomplete estimates, lack of competition and transparency in bidding processes, weak project supervision, inadequate decision-making, and an optimistic bias that underestimates costs and risks while over estimating implementation capacities (Dodd, 2013 and IDB, 2018).

We rely on research done on LAC as well as on discussions with government officials and contractors in the ECCU region to draw inferences for the region. Flyvbjerg (2016) indicates that projects in LAC have much higher cost overruns (48 percent) than the average project globally (28 percent) and in other regions. Cost overruns are also widespread in the loan portfolios of the IDB and World Bank, affecting at least 50 percent of infrastructure projects and accounting for at least 17 percent of project costs in LAC (IDB, 2018). The IDB attributes the lower cost overruns to their higher quality standards for preparation and implementation—regarding feasibility, procurement, and supervision—than do national systems. If estimates of cost overruns in the multilateral development bank-financed projects represent a lower-bound, then there is the potential for cost savings in national project portfolios of about 20 percent.

Enhancing PIM capabilities from the project selection stage through project delivery can improve the effectiveness of infrastructure, significantly reduce implementation delays and lower infrastructure costs and cost overruns. Establishing the enabling environment and improving pre-investment planning and project preparation and processes would reduce and mitigate the costs and risks of projects and improve their quality. Additionally, ECCU member governments must

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<sup>18</sup> More recently, receipts from CBI in Antigua and Barbuda, Grenada, Dominica and St. Kitts and Nevis have been a significant source of financing for capital expenditures and are deployed quicker than donor funds.

<sup>19</sup> The IDB (2018) estimates, based on an average project size of US\$ 100 million, with implementation over 14 years, and an interest rate of 3.1 percent over the period of analysis, that disbursement inefficiencies would add up to 10.5 percent of project costs.



resolve the challenges in attracting and retaining persons with the requisite technical skills (for example, quantity surveyors, engineers, architects, project managers). Dominica and St. Lucia have recently established dedicated agencies with strengthened PIM institutional capacities.<sup>20</sup>

PFM legislation and regulations should be amended to require systematic performance-based assessments of project implementation as well as the identification, tracking, and prioritization of operational and investment gaps. This should include the monitoring of physical and financial progress of project implementation; and the monitoring and evaluation of outcomes and impacts during on-going operations.

Project Preparation Facilities (PPFs) by multilateral development banks—a financial instrument to expeditiously provide resources targeted to the preparatory phase of priority projects, studies and programmes—could be useful in addressing the challenges related to these issues in ECCU countries. The experience of multilateral development banks in the use of PPFs confirms that it has been a demand-responsive facility and very effective in generating quality projects at entry (African Development Fund, 2000). It encourages high-level commitment of the government before the PPF is approved which in turn promotes government’s ownership and participation in project preparation and implementation. The IDB also acknowledges the merits of PPFs and suggests the establishment of a single facility encompassing all countries and sectors in LAC (IDB, 2019). ECCU countries should consider such a facility, administered by the CDB and World Bank, and extended to non-bank financed public sector and Public Private Partnerships (PPP) projects, as this would allow them to address capacity constraints and benefit from economies of scale.

### **Making the Best of Existing Infrastructure**

Dobbs et al (2013) indicate that there is a persistent bias toward building new capacity rather than getting the most out of existing assets by improving asset utilization and through demand-management measures. Boosting asset utilization is viable where existing infrastructure reaches capacity constraints or where there are other options to addressing the service gap along with quality and affordability that cannot be efficiently resolved by building more.

For example, technical losses due to water leakage and commercial losses are high (>30 percent of production) and impair the financial performance and service levels of utilities in some countries. Investments that reduce these losses and improve asset utilization—replacement or

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<sup>20</sup> The government of Dominica established the Climate Resilience Execution Agency of Dominica (CREAD), financed by donor funds, in September 2018 to assist with project planning and execution. The government of St. Lucia established a Delivery Unit in 2018, with support from CDB, to assist with the prioritization and implementation of public investment.



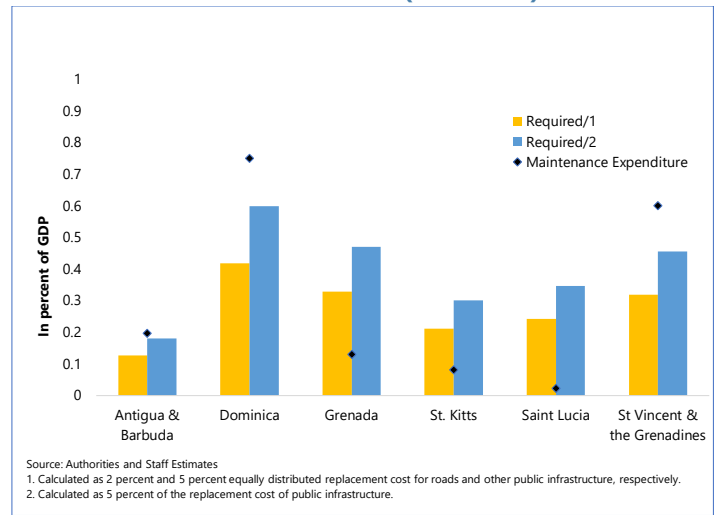
rehabilitation of the distribution networks, introduction or expansion of water metering, and billing efficiency—often cost less than building new capacity.<sup>21</sup>

Timely and adequate maintenance of infrastructure is required to sustain its durability and effectiveness. Since depreciation of infrastructure is non-linear and not generally visible, delays in routine maintenance overtime may cause irreversible deterioration requiring rehabilitation or rebuilding of infrastructure.

Neglecting maintenance can lead to a reduction in productivity (in the public and private sector) and infrastructure services. For instance, pothole-filled roads adversely affect road safety and transportation times and increases operational costs to the public and private sector. The adverse impact of maintenance underspending is temporary if there is a return to full maintenance expenditure before the damage becomes irreversible.<sup>22</sup>

On average ECCU governments spend less than one percent of GDP on maintenance. We utilize Fay and Yepes (2003) broad estimates of maintenance expenditures for different categories of public capital to estimate the minimum annual average requirement for ECCU countries over the period 2011 to 2017. These do not represent an optimum for maintenance expenditures but could be considered, for illustrative purposes, a minimum or lower bound annual average expenditure on maintenance to maintain infrastructure integrity and functionality.<sup>23</sup> The results are mixed and, notwithstanding caveats about the robustness of the data, the significant underspending in some countries are worrisome. Grenada's maintenance budget of 0.14 percent of GDP for 2018 was estimated by the authorities to be at least an 1/8 of current needs, much wider margins than implied by our estimates. By comparison, Fay and Yepes (2003) estimate that annual average maintenance needs between 2005 and 2010 for Middle Income Countries and LAC as 2.5 percent

**Figure 9. Annual and Minimum Required Expenditure on Maintenance (2011–17)**



<sup>21</sup> Cambodia's Phnom Penh's Water Supply Authority increased its connections 7-fold and reduced non-revenue water from 72 percent to 6 percent (Dobbs et al, 2013).

