

Lee, Ho jun

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The Public-Private Partnerships and the Fiscal Soundness of Local Governments in Korea

By HOJUN LEE*

This paper studies the risks associated with local finance in Korea by identifying the financial status of each local government, including the financial burdens of PPP projects, and examined governmental future burdens related to PPP projects. We reviewed all fiscal burdens associated with projects, such as, for BTL (Build-Transfer-Lease) types of projects, facility lease and operating expenses, and, for the BTO (Build-Transfer-Operate) types of projects, construction subsidies that are paid at the construction stage, MRG (Minimum Revenue Guarantee) payments and the government's share of payment. Furthermore, we compared the annual expenditures of local governments on PPP projects against their annual budgets and checked if the 2% ceiling rule could be applied.

Key Word: Public Private Partnership (PPP), Fiscal Burden,
2% Ceiling Rule, Fiscal Soundness, Local Government
JEL Code: H54, H63, H72

I. Introduction

Large-scale development projects are closely tied to the political interests of the region in which they occur. A politician who is elected through the elections tends to respond very sensitively to these political interests. According to Kim and Lee (2012), the chances of the head of a local government successfully to be re-elected significantly increases as the overall scale of the large-scale public investment projects she attracts during her term increases. This shows that there is a strong incentive for the heads of local governments to promote large-scale projects to increase their re-election chances and to strengthen their political positions.

However, there is a limit when local governments directly lead public investment projects which are funded by the central government in Korea. Because

* Fellow, Korea Development Institute (e-mail: hojunlee@kdi.re.kr)
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the central government, including the Ministry of Strategy and Finance (MoSF), manages the public investment plans and measures their financial soundness from a national perspective, even if the local government wishes to carry out a project, it is often not approved by the finance ministry. On the other hand, in order to meet continuously increasing welfare demands, budget expenditures in the social welfare sector are expected to grow. Thus, the promotion of large-scale development projects within the budgets of local governments is limited.

For these reasons, local governments often seek to carry out large-scale development projects through what is termed a PPP (Public-Private Partnership). This enables them to carry out projects without major funding from the central government and without placing a greater short-term financial burden on local governments. Nonetheless, because most PPP projects require large amounts of spending over time frames measured in decades, the financial burden of each project must be carefully examined from a long-term perspective before a decision is made to proceed.

In cases where one is more focused on achieving political benefits through short-term project performance, as opposed to long-term financial risk, there is a possibility that politicians, especially the heads of local governments, would promote a project excessively and cause serious financial harm. This is especially true for certain smaller local governments, as the performances of even small PPP projects can damage the financial liquidity of such local governments.

Therefore, it is crucial to manage PPP projects sustainably given a certain level of financial risk, as the best advantages of public-private partnerships, such as the effective sharing of project risks, short-term relief of financial burdens, and the leveraging of the private sector's creativity and efficiency throughout the phases of designing, constructing, and operating, can be achieved only when financial risks are managed well.

However, thus far the overall management of PPP projects by local governments in Korea has not been entirely satisfactory. The central government authority that oversees all PPP projects is the Ministry of Strategy and Finance (MoSF). However, the central government authority that oversees local finances is the Ministry of the Interior. Therefore, collective management at the governmental level of agendas such as those related to the impacts of PPP projects on local finances is challenging.

This paper focuses on analyzing the level of risks faced by those managing local finances by identifying the financial status of each local government, including the financial burdens of PPP projects. This requires a close examination of the nature of financial burdens related to PPP projects. The governments' burdens related to PPP projects are, in the case of BTL (Build-Transfer-Lease) projects, facility leases and operating expenses, while for BTO (Build-Transfer-Operate) projects, construction subsidies that are paid at the construction stage², MRG (Minimum

²In this research, discussion on local governments' construction subsidy payments will be excluded, as most construction subsidies paid by local governments come from the central government. Even for projects run by local municipalities, depending on the project types, often the central government supports certain portions from MoSF as a construction subsidy, and there is rarely a case where a local government pays such amounts alone. Moreover, despite the fact that construction grants are deemed payable by local governments, detailed information such as the payment schedule is not provided. For these reasons, this study does not investigate the financial burdens of local government as regards construction subsidies.

Revenue Guarantee) payments³ and government's share of the payment constitute the main costs for the government. All of the related payment rules are determined by the type of contract, also known as the concession agreement.

The accounting methods used to for an accurate measurement of the financial burdens of governments in relation to PPP projects have been debated over the last few years. There is some debate over whether or not to include definite government payments, such as facility lease payments for BTL projects, as part of the debt. In this regard, some argue that along with changing the government accounting standard to the Accrual and Double-Entry Bookkeeping Accounting System, accounting method used to measure PPP investments also needs to be strengthened. In the case of Korea, in 2009 the government accounting system was converted from a cash basis system to an accrual basis system, and the double-entry bookkeeping accounting system was also adopted. Before the conversion, under the cash basis system, the governments' payments on public projects were recognized as expenditures and were not counted as government assets or liabilities. After the conversion to the accrual basis, more claimed that PPP facilities should be counted as assets in accordance with the concept of contributed acceptance and that the payments should be counted as debt as well.

More importantly, after the adoption of the new government accounting system, the symmetry between corporate and governmental accounting systems become more evident. With corporate accounting systems, most recognize BTL projects as bonds with secured rights to future lease fees from the government in accordance with contributed acceptance. Considering the symmetry in accounting systems, the claim that the leases should be recognized as a liability is compelling.

Taking this into the consideration, the Ministry of Strategy and Finance announced that it would include lease payments to private partners for BTL projects as liabilities in starting in 2011, recognizing this situation as the acquisition of real assets.⁴ Moreover, the Local Finance Act was revised in 2014 and included lease payments related to BTL projects as debt management items. The revised Act also counted lease payments for BTL projects as among local government's liabilities, which serves as a key indicator for use when measuring local bond issuance amount limits.

Despite the fact that there exist various opinions regarding how to account for BTL lease payments, this study aims to analyze BTL-related lease payments as a governmental burden in accordance with the accounting guidance set by central and local governments at present. Moreover, this research will attempt to include the government's share of fixed payments related to BTO-type projects as local governments' liabilities. In this way, this study aims to analyze how the fiscal risk of each local government can change.

On the other hand, with regard to government payments that are decided upon

³The government was found to be taking too much demand risk; therefore, the Minimum Revenue Guarantee system was gradually abolished. Starting with new projects in 2009, it was completely discontinued.

⁴Until the Local Finance Act was revised in 2014, local government liabilities were limited to municipal bond borrowings, debt instruments and guaranteed liabilities. Especially the local governments' PPP projects have high possibilities to cause long-term financial burdens by nature. However, as payments derived from PPP investment were not counted as the local liabilities, there has been a limit to accurately replicate financial burdens of local municipalities.

after the completion of the project, it would be difficult to count these as among the liabilities directly. However, it would be important continuously to monitor the fiscal burdens of local governments that may stem from these payments. Therefore, this research will estimate these potential government payments based on the past financial records of each type of projects. Such payments will include costs, such as the operation costs of BTL-type projects and the MRG payments of BTO-type projects. Through these steps, this research aims to investigate the potential fiscal burdens of governments, with these then used as reference data while determining project decisions regarding future projects.

Furthermore, this paper aims to measure the annual fiscal burdens of governments against the annual governmental budget. Most international organizations, such as the International Monetary Fund (IMF), recommend that government spending on public projects remain under 2% of the government's annual expenditure budget. The Ministry of Strategy and Finance also set their guidance at 2% and with continuously monitoring, such that annual expenditures on public projects are within 2% of the central government's annual revenue-expenditure budget. However, such guidance is not yet considered for local governments. Therefore, we will compare the annual expenditures of local governments on PPP projects against their annual budgets. Thus, the present study examines whether the 2% guidance level can be implemented within all local governments or whether any local government would have difficulties meeting this guidance level.⁵

We feel that this paper is significant in that it offers a full-scale analysis of the relationship between PPP projects and the financial burdens of local governments, which has not been addressed in detail. It will broaden the horizons of fiscal risk analysis by investigating the fiscal impact of PPP project investments on local governments, especially the debt level.⁶ Fiscal risk is analyzed with several assumptions about the economic environment in the future as well as the conditions of the agreements. We think this analysis is meaningful in public economics and accounting, area as it deals with the issue of a discounting rate which is used to derive the present value of the fiscal burden in the future. How to determine the discount rate is related to the characteristics of the individual projects as well as the overall economic conditions.

⁵The 2% guidance is recommended to central governments, but we apply the guidance to the local government in this paper as a separate guidance for the local governments has not prepared. We need to set up guidance for small local government in the future research.

⁶This research was limited when used to analyze the liabilities of local governments, and we were not able to include an active analysis of the financial earnings and estimates, fiscal power, and demand for fiscal expenditures. As local governments financial burdens for the future can be adjusted due to future financial earnings trends and fiscal power, though it is important to note that limits apply here. Although all municipalities' public investments and the financial burdens caused by these investments on local governments can be accessed, various factors that could impact local finances were not all taken into consideration. Therefore, it is difficult to define potential fiscal risks for local governments based on this research. However, it remains highly significant to note that this is the first attempt to analyze the risks for local finance derived by the financial burdens from the public investments.

II. Relevant Systems and Previous Literature

Since the National Finance Act was revised in 1963, various systems have been introduced in an effort to sustain the fiscal soundness of local governments. With the moratorium announcement by Seongnam City in Kyeonggi province in 2010, the central government started to bolster the management of local finances. Establishing the Local Government Financial Risk Alert System through the adoption of the Fiscal Risk Management System (December, 2010) is one such example. An overview of this risk management system, which was legalized during the Local Finance Act⁷ revision carried out in 2011, is shown in Table 1.