<sup>22</sup> The World Development Report (World Bank, 1994) estimated that every \$1 not spent on road maintenance in Latin America will eventually cost \$3 to \$4 in premature reconstruction. Peru spent 7 times more bringing neglected roads back into full operation than it would have spent if those roads had undergone regular maintenance between 1992 and 2005 (World Bank, 2010).

<sup>23</sup> Data on maintenance in budget documents do not distinguish permanent routine, periodic or emergency maintenance and it is unclear whether classification as recurrent or capital expenditure is based on the valuation size. The data excludes spending for rehabilitation.

of GDP and 1.4 percent of GDP, respectively.<sup>24</sup> Budget financing constraints, inadequate capacity for inspections and maintenance planning, poor maintenance culture are among the reasons for low maintenance spending. On the other hand, the fact that new construction can be financed externally and on concessional terms and is more politically attractive, may bias spending against maintenance.

More extensive use of demand-management measures by restricting access or imposing user fees where possible and appropriate, has many advantages. In addition to managing demand, they (i) create a market test and put pressure on the service provider (public or private) to improve quality, and (ii) increase the revenue base for investments and create the potential for bridging the financing gap by encouraging private sector participation in infrastructure provision as well as improving access to commercial financing (World Bank, 2017). Improving facilities and services and effective engagement of stakeholders are precursors for public acceptance of the measures. For instance, traffic congestion can be addressed by combining improved bus operations, vehicular access routes and parking restrictions, with an integrated traffic management system (Dobbs et al, 2017). Additionally, a comprehensive view of demand management can also help planners avoid an all-or-nothing approach and adopt more incremental strategies, which can help overcome public acceptance or feasibility challenges. For example, smaller scale solutions such as smart parking meters that dynamically adjust parking prices based on demand, or real-time traffic information that allows drivers to make better choices about road usage may be preferable than immediate adoption of congestion pricing.

### *The Impact of Maintenance on Growth*

Research by Gibson and Rioja (2013), Agénor (2005), Rioja (2003a and 2003b), and World Bank (1994) indicates that when maintenance spending is sub-optimal, the returns on increased spending on infrastructure maintenance are significantly higher than similar size investments on new construction.<sup>25</sup> This occurs because improved or adequate maintenance improves the effectiveness of existing infrastructure and increases the payoff of new public investment. Additionally, adequate maintenance of public infrastructure enhances the durability of private sector capital stock such as vehicles and electrical equipment (Agénor, 2005) and is welfare improving (Gibson and Rioja, 2013).

We estimate the effects of maintenance expenditure on real economic growth by modelling a standard Barro-type growth regression (Mankiw, Romer and Weil, 1992; Barro and Sala-i-Martin, 1995) that includes the maintenance expenditure variable. The dataset consists of annual data from 2010 to 2017 for 12 Caribbean countries (the 8 ECCU countries and 4 other Caribbean

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<sup>24</sup> The wide range in estimates reflect infrastructure provision by the public sector which includes electricity, roads, railway, sanitation, water, mainlines and mobile communications.

<sup>25</sup> In extended analysis, Gibson and Rioja (2013) coefficient on maintenance shows a reduction in wealth inequality and an increase in GDP while the investment coefficient reflects increased inequality and a larger increase in GDP.

countries)<sup>26</sup>. We use a panel co-integration approach to identify the long-run effect of capital maintenance expenditure on growth as well as the dynamics of the various channels. The model is estimated using Fully Modified Least Squares (FM-OLS) which is shown to produce superior estimates in small samples and provides optimal estimates of cointegrating regressions, as discussed in Phillips and Hansen (1990), McCoskey and Kao (1998) and Kao and Chiang (2000). The method modifies least squares to account for serial correlation effects and for the endogeneity in the regressors that results from the existence of a cointegrating relationship. Moreover, FM-OLS are superior to the OLS estimates derived from the standard panel-VAR because: FM-OLS estimates are not only super-consistent but efficient in the presence of I (1) variable; and, FM-OLS eliminates the endogeneity and serial correlation present in standard OLS using a nonparametric approach.

$$y_t = \alpha_t + \beta ME_{it} + \sum_n^k (\theta_k X_t^k) + \epsilon_t$$

where  $y_t$  is the growth rate of real GDP,  $ME_{it}$  is the maintenance expenditure variable,  $X_t^k$  is a set of  $k$  control variables,  $\alpha_t$  is the constant, and  $\epsilon_t$  is the error term. Consistent with the growth literature we use fiscal policy, openness to international trade, financial development, government effectiveness index, economic cost of natural disasters and capital accumulation.<sup>27</sup> To control for other growth effects outside of expenditure on maintenance, all variables were deflated by nominal GDP except inflation, government effectiveness and openness to international trade. The estimated model is well fitted and passed all the standard diagnostic tests, including that of serial correlation, normality and heteroscedasticity.

The results indicate the existence of a statistically significant long run cointegrating relationship between maintenance expenditure and real GDP such that a 10 percent increase in the maintenance expenditure to GDP ratio raises long-run output by about 0.2 percent (Table 5). There is no statistically significant short-run impact from increasing maintenance expenditure. This result can be explained by the fact that government spending to maintain public infrastructure might not necessary increase the rate of economic growth in the short run but would certainly provide an environment to raising growth potential over time.

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<sup>26</sup> Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Barbados, Belize, The Bahamas, Trinidad and Tobago.

<sup>27</sup> In the regression, capital accumulation includes domestic and foreign direct investment; trade openness is the sum of export and import in percent of GDP; fiscal policy includes government consumption expenditure and public investment; financial development is proxied by broad money as a share of GDP. All data series were retrieved from IMF WEO database except for maintenance expenditure which was sourced from country authorities (Ministry of Finance).

**Table 3. Maintenance Expenditure and GDP Growth****FM-OLS Results****Dependent Variable: Real GDP****LONG-RUN ESTIMATES**

Log (Maintenance Expenditure)	0.021 (0.001) ***
Log (real domestic investment)	0.062 (0.003) ***
Log (real government consumption)	-0.191 (0.006) ***
Log (broad money)	0.050 (0.009) ***
Openness	-0.086 (0.006) ***
Inflation	-0.004 (0.000) ***

**SHORT-RUN ESTIMATES**

constant	0.006 (0.003) *
Change in Maintenance Expenditure	-0.004 (0.007)
Lagged growth	0.480 (0.098) ***
Growth in domestic investment	0.048 (0.016) ***
Growth in government consumption	-0.085 (0.030) ***
Growth in broad money	-0.143 (0.044) ***
Natural disaster	-0.004 (0.002) *
Lagged change in inflation	-0.002 (0.001) **
Equilibrium Correcting Term	-0.342 (0.081) ***

Observations	84
Countries	12
Sample Period	2010-2017

R-squared	0.577
Adjusted R-squared	0.523
Standard Error of Regression	0.021
Sum Squared Residuals	0.027
Log likelihood	181.973
Durbin-Watson	2.035

\*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, 10% levels, respectively. Standard errors in parentheses.