Every year, key fiscal indicators related to local finances are monitored; after these assessments, the levels of riskiness are categorized into three groups: ‘Normal’, ‘Warning’, and ‘Critical’. If any local government is categorized into the “Warning” or “Critical” group, it is advised to take actions to improve its local finances. The key objective of the system is a properly assessment of fiscal riskiness before any organization faces critical stages and to give each local government the opportunity to improve the soundness of its local finances.

When accessing the fiscal riskiness of each local government, it is very important to choose the proper financial indicators that show the financial status. It is also crucial grade the level of riskiness properly. As of 2014, according to the Local Government Finance Risk Alert System Operational Guidelines established by the Ministry of Security and Public Administrations (currently the Ministry of the Interior) on March 25, 2013, the monitoring guidelines pertaining to indicators are very detailed, categorized by the consolidated central government balance deficit percentages, the debt-to-budget ratio, the debt service ratio, local tax collection status, remaining balances, the public enterprise debt ratio, and other factors. The following guideline shows how each case is categorized into either the “Warning” or “Critical” group after the monitoring stage.

TABLE 1—OVERVIEW OF
LOCAL GOVERNMENT FINANCIAL RISK ALERT SYSTEM OPERATION STANDARDS

Monitoring		Financial Risk Pre-emergency Alert		Risk Management Solutions by Level of Riskiness
<ul style="list-style-type: none"> · Tax Deficit · Capital Balance · Local Debts · Profligate expenditure 	⇒ Integrated Diagnostics	<ul style="list-style-type: none"> · Tax Deficit · Capital Balance · Local Debts · Profligate expenditures 	⇒ In-depth Diagnostics (Financial Risk Management Committee)	<ul style="list-style-type: none"> ○ Warning Group <ul style="list-style-type: none"> · Annual Expenditure / Debts Adjustment · Self-Endeavor Recommended ○ Critical Group <ul style="list-style-type: none"> · Assigned as a group with fiscal risk · Fiscal Normalization Program is Activated

⁷The Local Finance Act

Article 55-2 (Designation of Local Governments in Financial Crisis)

<This Article was Newly Inserted by Act No. 10439, March 8, 2011>

- (1) The Minister of Public Administration and Security may designate a local government deemed in the serious level of financial risk on the basis of the results, or other measures of a financial analysis and financial examination conducted under Article 55 (1) and (2)
- (2) The Standards and procedures, for instance, used to designate a local government in financial crisis, shall be prescribed by Presidential Decree

TABLE 2—LOCAL GOVERNMENT FINANCIAL RISK ALERT SYSTEM OPERATIONAL GUIDELINES

Orders	Indicators	‘Warning’ Category	‘Critical’ Category
Chapter 65 Article 2-1, Item 1	Consolidated central government balance deficit percentage	Over 25%	Over 30%
Chapter 65 Article 2-1, Item 2	Debt-to-Budget Ratio	Over 25%	Over 40%
Chapter 65 Article 2-1, Item 3	Debt Service Ratio	Over 12%	Over 17%
Chapter 65 Article 2-1, Item 4	Local Tax Collection Status	Below 50%	Below 0%
Chapter 65 Article 2-1, Item 5	Remaining Balances	Below 20%	Below 10%
Chapter 65 Article 2-1, Item 6	Public Enterprise’s Debt Ratio	Over 400%	Over 600%

Source: Ministry of Security and Public Administration, Order 1, 2013. 3. 25.

In order to maintain fiscal soundness in local governments, the Ministry of Security and Public Administration suggests a guideline for the issuance of local bonds, the “Guidance on Local Bond Issuance Plan.” The financial status of a local government has a significant impact on measurements of its local bond issuance capability. Therefore, assessments of indicators which represent the state of liabilities, such as a government’s payments for PPP project investments, most significantly for the BTL types of projects, have been strengthened in recent years.⁸ In 2012, the government payments arising from BTL projects were excluded when determining the limit of the local bond issuance amount.⁹ However, in 2013, in order to enhance the effectiveness of the local bond system, the regulation was revised to count BTL payments which have been confirmed for local municipalities to pay private partners.¹⁰ Moreover, in 2014, the category of ‘BTL payments’ was revised to ‘BTL Lease Payments’ to define these payments as the total amount local governments must pay private partners as part of the lease. As a result, among all BTL project-related government payments, only leases, which tend to be counted as definitive payments, are recognized as liabilities.

On the other hand, there exist gaps between the accounting systems of central governments and local governments with regard to PPP projects, making it very difficult to measure the level of the financial burden appropriately. However, the financial burdens stemming from PPP investments are gradually shifting to be accounted for as liabilities at present.

The Accounting Guidelines for PPP projects (BTO·BTL), issued by the Ministry of Strategy and Finance in 2011, set the full annual lease payment as a liability. It recognizes the lease amounts derived from BTL-type projects as a fiscal gain on real assets and accounts for these payments in accordance with the acquisition on a deferred payment basis. However, for lease payments, the nominal value is accounted for as debt and the operational expenses are only counted at the point of the payment, as they do not meet the requirements of the liability category.

Under the Guidelines for Local Governments Fiscal Accounting System, set by the Ministry of Security and Public Administration in 2009, BTL-type project investments of local governments are counted as finance leases. However, the 2013 Handbook for Local Finance Analysis (the Ministry of Security and Public Administration) revised the accounting guidelines to include only the remaining

⁸The Ministry of Security and Public Administration (2011).

⁹The Ministry of Security and Public Administration (2012).

¹⁰The Ministry of Security and Public Administration (2013).

lease payments for BTL-type projects as liabilities and issued a revised the manual which includes related analysis indicators. Through this revision, in terms of regularity, the gaps between accounting guidelines set by the central government and local governments were narrowed.

Moreover, the revision of the Local Finance Act¹¹ echoed the sentiments of the Ministry of Security and Public Administration's efforts in strengthening the level of local fiscal soundness. The scope of manageable liabilities was expanded and the fiscal soundness management plan was developed and carried out. The scope of manageable liabilities included BTL-type project lease payments, as mentioned above, and also included the liabilities of local public companies and sovereign funded institutions.

In addition, the amendment of the Local Finance Act regulates the provision of finance information to residents from their perspective while also disclosing as much finance information as possible. The amendment requires information such as the total debt, contingent debt, investment review project, itemized statements on subsidiaries, investigation results from the Board of Audit and Inspection, and local subsidy reductions in financial disclosures, as well as a consolidated analysis, evaluation and announcement of each local government's finances by the Minister of Security and Public Administration for a better comparison among local governments. Moreover, so that residents can easily assess the local finances overall, the head of each local autonomous entity will now draft and finalize a consolidated publication referred to as the "Integrated Local Finance Statistics," including data regarding the local government, local public corporations, investment agencies and the local education agency, which are to be managed separately.

As presented above, the regulations affecting local financial management have been evolving to strengthen each local government's financial soundness. These positive changes have included (1) intensifications of financial crisis prediction abilities, (2) an extension of the range of local financial management, and (3) an expansion of financial information disclosures. At present, continuous management efforts are essential to make these improvements effective.

For example, the financial burden on local governments for PPP projects requires management by regulation; however, many local autonomous entities in fact have not included any items under the debt management category. Lease fees for BTL-type projects, in the middle of the transition period, are not included when identifying organizations which may be at financial risk.

Moreover, financial burdens in various forms, alongside lease payments for BTL-type projects, are expected to be imposed upon the government in the future. These potential burdens, however, are not being actively managed, as they do not fully qualify as debts. Although not managed as forms of debt, the scope of these burdens must be understood to be utilized for future financial decision-making activities.

As previously discussed, the local financial management regulations of the Republic of Korea have been improving to strengthen the financial soundness of

¹¹The Revision of the Local Finance Act passed at the National Assembly Plenary Meeting, April 2014.

local governments. Nonetheless, it is difficult to conclude that the regulations have been settled, and there is room for improvement. This section looks at various domestic and international case studies in to understand financial management methods for local governments' PPP projects as recommended by different organizations. The section also aims to find ways to settle and improve current regulations.

Domestic studies thus far have mostly proposed the necessity of improving the accounting standards regarding the government's share of PPP project lease payments. Choi (2007) emphasized the necessity of a budget management method to secure financial stability in the provision of public services through PPP projects for leases, where the loan is a major premise and does not allow for a continuous expansion of the project scope. As a solution, Choi proposed the establishment of an annual ceiling for government subsidization (1~2% of the total expenditures) and emphasized that restraints such as reviews of local councils are essential for local autonomous entity-driven PPP projects that exceed a certain size. Subsequently, Choi (2008) focused on the necessity of systematically managing the share of PPP projects within the government's long-term financial plan, specifically public and SOC (social overhead capital) investments. In calling for a managerial system, Choi posited that local autonomous entities' direct executions of PPP projects, without the central government's support, could potentially build a blind spot for finance regulation. As of 2008, funding for BTL projects was recognized as extra-budgetary debts, but not categorized as national debt; it appeared necessary to review the inclusion of for-lease PPP projects when establishing strategies to manage national contingent debt.