Additionally, the econometric analysis of this paper suggests that in the long-run, gross domestic investment and financial development exert a positive impact on the level of real GDP, while government consumption expenditure, inflation, and openness have a negative effect. The positive impact of investment on the long-run level of output is consistent with the central role given to investment in physical capital in the growth literature. Moreover, a 10 percent rise in growth domestic investment accumulation leads to approximately 0.6 percentage point increase in output over time. Similarly, the positive coefficient on financial development is consistent with the endogenous growth literature and suggests that there is positive intermediation of the financial system leading to growth. The negative impact of government consumption expenditure on the long-run level of output is not surprising and suggests that government spending often crowds out private investment and to the extent that this spending is not productive, fiscal policy will have a negative impact on growth.

On average, the countries covered by the above analysis spend significantly less than one percent of GDP on maintenance. Trinidad and Tobago and Monserrat are exceptions, as they allocate on

average around two percent of GDP. This suboptimality of maintenance expenditures may have resulted in the low coefficients and could suggest that higher maintenance spending would have proportionally higher impact on growth. Our econometric analysis implies that, making the most of existing public assets by providing adequate maintenance is a cost saving and efficient strategy. Medium term public expenditure programs should establish guidelines for optimum resource allocation that considers (i) the growth impacts and trade-offs of investment in new infrastructure and adequate maintenance spending of existing infrastructure; and (ii) the need to incorporate adequate maintenance costs as part of project costs to facilitate appropriate budgetary allocations to sustain infrastructure durability and the realization of expected benefits.

#### IV. ASSESSMENT OF PUBLIC INVESTMENT MANAGEMENT IN THE ECCU

##### Public Investment Management Assessment (PIMA) Framework

The previous sections identified many challenges to PIM in the ECCU. In this section we use the IMF's Public Investment Management Assessment (PIMA) Framework, to assess the institutional features that minimize major risks in infrastructure investment and identify the various elements of reform needed to improve infrastructure spending efficiency (IMF 2015, 2018). See Box 1 below.

##### Box 1: PIMA Methodology

The Public Investment Management Assessment (PIMA) is a comprehensive framework to assess infrastructure governance practices for countries at all levels of economic development. The PIMA examines 15 key institutions that shape the three main stages of public investments. Planning sustainable levels of investment across the public sector; Allocation of investment to the right sectors and right projects, and Implementation to deliver productive and durable assets.

Each institution is analyzed and graded along three dimensions that reflect the key features of the given institution, resulting in a total of 45 dimensions. Three possible scores are assigned to each dimension (1: not met, 2: partially met, 3: fully met), and their average within an institution produces a score for that institution.

PIMA also covers a qualitative assessment of three cross-cutting factors that often impact the overall effectiveness of public investment management: (1) the legal and regulatory framework, (2) staff capacity, and (3) IT systems.

Full PIMA in-country assessment evaluates both institutional design ("what is on paper") and effectiveness ("what is in practice"), because there is often a gap between the design of formal rules and how they are implemented in practice, due to capacity constraints among others.

Source: IMF (2018)

This paper uses a PIMA desk study (see Box 2) to provide initial information on the general situation of PIM systems in ECCU and raise the awareness of potential important issues of PIM in the zone. Building on these initial assessments, in-country PIMA assessment in each country is recommended to assess not only the institutional design but more importantly effectiveness to identify sequenced reform priorities that are specific to each country's PIM system in order to improve it.<sup>28</sup>

### Box 2: PIMA Desk Study Process and Data Sources

The PIMA desk studies of each ECCU country in this paper are based on compiling responses of country officials knowledgeable about their PIM institutional and legal frameworks and PIM practices related to planning, allocation and implementation. A first round of assessments using the 2015 PIMA questionnaire (IMF, 2015) for the ECCU member countries were completed in 2017. The assessment by Public Financial Management (PFM) and Macro-Economic experts from the Caribbean Technical Assistance Center (CARTAC) were instrumental in corroborating the responses to the questionnaires. The IMF's Fiscal Affairs Department reviewed the first round of survey responses from the six sovereign ECCU countries that are its members. Antigua and Barbuda and Grenada PIM systems were reassessed and updated during Article IV missions in October 2017 and May 2018, respectively.

A second round of assessments were undertaken from September 2018 to incorporate the revision to the PIMA (IMF, 2018). Updates were received from country officials in Anguilla, Antigua and Barbuda, Grenada, Montserrat, St. Lucia, St. Vincent and the Grenadines and reviewed by staff. Assessments for Dominica and St. Kitts reflect the views of staff. The revised PIMA framework retains the structure of the earlier version but highlights aspects of maintenance, procurement, independent review of projects, and the enabling environment more prominently. The results for Grenada were updated to reflect the outcomes of the 2019 Climate Change Policy Assessment mission by the IMF and World Bank. The latter updates marginally affected the scores. Data from national budgetary statements and information from recent country Public Expenditure and Financial Accountability (PEFA) assessments were also used to assess and corroborate the effectiveness of PIM systems and functions across different stages of the investment cycle.

Countries with strong PIM systems that are effectively implemented have more predictable, credible, efficient, and productive investments. Where these systems are weak or ineffective, their strengthening could help close the public investment efficiency gap.

PIM in ECCU countries shows considerable variation with institutional ratings ranging from weak ("Not met") to strong ("Fully met") with many desirable features (Table 4). The average score for the ECCU (4.1) is below those of emerging market countries (4.6) and countries in the Western Hemisphere (4.3) assessed by the IMF (2018). The better ratings for Anguilla and Montserrat (BOTs) reflect their stronger institutional frameworks particularly regarding fiscal governance and accountability arrangements with Britain.

<sup>28</sup> IMF Infrastructure Governance website: <https://www.imf.org/external/np/fad/publicinvestment/>

**Table 4. Summary Institutional Scores of PIM in the ECCU**

Countries	Planning	Allocation	Implementation	Average
Anguilla				
Antigua & Barbuda				
Dominica				
Grenada				
Montserrat				
St. Kitts				
St. Lucia				
St. Vincent & the Grenadines				
<b>ECCU Average</b>				

Source: Country Authorities and IMF Staff Assessments

**Green:** Fully met      **Orange:** Partially met      **Red:** Not met

Across all countries, PIM institutions are generally better in the *allocation* stage than in the *planning* and *implementation* stages. We summarize our findings on the design and effectiveness of the 15 institutions below and provide details in Annex I.

The efficiency of the PIM system is affected by significant weaknesses in the planning, budgeting, appraisal, selection, procurement, and implementation of capital projects. These weaknesses have important implications for key areas of public investment management.

Except for Grenada and the BOT's investment planning is not guided by an explicit fiscal objective, permanent rules or principles that guides fiscal policy. However, objectives for fiscal policy, the budget deficit, and the stock of public debt are discussed in budget circulars and the budget speeches.

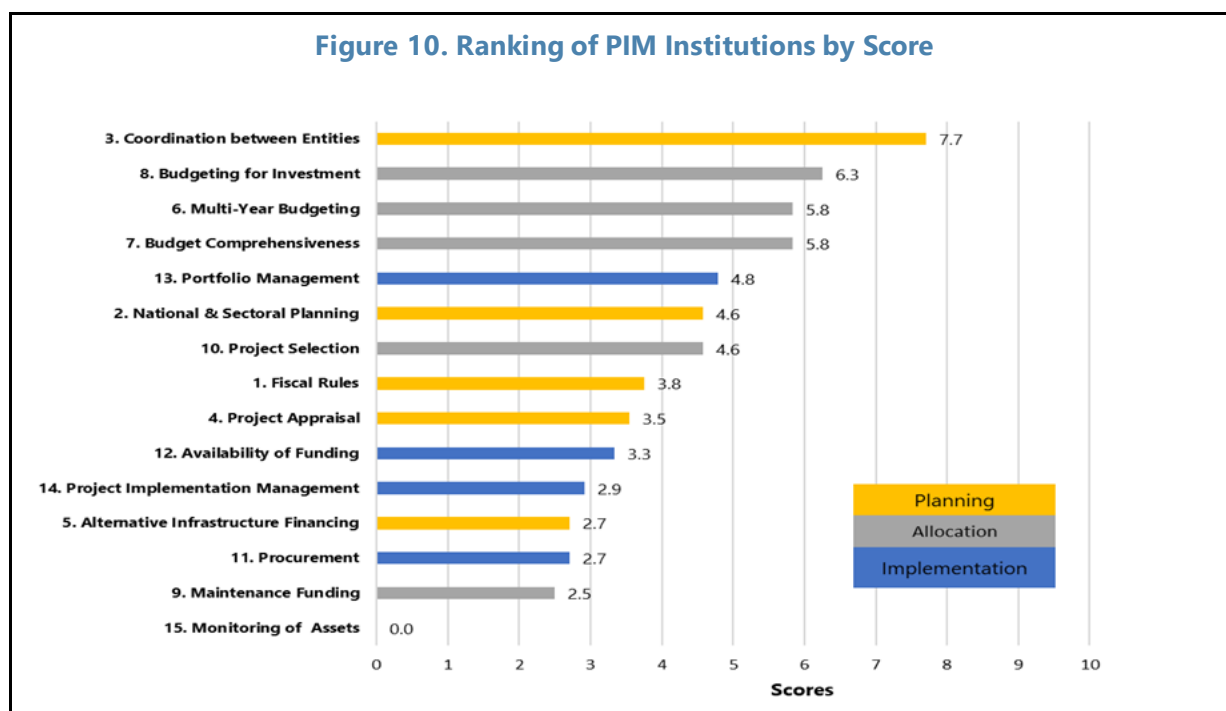
While many countries have national and sectoral investment plans the absence of comprehensive analysis of investment project costs undermines their credibility and validity. Further, the translation of sector plans into the budget is hindered by the lack of budget ceilings that weakens the link between planning and budgeting.

There is limited central review of major project appraisals before decisions are taken to include projects in the budget. Many domestically financed projects have inadequate feasibility studies and lack rigorous project appraisal consequently they may not be ready for implementation. The capacities in budget agencies and statutory bodies to conduct rigorous project selection is low and is compounded by the lack of standard criteria for project selection. This leads to execution delays, cost overruns, adjustments to the specification and cost of projects, and insufficient consideration of maintenance and recurrent costs.

The supporting legal framework for PIM has been strengthened in some ECCU countries—Anguilla, Grenada, Montserrat, and to a lesser extent Dominica and St. Lucia—over the past five years. These include legislation for PFM, PPPs, and Procurement. However, implementation is

still limited in certain phases of public investment management. For instance, for PPPs the institutional framework for scrutiny, selection and oversight is not public nor is information available on government liabilities. Additionally, other countries have significant gaps in their procurement framework and there is a political imperative of using local firms, leading to implementation inefficiencies. There is limited access to public information—procurement statistics are not available to demonstrate that principles of competitiveness and transparency have been adhered to in awarding tenders for investment projects. Few countries have an independent body for reviewing procurement complaints. In the World Bank’s benchmarking public procurement for 2017 the average composite score for ECCU countries was 36 out of 100 (World Bank, 2018).<sup>29</sup>

Project implementation in the ECCU is generally weak. Systems to monitor physical progress of domestically financed major capital projects are lacking. Ex-post reviews are not systematically conducted for major projects. In addition, detailed implementation plans are generally not in place until after the tendering process is completed late in the fiscal year causing implementation delays. Checks and balances in the system are lacking. For example, absence of, or delays in, obtaining feedback on the performance of capital projects reduces the effectiveness of the audit process.



The monitoring of public assets is made difficult by the lack of a comprehensive register of non-financial assets. While some ministries carry out surveys of their fixed assets, the overall condition, location and maintenance needs of public assets cannot be ascertained. There is no valuation of non-financial assets in the government’s financial statements.

<sup>29</sup> This includes Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis and St. Lucia.



Inadequate capacity is an underlying cause of the low execution rates in ECCU countries. This reflects staffing numbers and skills sets which in turn is affected by the government's ability to attract and retain staff. Shortages in skills sets are sometimes resolved through short term contracts for the project. Additionally, donor agencies often establish Project Implementation Units (PIUs) to supplement skill sets of implementing government agencies to manage the planning and implementation of large capital projects

PIM based ICT systems in the ECCU are not integrated and provide partial information. A separate ICT system is deployed by the treasury department and budget departments for facilitating financial payments, accounting and reporting on financial transaction. Systems for procurement are also separate but are increasingly being rolled out to the public to improve transparency. Project accounts are not integrated with debt management ICT systems and systems for physical asset management and maintenance are not deployed. An effective ICT system allows line ministries and executing agencies to share information in real time, monitor projects throughout the project cycle, apply the regulatory framework, and produce administrative and analytical reports.

The initial PIMA desk study facilitates the diagnostic assessment of the institutional framework for the investment cycle (planning, allocation, and implementation) and could be complemented by full PIMA in-country assessments of the ECCU countries. Over time it can be used to evaluate ongoing efforts at improving the investment environment in ECCU countries. Formal fiscal rules would help improve aggregate fiscal discipline and protect investment when debt falls to sustainable levels. Linking national and sectoral plans more closely with budgeting would make them more effective.

## V. CONCLUSION

Capital spending in ECCU countries falls short of expanding needs and has declined as a share of GDP over the last decade. Additional investment will be needed to close infrastructure gaps so that countries can increase economic growth, provide essential services and build resilience to natural disasters. This will be challenging not least because these countries are financially constrained and are significantly indebted. Regardless of the financing situation, consideration should be given to increasing the efficiency of infrastructure spending, from upstream planning to the appropriate maintenance of available assets, as this will improve the quality and efficiency of investments and productivity.