The Korean Institute for Local Administration (2008) highlighted the limits in evaluating the level of the contribution local finance analyses and diagnoses at the time was making to the prevention of and restoration after a financial crisis, while emphasizing the need for a legal basis to instigate and systematically manage financial crisis management regulations. Min (2009), similar to previous studies, argued that BTL projects should be included in the debt takeover identified in the Local Finance Act. In detail, Min suggested that local debt management be strengthened by amending the Ministry of Public Administration and Security's "regulation on establishing an upper limit for the local bond system and management of local loans."

Choi (2010) looked at the status of the local finance analysis system, finding that its function was as a comprehensive examination system and not as a set of regulations that intensively analyzes and diagnoses pressure and crisis in local finances. Choi noted that improving the budget and accounting system and installing a control system are important, while arguing that the local finance analysis system must be revised to cover the financial information of local public enterprises and the third sector. Regarding the regulation of financial crisis management, Choi also posed the need to enact a regulation of the financial crisis management of autonomous entities (tentative) rather than amending the existing legislation.

Both Suh (2010) and Jung (2012) suggested the need to recognize all government funds for projects of autonomous entities as debts, forecasting the financial burden to increase continuously in the future. Specifically, Jung (2012 & 2013) called for

factors in not only BTL leases but also BTO allowances for bad debt or losses. Jung also argued that debts from PPP projects should be connected from a macro perspective and that residents' rights to know should be met by disclosing detailed information regarding BTL and BTO projects in financial reports.

Additionally, Min (2013) noted the recent accounting management methods of the Ministry of Strategy and Finance and changes in perception toward debts by the Ministry of Government Administration and Home Affairs have made it clear that BTL project-related rental fees are local debts. However, Min pointed out that there is a gap in the financial management between the "Financial Management of PPP projects" (Ministry of Strategy and Finance, 2011) and the "Operation Regulation for Financial Accounting" (Ministry of Government Administration and Home Affairs), which must be unified as the guidelines of the Ministry of Strategy and Finance. Min also argued that it is necessary publicly to notify residents of comprehensive BTL project-related data such as financial statistics.

Kwak (2013) pointed out the limited possibility of defaults on monetary debt caused by contingency debt, as the current total upper limit ceiling of guaranty debt (payment guarantee) for local loans is not controlled properly. The current system does take into consideration items regarding an organization's planning and execution to strengthen its financial soundness during a financial crisis, but it focuses more on functional execution as a "pre-warning system" and is less effective as a crisis management tool for local finances at a stage where a financial crisis has already broken out. Therefore, a set of management regulations for local financial crises is essential as compared to the current pre-warning system for local financial crises. Jung *et al.* (2013) argued that leases from BTL-type PPP projects must be clearly reflected as debts and that there should be a stoppage of debt trajectories as well as a definite application of standards for future financial burden management (2%).

According to Kim *et al.* (2007), it was forecasted that the fiscal burden of central-government-level PPP projects in Korea would demand approximately 2.1~2.3% of the annual budget under certain scenarios. Thus, they suggested the need for stronger fiscal management of PPP projects.

Most previous studies highlighted the need to include PPP projects by local autonomous entities, especially BTL-type projects, as local debts for comprehensive management. Different arguments regarding a comprehensive management method included a call for in-depth verification via a procedure by the national assembly for projects of a certain size, as well as a call for more proactive public notifications of PPP project-related financial statistics and the provision of this information to residents.

These arguments are similar to the standards of financial management of developed countries and international organizations. According to the International Financial Reporting Standard (IFRS), whether a fund is reported in a government's financial statement is determined by whom among the contracted parties control and manage the services provided by the PFI/PPP funds. More specifically, the International Financial Reporting Interpretation Committee (IFRIC) states this in its 12th Service Concession Arrangements on the financial management regulations

of PFI/PPP projects.¹²

The UK has ensured that the financial standards of its central government are identical to the IFRS standards for the private sector since 2009-2010, also doing so for local governments since 2010-2011. The UK government financial regulations for PPP/PFI projects (HM Treasury, “Tangible Non-Current Assets,” Financial Report Manual, 2009-2010) manages PPP/PFI funds as governmental assets and related liabilities if they fall under all five of the categories below:

- (1) The government controls and regulates the type of service, user and price of the infrastructure.
- (2) The government controls a core part of the remaining share such as ownership and beneficiary rights of the infrastructure at the end of the service contract.
- (3) The operator has built or obtained the establishment from a third party for the service contract, or the establishment has been recognized as the operator’s asset in the past.
- (4) In unitary payment, portions related to property security are categorized as debt, separate from the service costs and interests.
- (5) Service costs and interests are treated as annual expenditures.

In addition, the standards of the UK are similar to the “Financial Management Regulations on BTO and BTL Projects” (Ministry of Strategy and Finance, 2011) and coincide with the arguments in various Korean studies where BTL facilities are treated as assets and the related rental fees as debts.