Investment rates in ECCU countries are volatile and are on average equal to or lower than the replacement rate of capital. This implies that increasing the stock of capital including for climate change adaptation and building resilience to natural disaster will require greater financing as well as implementation effort. However, high committed undisbursed balances suggest the need to address weaknesses in PIM primarily related to project preparation and implementation so that this financing can be faster accessed and better spent. Additionally, project implementation delays are lengthy and anecdotal evidence of high cost overruns suggest the potential for expenditure savings by streamlining project delivery. Our examination of maintenance spending on public infrastructure suggests that such spending is suboptimal. This implies that increasing maintenance spending to appropriate levels could improve the productivity and efficiency of existing infrastructure and could be a lower cost option than investments in new infrastructure.

The low scores on the PIMA highlight several weaknesses in public investment management systems in ECCU countries and identifies areas for institutional strengthening—of structures, rules and procedures—to improve the quality and efficiency of public investment. Better transparency and accountability requirements and public oversight of planning frameworks, improved decision making, and increased reporting combined with better compliance with rules and procedures could increase the likelihood of achieving investment objectives. Doing so will require upgrading legal frameworks, improving human and technical capacities and strengthening institutional coordination and administrative efficiency. Regional solutions to strengthen planning, project assessments including PPP's, regulation, audits, etc., should be explored to address capacity constraints and take advantage of economies of scale. Reliable data and integrated ICT systems are needed to facilitate planning and oversight. Lastly, strengthening the governance and accountability framework across PIM systems could improve effectiveness and help unlock concessional financing for infrastructure investment.

## Annex I. Public Investment Management Assessment

### Planning Sustainable Levels of Public Investment

#### 1. Fiscal Rules

Fiscal principles or rules, where they exist, focus on achieving fiscal stability but do not specifically target capital expenditure. ECCU countries acknowledge the ECCB Monetary Council's recommendation to achieve a 60 percent debt-to-GDP target by 2030 but this is not statutory nor is it anchored to fiscal targets in the annual budget law of member countries.<sup>30</sup> The median debt level, while declining, was unsustainable in most countries ([63] percent of GDP in 2017) with only Montserrat's debt below 60 percent.

More specifically, the OCTs have fiscal framework agreements with expenditure constraints and debt limits.<sup>31</sup> Their capital spending programs are primarily dependent on grant financing. More recently, Grenada implemented its Fiscal Responsibility Law (2015) with a debt anchor, primary balance and expenditure rules. The primary expenditure rule (a 2 percent cap on real growth on primary expenditure outcomes excluding grants) has limited budget allocations for non-grant financed capital expenditure particularly as project execution declined.<sup>32</sup> St. Kitts and Nevis has a legislated ceiling of EC\$240 million (currently 9 percent of GDP) on long term debt but none on short term debt.<sup>33</sup> The challenge, is achieving fiscal sustainability while maintaining adequate investment levels, which is the primary expenditure component that is cut when consolidation is necessary. Public infrastructure needs in the medium term, will require more access by ECCU countries to grant financing. However, there is scope for them to improve domestic revenue generation and strengthen public financial management (PFM) frameworks so that operating expenditures are limited, and capital expenditure commitments are controlled and made more reliable and sustainable.

#### 2. National and Sectoral Planning

Most countries have sector development and strategic plans. They are primarily standalone documents that are not integrated with each other to address cross cutting issues, prioritization and sequencing among projects, or are integrated with medium-term budgets. In some cases,

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<sup>30</sup> In 2015, the Monetary Council recommended (i) the extension of the target date from 2020 to 2030 because of the significant fiscal and growth challenges facing member countries and (ii) the need for implementation of suitable fiscal consolidation measures and capacity building of technical and administrative skills.

<sup>31</sup> This framework maintains the requirement of keeping: (i) debt below 80% of current revenue; (ii) debt service below 10% of current revenue; and (iii) liquid cash reserves for 90 days of operations. In 2016 the requirement that Anguilla be compliant by the end of 2017 was extended to 2025 with the British government's agreement to Anguilla's banking resolution.

<sup>32</sup> The expenditure rule and ambiguities in the Fiscal Responsibility Law are under review.

<sup>33</sup> All countries produce a Medium-Term Debt Management Strategy (MTDS) which outlines governments' plans for pursuing desired debt objectives and quantitative targets.

sectoral planning work is undertaken as technical assistance provided by external agencies. Dominica, Grenada, Montserrat and St. Vincent and the Grenadines have published national strategies that identify and prioritize sectoral and investment needs, however, only those for St. Vincent and the Grenadines are costed.<sup>34, 35</sup> Some national strategy documents and increasingly budget documents, include measurable impact and activity indicators to assess the status of outputs and outcomes of investment projects. However, the monitoring and evaluation of implementation and the identification of corrective actions are not common. Anguilla, Antigua and Barbuda, St. Kitts and Nevis and St. Lucia did not have published national development plans for the period. Multilaterals and bilateral development agencies utilize national strategies to align their financial support. When these are unavailable country assistance strategies are developed in consultation with country authorities.

There is significant scope to develop and provide strategic focus to infrastructure investment prioritization and criteria. Stronger effort is needed to integrate sectoral strategies to comprehensive national plans to ensure that public investment decisions are based on clear and realistic priorities, cost estimates, and objectives for each sector. Additionally, strategies should indicate how these investments are to impact private investment and identify the absorptive capacity of the public and private sectors. Indicators of the latter are useful to determine which public investment could be readily assimilated, applied and exploited to use productive resources efficiently and increase productivity.

ECCU countries do not prepare and publish medium Public Sector Investment Plans (PSIPs) but many include a subcomponent in their budget and medium-term expenditure frameworks (MTEF) which reconciles costings with projections of available resources for the budget year and medium term.

### ***3. Coordination Between Entities***

While many sub-national or local governments exist, they are not financially autonomous.<sup>36</sup> Consequently, public investment is primarily undertaken by the central government. The Barbuda Council—a sub-national government in Antigua and Barbuda—may, with the sanction of the Cabinet of Antigua and Barbuda, borrow funds, and lease or purchase non-financial assets. In practice however, capital spending in Barbuda is primarily undertaken by the

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<sup>34</sup> Dominica (Growth and Social Protection Strategy 2014–18); Grenada (Growth and Poverty Reduction Strategy 2014–18); Montserrat (Sustainable Development Plan 2008–20); St. Vincent and the Grenadines National Economic and Social Development Plan (2013–25) provides cost estimates for public sector investments of about (EC\$703 million or 36% of 2013 GDP).

<sup>35</sup> Sectoral strategies cover, agriculture, fisheries, health, education, tourism, building resilience to natural disasters and climate change adaptation.

<sup>36</sup> The Nevis Island Administration is responsible for all government functions except foreign affairs, defense, police and social security and directly receives all revenues collected on the island—consequently, and consistent with the PEFA, it is treated as a central government.

central government and they may not be formal discussions on investment priorities. The Council's operational budget for recurrent and capital expenditures are funded through transfers from the central government (about 0.04 percent of total government expenses) and internal revenues. These transfers are done using a transparent rule-based system and the notification of the allocations to be made happens just before the beginning of the fiscal year.

#### **4. Project Appraisal**

In most countries, project appraisals are undertaken at the sectoral ministry or agency with oversight by a centralized technical support unit in the ministry responsible for economic and physical planning. Antigua and Barbuda and Dominica have a standardized methodology for project appraisal which is publicly available. Procedures for evaluation do not distinguish between the sizes of projects but reflect a basic approach of providing information to inform decision-makers about the value and impact of the project (Box 3).<sup>37</sup>

Except for Anguilla and Grenada, project proposals are legally required to be supported by standard economic appraisal techniques such as Cost-Benefit Analysis (CBA).<sup>38</sup> We did not find evidence of the use of other standard appraisal techniques such as Cost-Effectiveness Analysis and or Multi-Criteria Analysis which are used where traditional Cost Benefit Analysis cannot be applied because benefits are hard to quantify or monetize, or data is unavailable.

#### **Box 3. General Procedures for Project Proposals**

Procedures for project evaluation reflect a basic approach of providing information to inform decision-makers about the worth and impact of the project covering:

- Project description, clear and measurable objectives, description of options;
- Institutional arrangements for consultation and prioritization of projects;
- Availability of information and financing to undertake pre-investment work such as sector studies and policy briefs that would inform project proposals;
- Comprehensive identification of costs and sources and amounts of financing for the project. Costings include recurrent and technical assistance costs over a 3-year period;
- Identification of risk factors, monitoring indicators, human resource requirements as well as policy, legal, and regulatory factors that could affect project success.

<sup>37</sup> Supportive documentation includes the projects economic assessment, social and environmental impact analysis; statements of strategic justification including consistency with medium and long term sectoral and national development plans; statement of financial justification; report on the budgetary impact and sources of financing.

<sup>38</sup> In Anguilla and Grenada, CBA's must be applied to projects above the threshold of \$15 million and \$10 million, respectively.

Donor financed project proposals (primarily the CDB and World Bank) generally include pre-investment analytical works (socioeconomic impact studies, CBA's and assessments of feasibility and sustainability) as part of their project appraisal processes and financing approval arrangements. In contrast, such rigor for assessments are not systematically applied to projects funded from domestic revenue and bilaterally negotiated loans and grants. Additionally, it is unclear whether project proposals, as a standard, include comparisons of the estimated economic and social impacts of alternative projects with the same objectives or intended outcomes. For instance, improving asset utilization or more extensive use of demand management techniques may cost less and be more efficient than building new capacity. On the other hand, including stronger resilience to natural disasters in the design specification may cost more but this may be offset by lower output loss and rebuilding costs over the long term. Consequently, the selected project proposal may be presumed to be welfare-improving without considering the tradeoffs of alternative projects.

Establishment of a pre-investment financing mechanism will: (i) provide a potentially useful source of project ideas or solutions; (ii) contribute to the deepening of sector knowledge and the strengthening of the evidence basis upon which projects are designed; (iii) provide valuable information on risks and other factors that could impede the successful achievement of project objectives; and (iv) support a more proactive approach to engaging the national community and external financing agencies in informed dialogue on public investment priorities.

While risks are typically acknowledged in project proposals they are often not costed and integrated into the investments. Risk management processes are not applied throughout the project life cycle or used to incentivize the private sector to adopt mitigation measures to reduce adverse impacts. Contingency reserves that specifically cater for possible project cost overruns are not included in budgets. However, general contingency allocations in their budgets of Grenada, St. Kitts and Nevis, and St. Lucia could be used for this purpose.

### ***5. Alternative Infrastructure Financing***

Economic infrastructure provision varies by country but is generally undiversified and under regulated. Monopolies dominate the provision of core infrastructure services particularly transportation, water and electricity which in part reflects public policy as well as small country size and diseconomies of scale—see Table 1. Electricity and water utility companies have exclusive rights for production, transmission and distribution. Independent production of water and electricity is permitted within limits for sale to the utility companies.<sup>39</sup> More recently many governments have identified the need to foster competition and private sector participation, particularly in renewable energy. However, this needs to be backed by supportive legal and regulatory frameworks including independent regulators that facilitate license issuance, tariff

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<sup>39</sup> Water supply in Anguilla and Antigua and Barbuda and electricity supply in Antigua and Barbuda and St. Kitts and Nevis, for example, is augmented by the private sector under PPP arrangements with the SOE Utility.

setting and market oversight and assures new market entrants of a level playing field.<sup>40, 41</sup> Telecommunications are mainly provided by private companies in a competitive environment. In Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines telecommunications licenses are regulated by the Eastern Caribbean Telecommunications Authority (ECTEL), a regional regulator.<sup>42</sup>

Most countries do not have institutional frameworks for assessing and managing PPPs. PPPs can deliver substantial savings relative to public provision but not all investment projects can be effectively delivered using them. Although many countries have utilized PPPs, particularly for energy infrastructure, only Anguilla and Grenada have published policy, appraisal and monitoring criteria or guidelines for undertaking them. The former is enshrined in its FRA while the latter is a PPP policy framework approved by Cabinet (2015).<sup>43</sup> Both require (i) the alignment of PPPs with development objectives, (ii) the presentation of a business case and appraisal of the viability of PPPs to ensure value-for-money, (iii) that the fiscal impact of PPPs is well-understood, expected costs are affordable, and the level of fiscal risk is acceptable, and (iv) transparency in the selection and performance of PPPs. Additionally, to mitigate costs of preparing and managing contracts, only projects valued above EC\$65 million and EC\$50 million in Anguilla and Grenada, respectively, will be considered. To ensure predictability in outputs and mitigate risks, projects where the fast pace of change in the sector makes it difficult to define or specify the outputs required will not be considered. Anguilla's FRL also requires (i) the correct accounting treatment in the public accounts has been utilized and agreed upon by independent qualified accountant and (ii) that the UK government approves the arrangement.

The capacity to undertake value-for-money reviews and manage PPP's is being considered in some countries. Anguilla must commission independent accounting, legal, financial, economic, environmental, and other technical advice as appropriate to ensure robust investment appraisals are produced. Grenada is establishing a PPP focal point—Steering Committee, Core Team and Execution Team—and in the interim, has solicited technical assistance from the CDB for assessing PPP projects. St. Lucia has initiated the establishment of a PPP Unit in the Ministry of

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<sup>40</sup> Grenada's Electricity Supply Act (2016) provides for entry of additional suppliers on clearly defined terms. However, GRENLEC, the island's main electricity service provider currently holds a 79-year monopoly under the electricity supply act no. 18 of 1994.