On the other hand, EU nations, unlike the UK, do not manage PPP-related government funds as government debts. Countries such as France treat PPP projects for service sale as annual expenditures in the form of operating leases, and do not show changes in their perspective toward government financial management regulations for PPP projects for service sales. The Manual on Government Deficit and Debt, 4th Edition (March 2012) by Eurostat included no changes to its financial regulations, implying that EU nations will follow Eurostat standards for their governments’ financial management until the International Public Sector Accounting Standards (IPSAS) are separately available. However, organizations such as the IMF and the European Central Bank report that the Eurostat standards are too generous, and the regulations of the International Public Sector Accounting Standards Board (IPSASB) should be adopted.

Specifically, the IMF states that all information such as costs and contingent liabilities for PPP projects should be transparent. The IMF (2007) also holds that PPP projects (or similar types) should provide notification of the contracted requirements (including government subsidiaries) and its impact on the financial earnings and expenses as well as the national debt in the government budget and financial statements. The IMF also argues that there is a need to set an upper limit depending on the capabilities of the country in question.

Many, including the UK which introduced the concept of PPP projects, which

¹²Regarding influence, although a financial management strategy for private investors may be established, it must comply within the government’s financial management method.

have become globally popular, as well as major international organizations, emphasize the importance of managing government funds for PPP projects. Their arguments regarding the need to establish an upper limit for government funds toward PPP projects is similar to the perspective in earlier Korean studies.

Considering this, it can be said that Korea should also understand the government burden and prepare financial management solutions for PPP projects. Specifically, the scale of the financial burden on local autonomous entities and its influence on local finance should be grasped, especially targeting entities that have not received a thorough analysis of government subsidiaries. The next part of this paper looks at the scale of the governmental financial burden from PPP projects of local autonomous entities as well as its impact on local finance. Regulatory solutions in managing the PPP projects of local autonomous entities are also studied.

III. Estimation of the Change in the Debt Burden from PPP Projects of Local Autonomous Entities and an Analysis of Its Impact on the Soundness of Local Finance

This chapter estimates the remaining balance of rental fees from BTL-type projects among PPP projects of local autonomous entities. As previously discussed, including rents from BTL PPP projects in debt is consistent with the improvement strategy of regulations, considering the accounting management methods of the Ministry of Strategy and Finance, regulation improvement strategies of the Minister of Security and Public Administration, the policy of UK Department of the Treasury, and the IMF recommendations. Therefore, the remaining balance of BTL PPP projects should be included in the debt of the pertaining local autonomous entity. Despite the recent regulation changes, this work has not begun, posing limits to how each entity's financial soundness changes depending on the rents of their PPP projects.

In this Part, how each local autonomous entity's accounting status changes by factoring in the estimated rents to the existing debt of the entity. The change in the degree of financial risk at each entity is looked at based on the standards of the pre-warning system for local financial crisis.

In addition, some BTO-type projects resulted in direct payment of costs from the government. Among these cases are projects that included fixed charges for the government to pay fixed amounts of funds to private investors on a fiscal basis. In cases which a fixed amount is regularly paid is virtually considered a debt. Although the current accounting management standards does not specify directly, this study attempts to consider the characteristics of the 'fixed charges' and reflect them on debts to look at the financial soundness of the local autonomous entities.¹³

¹³Many variables, aside from the debt status, should be included in the analysis to assess the risk of local finance. The degree of risk can be different for local autonomous entities that hold the same size of debt depending on the future financial earnings and expenses, budget changes and fiscal capacity of each entity. Due to the limited resources, not all of variables possible could be considered for financial risk analysis. Therefore, it is necessary to take caution not to be conclusive in judging the future financial risk of the local autonomous entities as estimated

A. Estimation of the BTL Project Balances of Local Governments¹⁴

As of the end of 2013, 134 local autonomous-entity-managed projects (government funded)¹⁵ of 79 low-level local governments^{16, 17} receive local payments as facility leases among their government subsidiaries for BTL projects. Among these, 96 projects have commenced and 38 projects have not been started.

The total facility rental fees for the contract projects amounted to 13 trillion, 213.7 billion KRW (present value) and 663.7 billion KRW (present value) annually, among which approximately 451.1 billion KRW (present value) in leases is estimated for payment for the year 2013 for 96 projects under contract.

The status of facility leases by project type is shown in Table A1 in the appendix. The table above visualizes the contracted facility leases of each local autonomous entity's PPP projects. In terms of the size of the annual lease by project, a number of projects exceed an annual rental fee of over 10 billion KRW, including Pohang-si (14.2 billion KRW annually) and Pyeongtaek-si (11.3 billion KRW annually).