<sup>41</sup> The Eastern Caribbean Energy Regulatory Authority (ECERA) project was launched in 2015, with Grenada and St. Lucia as initial participants, aimed to promote these objectives in the ECCU as well as energy sector plans and cross border interconnection. Its scope was adjusted in 2016 to advance the establishment of national energy regulatory entities in Grenada and Saint Lucia (both entities would also regulate the water and sanitation industry) that would have direct regulatory oversight of the industry. ECERA and the national regulators were established in 2017 but are not fully functional.

<sup>42</sup> ECTEL recommends procedures and guidelines in the areas of Access and Interconnection, Pricing, Spectrum Management, Numbering, Licensing and Universal Service.

<sup>43</sup> A government policy paper was approved by the St. Lucia's cabinet in March 2015 but not published.

Finance to undertake value-for-money reviews. None of the countries have recorded contingent liabilities related to PPPs and there is ambivalence about their existence.

SOEs are major contributors to public investment but information on their investment and reviews of their financial performance is generally limited. Except Grenada, the net asset positions of many SOEs is not known on a regular or timely basis.<sup>44</sup> Weak reporting compliance significantly limits the effective oversight and quantification of the risks to the government's fiscal plans originating from SOEs and more broadly the operations of the public sector. Government oversight of the acquisition and disposal of financial assets is also limited.

## **Allocating Public Investment to the Right Sectors and Projects**

### **6. Multi-Year Budgeting**

Capital spending in many countries is budgeted on a multi-year basis - the budget year and 2 outer year forecasts—but does not provide explicit assurances that the full funding requirements could be met. The expenditure estimates for the budget year reflect institutional ceilings for budget appropriations while the outer years are indicative and not reliable this limiting the effectiveness of medium-term budgeting. Budget documents in Antigua and Barbuda, Montserrat and St. Vincent and the Grenadines provide capital expenditure estimates for the budget year only while in Dominica total capital spending is forecasted for the budget year and 2 outer years.<sup>45</sup> Most budget documents identify the source of funding for projects, but few country budget documents provide both capital spending by ministry and project. Few countries, Anguilla, Grenada, and Montserrat publish projections of the total cost of major capital projects on budget documents.

### **7. Budget Comprehensiveness and Unity**

The budget reflects central government capital spending and includes funding sources and allocations by ministry. Most capital expenditure is externally financed (grants and loans) often agreed by financing agreements. In few cases, capital expenditure estimates identify the two subcategories of gross fixed capital formation: (i) infrastructure investments and (ii) equipment and renovations). Most externally funded capital projects are integrated into ministerial or sectoral investments in budget documents for the current budget year.<sup>46</sup> Generally statutory bodies and SOE's—for example, Social Security Schemes, Sugar Investment Diversification Fund (St. Kitts and Nevis), National Investment Authorities, Port Authorities—operate as extra-

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<sup>44</sup> Few Statutory bodies and SOE's (i) comply with the requirement to submit audited financial statements to the responsible Minister for tabling in Parliament within 6 months of the financial year end or (ii) submit quarterly management reports, financial statements, as well as business, borrowing and investment plans to the Ministry of Finance.

<sup>45</sup> ECCU countries do not include forward year estimates beyond 2 years in budget documents.

<sup>46</sup> Staff of planning and budget departments identify a few cases of extra-budgetary capital spending in which government executing ministries and their executing agencies by-pass the budget process using direct funding from multilateral agencies.



budgetary units. The subsidies/transfers they receive from government is included in budget documents and ex-post financial reports, however other revenues and expenses are not. We were unable to quantify the extent of extra-budgetary capital spending.<sup>47</sup> Only St. Lucia includes information in the budget on PPP's.

Ministries of Finance typically prepare the recurrent and capital budgets in a single document following consultation with sector ministries. However, except for St. Kitts and Nevis the project costs for sectors and programs did not include or separately identify their recurrent costs of ongoing projects or new projects in budget documents for the budget year and the medium term. In many budget documents road maintenance costs and refurbishment of public buildings are included in capital expenditures as projects.

All countries used GFS 2001 during 2013–16 however the application of appropriate program classification and Chart of Accounts varied and often did not comply with international standards. The capital expenditure budgets for Dominica, St. Lucia and Grenada included items unrelated to fixed capital formation or their upkeep. In a reclassification of St. Lucia's 2014–15 and 2015–16 capital budget (5.6 and 5.3 percent of GDP, respectively) by the Ministry of Finance about 62 percent reflected capital formation with the remainder related to social programs, maintenance works and tourism marketing. A revision of Grenada's Chart of Accounts in 2016 in preparation for its adoption of GFS 2014 resulted in a reduction in capital expenditure from 7.7 percent of GDP to 4.2 percent of GDP.

### ***8. Budgeting for Investment***

Budgetary mechanisms in most countries do not totally protect investments particularly those financed by own funds. Total project outlays are not appropriated at the commencement of the project but rather there are annual appropriations for estimated annual spending. Additionally, only in half of the countries (Anguilla, Grenada, Montserrat and St. Vincent and the Grenadines) is information on total project costs included in budgets although not for all projects. Virements from capital to current spending is prevented in most countries except, Anguilla, Dominica and St. Lucia where there is no limit on virements. Unspent appropriations generally lapse at the end of the financial year in all countries.<sup>48</sup> In most countries excepting Dominica and St. Lucia, spending on capital projects which were contemplated in a previous year, continue for at most four months past the commencement of the financial year, in the absence of a current Appropriations Act.<sup>49</sup>

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<sup>47</sup> Consequently, our assessment and score relied on the country PEFA score.

<sup>48</sup> In practice however, virements would not be allowed if they were to void the terms and conditions of external donor financed projects and financing for multi-year projects would still be available even though annual appropriations were required.

<sup>49</sup> This allows for the continuation of government in extraordinary circumstances and emergencies.

Notwithstanding the above, donor financed projects are generally protected. Donor financing (including counterpart funding) is guaranteed by loan/grant agreement and typically covers the total cost of projects even though annual appropriations were required. Virements of such funds would be unlikely as they would void the terms and conditions of the agreement.

### ***9. Maintenance Funding***

Governments do not have standard methodologies for estimating routine maintenance needs and costs nor is there a standard methodology for determining major improvements to existing assets. While maintenance costs are identified in project proposals for large projects financed by external donor agencies there aren't records of whether this is being applied. This may partially reflect the paucity of data on the technical condition and performance levels of infrastructure assets over time which limits assessments of optimal maintenance needs.

All countries provision for maintenance and rehabilitation works in ministerial budgets however our earlier assessment suggests that this is inadequate. Further, actual spending in most countries is below budget allocations. The importance of appropriate provisioning for recurrent expenditures is underscored by the need to ensure the adequacy of operations and sustainability of public fixed assets and equipment.<sup>50</sup> This highlights the need for strengthening the connection between the capital and recurrent components of the budget.

### ***10. Project Selection***

Typically, project proposals and supportive documentation should be cleared by a centralized technical support unit (typically at the Ministry of Finance and Planning) before vetting by an inter-ministerial evaluation committee that has the responsibility for proposing the prioritization of projects. Project selection for the budget and inclusion in the pipeline of projects in the PSIP is typically decided at the ministerial level.

In the absence of national development plans responders indicate that the criteria for selection are based on government priorities—employment creation; foreign exchange generation, investment in critical infrastructure, plant and equipment; food safety and security, social programs for poverty alleviation—but criteria for selection is not transparent in many cases. It is unclear whether selection is based on the maximum net benefit principle—after considering their economic, social, environmental and financial impact. This approach results in efficient public expenditures or limits wasteful spending or spending on marginal projects.

The verification of project readiness for implementation such as financing assurances, availability of land, feasibility studies, technical specifications, procurement schedules, is inadequate or missing. Consequently, there are substantial delays in the execution of capital

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<sup>50</sup> Investments in pipes to expand access to water sources or in additional electrical transmission and distribution lines can be made, but if network maintenance and administration are weak, losses in the distribution of water and electricity will not be reduced and the financial sustainability of the service will be compromised (IDB, 2014).

spending and adverse impacts on the quality of projects when projects that are not ready are included in the budget.

Governments maintain a pipeline of approved investment projects but there are exceptions where other projects are included based on (i) the availability of external funding, (ii) emergency rehabilitation and replacement needs, (iii) political expediency, without vetting by the inter-ministerial committee.

## **Delivering Productive and Durable Public Assets**

### ***11. Procurement***

Good procurement processes for goods and services generally lead to high value-for-money outcomes regarding reasonable costs, high quality of construction, and adequate construction times, all of which result in more efficient public investment. The legislative frameworks for government procurement are publicly available and have been updated in the last decade although not in all cases have the relevant regulations been promulgated.<sup>51</sup> Open competition is the de jure procurement method in the legislation for most countries except Antigua and Barbuda and St. Kitts and Nevis. When utilized this provides some assurance that fair and reasonable prices and overall value-for-money are obtained. Procurement legislation for Anguilla, Montserrat and Grenada specify the conditions (including values) under which the different procurement systems can be deployed while that in the other countries is subject to discretion. With limited local firms and the political imperative of utilizing local firms where possible it is unclear whether selection of firms reflects the best competitive bid. Regardless of the procurement method used very little information on procurement plans, procurement processes in their various stages of invitation to tender and the award of contracts is publicly available except in Anguilla, Montserrat and Grenada. Consequently, it is difficult to support general claims that most non-project financed procurement was competitively bid. Additionally, while the Central Tenders Board in countries acts as a review body in the first instance independent administrative procurement complaints mechanisms have not been established.

### ***12. Availability of Funding***

The reliability of forecasts and timeliness of cash flows for projects varies and affects project planning and commitment. Ministries of Finance establish the financial programming for the financial year (per month and quarter) to allow the management and utilization of financial flows based on the allocation of available funds. Most, except St. Vincent and the Grenadines, undertake in-year monthly and quarterly cash flow forecasts which provide a good gauge of the timeliness of cash for project implementation. Cashflow constraints—revenue and external financing—causes delays in project implementation. Since donor financing is guaranteed by an agreement they are considered more reliable for project planning and implementation over the

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<sup>51</sup> Some statutory bodies maintain their own procurement policies and guidelines (under the law establishing the body in question) and they are generally not published.

duration of the project than own-source funds which are more unpredictable and subject to rationing depending on the prioritization of allocation of funding for expenditures (including for emergency disaster spending on relief, rehabilitation and repair). Consequently, capital spending in any given year is unstable in countries experiencing fiscal constraints and in many countries is primarily driven by the availability of external financing.

External project financing is still largely retained by donors in separate bank accounts and not in a governments' treasury single accounts (TSA). In principle, all externally-financed projects are fully included in budget estimates but generally the funds flow through separate accounts opened for the purpose which are not directly under the governments' control. This lack of integration with the TSA reduces effective cashflow management and project implementation. Additionally, there is a possibility that some donor funded expenditure may not be captured in out-turn statements.

### ***13. Portfolio Management and Oversight***

The annual costs and physical progress of major capital projects are monitored during implementation. Typically, this is centrally monitored by the Planning Unit at the Ministry of Finance although line ministries in some countries monitor physical progress. Donors for ODA projects also monitor project implementation.

Governments do not routinely undertake ex post audits of capital projects to (i) revalidate the feasibility of projects regarding relevance, efficiency, and effectiveness; (ii) provide learning and feedback from project implementation including cost overruns and implementation delays. In particular, ex-post audits would usefully identify areas where the management and institutional capacity of public sector entities needed strengthening and improvements in PFM systems would lead to better quality of projects and development outcomes. External agencies (CDB, EU, World Bank, etc.) sometimes undertake ex-post audits of projects using independent auditors.<sup>52</sup>

### ***14. Management of Project Implementation***

The management and control of capital projects during the execution stage varies substantially across countries. Except for Grenada and St. Lucia, senior officers responsible for project management and control are systematically identified by sector (line ministry) for major investment projects in most countries. Even then the extent of monitoring and reporting on the physical progress and the reasons for deviations from planned targets varies by ministry within countries. In Dominica, Montserrat and St. Vincent and the Grenadines implementation plans are prepared prior to budget approval. It is unclear whether any country has established standardized rules and procedures for project adjustments or redevelopment of projects.

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<sup>52</sup> Evaluations are done in consultation with the fund recipient country and the conclusions and recommendations of the final report discussed. Typically reports are published.

### ***15. Monitoring of Public Assets***

The value of public assets is not properly accounted for and reported in financial statements. Generally, the scope and procedures for the management of non-financial assets are clearly defined in the legal framework but an updated and substantially complete registry of fixed assets is not available. Asset registers on the stock, value and condition of fixed or non-financial public assets—useful in facilitating physical asset planning and management, assessing the costs of addressing a country’s infrastructure and maintenance needs, and for insurance valuations—are in general neither regularly maintained nor include current valuations. This limits the opportunity to optimize maintenance and extend the use of infrastructure including buildings and other assets. In a few country cases asset registers are available for (i) heavy duty equipment and their estimated purchase values are available but these are not updated annually to reflect depreciation (Anguilla, Montserrat, Grenada, St. Lucia); (ii) government buildings—location and size—but that did not indicate their values or physical condition. Information on road networks and quality or other physical infrastructure is outdated. Most countries maintain a register of government lands, but the register does not include land valuations. Excepting Montserrat, government balance sheets do not include any information on non-financial assets. Lastly, depreciation of fixed assets is not recorded in operating statements.<sup>53</sup>

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<sup>53</sup> Grenada plans to implement an asset management system by end-2019 as part of a reform initiative to adopt international accounting standards.

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