BTL-type PPP projects are structured for the private investor to invest funds in the construction process for the establishment of social infrastructure, and to earn a certain amount of profit from the long-term lease amounts paid by the government for operation, collecting the funds (the total PPP investment). The rental fee is set by contract, and the government pays the rental fee to the private investor under normal circumstances. The facility lease is calculated as shown below:

$$\text{Facility lease} = \frac{\text{Total PPP investment} \times \text{Rate of return}}{1 - (1 + \text{rate of return}) - (\text{period of rent})}$$

TABLE 3—STATUS OF BTL PROJECTS (GOVERNMENT FUNDED) POST CONTRACT

Category	Contract	Pre-commencement	Post-commencement	Total
Culture and tourism		3	25	28
Welfare		5	5	10
Information and communications	1		2	3
Environment	2	27	64	93
Grand total	3	35	96	134

TABLE 4—STATUS OF BTL PROJECTS' LEASES (GOVERNMENT FUNDED) POST CONTRACT

Category	Number of projects managed by local autonomous entities (government funded)	Number of low-level local governments*	Total amount of the facility lease (present value)	Annual facility lease (present value)
	134	79	13,213.7 trillion KRW	600.6 trillion KRW per Annum

Note: * The projects executed by metropolitan city headquarters are appropriated as separate local autonomous entities.

based on the change in the entities' debts.

¹⁴The Infracore DB (Ministry of Strategy and Finance) is utilized for all PPP project-related information for this study. Projects only in the stage of post-contract are included.

¹⁵Projects only in the stage of post-contract are included.

¹⁶The headquarters of each local autonomous entity is assumed as a separate low-level local government.

¹⁷Educational facility BTL projects of local autonomous entities were excluded in this study as the leases are paid by the Ministry of Education.

As shown above, the BTL-type lease follows the equation of the principal and interest method by dividing and paying the investment principal and interest, which reflects the rate of return on top of the total PPP investment by a PPP project operator, into equal amounts annually. Therefore, the annual facility lease to be paid is virtually settled when the total amount of PPP investment is decided. The BTL-type rental fees are considered to be similar to fixed debts.

Additionally, considering the fact that a lease set by contract has never been deducted due to problems during the operation time,¹⁸ it can be presupposed that the private investor or the government will pay the set rent, as fixed by contract, during the time of the project. Thus, to estimate the size of the BTL lease to be placed as a burden on local autonomous entities, it is fair to use the method of subtracting the lease payment made by the government through 2013 from the total lease laid out in each contract. As the payment is made via the equation of the principal and interest method on a fiscal basis, the total lease is divided by the rental period to calculate the annual rent, which can then be applied to the remaining project period to calculate the size of the future BTL rent.

This study assumes that the government has made payments as contracted through the end of 2013, as each local autonomous entity does not have actual information about the lease payments made. As this study focuses on local finance, the amount to be paid by each entity is separately calculated and combined by categorizing the payer within the government subsidiaries for BTL projects. In short, the lease payment data (divided into national treasury and local cost), as recorded in the Infracore DB, was utilized to calculate the share of local costs paid by local autonomous entities for facility leases of projects, which was then applied to the annual facility lease to calculate the balance of the lease between the end of 2013 and the end of the completion of each project.

By using this method to calculate the lease balance of 134 projects after 2014, the local burden on local autonomous entities was estimated to be 4 trillion 773.8 billion KRW (present value) in total. When the lease balance for current BTL projects was categorized according to the local autonomous entities, Jeju Special Self-Governing Province recorded the highest level at 340.9 billion KRW (present value), followed by Gwangju-si at 264.2 billion KRW and Daejeon-si at 250.3 billion KRW. Table 5 below and Table A2 in the appendix indicate the total lease amounts and the remaining balance of payments after 2014 by each local entity more in detail.

¹⁸In BTL projects, the government pays the total of the rental and operation costs to the private investor on a fiscal basis. Even if the government subsidiary is reduced due to construction problems during operation and paid to the SPC instead, it is customary for the SPC to treat this as an operation problem and normally pay the contractor, of relatively supreme status, while decreasing the operation cost payment to the operator. Regardless of the fairness of this procedure, the lease must be paid as stipulated in the contract. As this study focuses on an analysis of the impact PPP projects have on local finances, the structural problem in BTL projects where the responsibilities are shifted to the operator, not considering construction problems, is not discussed.

TABLE 5—ESTIMATED BALANCE OF BTL FACILITY LEASES (LOCAL FUNDS) BY
LOCAL AUTONOMOUS ENTITIES

Competent authority (Lower level)		Sum of total lease by local autonomous entity	Sum of remaining lease by local autonomous entity as of year-end, 2013	Competent authority (Lower level)		Sum of total lease by local autonomous entity	Sum of remaining lease by local autonomous entity as of year-end, 2013
Seoul Metropolit an City	Gangnam-gu (2)	990	537	Jeollabuk- do (11)	Iksan-si (4)	3,713	1,417
	Haeundae	238	191		Gimje-si (2)	1,815	545
Busan Metro- politan City (6)	Buk-gu/Saha-gu	216	122		Gunsan-si	1,433	376
	Headquarters	2,309	1,559		Wanju-gun	910	232
Daegu Metropolitan City		986	502		2,309 1,559	1,987	811
Incheon Metro- politan City (3)	Bupyeong-gu	670	519		Jeongeup-si	1,050	221
	Headquarters	1,848	1,246		Jinan-gun	499	119
Gwangju Metropolitan City (2)		3,911	2,642	Jeollanam- do (14)	Gangjin-gun (2)	1,357	600
Daejeon Metropolitan City (2)		3,839	2,503		Wando-gun	305	150
Ulsan Metropolitan City (3)		4,685	2,218		Headquarters	602	281
Gyeonggi- do (10)	Paju-si (3)	3,166	951		Hampyeong-gun	103	49
	Yongin-si (2)	2,610	725		Hwasun-gun	290	145
	Gimpo-si	1,627	488		Mokpo-si (3)	3,047	811
	Anseong-si	1,219	363		Yeosu-si (2)	1,694	464
	Ansan-si (2)	278	206		Naju-si	1,207	344
	Pyeongtaek-si	2,854	907		Damyang-gun	480	91
	Gangneung-si	1,305	281		Jangheung-gun	681	175
Gang won-do (4)	Wonju-si	2,104	572	Gyeong sang buk-do (20)	Gyeongju-si (3)	4,547	1,968
	Chuncheon-si	1,902	570		Andong-si	951	489
	Hongcheon-gun	621	158		Uiseong-gun	207	101
		2,841	880		Sangju-si (2)	2,336	567
Chung Cheong buk-do (14)	Jecheon-si (4)	897	216		Pohang-si (3)	6,128	1,838
	Jincheon-gun (2)	682	182		Goryeong-gun	530	99
	Goesan-gun	353	72		Gimcheon-si (2)	1,915	636
	Boeun-gun	402	100		Mungyeong-si	1,749	478
	Okcheon-gun	856	215		Yeongdeok-gun	708	168
Chung Cheong nam-do (19)	Eumseong-gun	337	78		Yeongju-si (2)	2,169	651
	Jeungpyeong-gun	1,748	470		Yecheon-gun	820	246
	Chungju-si	518	238		Uljin-gun	1,200	327
	Cheongju-si	1,153	526		Chilgok-gun	1,603	445
	Headquarters	1,117	487		Uiryeong-gun	74	32
	Gyeryong-si (2)	5,106	2,213		Gimhae-si (3)	4,121	1,128
	Cheonan-si (6)	1,132	354		Yangsan-si (2)	1,618	390
	Dangjin-si (2)	2,248	759		Jinju-si (2)	3,091	887
	Asan-si (3)	653	169		Geochang-gun	587	119
	Geumsan-gun	641	152		Changwon-si (2)	2,741	790
	Nonsan-si	641	152		Sacheon-si	227	108
	Boryeong-si	718	212		Tongyeong-si	1,696	494
	Seosan-si	1,366	388	Jeju Special Self-Governing Province (10)		9,840	3,409
	Seocheon-gun	598	159				
	Hongseong-gun	1,361	405				

Note: 1) “()” Indicates the number of projects. 2) The total facility rental fee is the national treasury and local funds combined by contract at the present value. 3) The lease balance is calculated based on the local share within the total facility rental fee.

*B. Change in Debt the Ratio Based on
the Financial Status and BTL Rental Fee by
Local Autonomous Entity*

The aim here is to sum up the debt and BTL lease balance of each local autonomous entity in an effort to understand the impact of the previously calculated BTL lease balance on local finances. First, the financial status of each local autonomous entity shows a total of 28 trillion 296 billion KRW in total local debt as of the end of 2013, with 21 trillion 665.4 billion KRW in metropolitan city debt and 6 trillion 923.2 billion KRW in city, country and district debt. Table 6 shows the sum of local city, country and district debt by each metropolitan city. The balance of local loans is the highest in the order of Seoul (approximately 5 trillion 300 billion KRW), Gyeonggi-do (approximately 4 trillion KRW) and Incheon (approximately 3 trillion 300 billion KRW).

On the other hand, the previously estimated BTL balance is the sum of all rental fees (present value) to be paid by local autonomous entities annually after 2014. However, to factor this in as debt, present value must be applied in a way similar to how debt is calculated. According to National Accounting Standards Article 46 Clause 1, in cases when the gap between the nominal value and the present value is important in transactions of long-term deferred payment terms, present value is used to evaluate value.

On the other hand, which discount rate is applied can have an important influence on the result of calculating the remaining BTL rental fees at present value. According to National Accounting Standards Article 46 Clause 2, the effective

TABLE 6—BALANCE OF LOCAL LOANS BY ACCOUNTING
(INCLUSIVE OF CITIES, COUNTRIES AND DISTRICTS)

Category	Sum	General accounting	Other special accounting	Public enterprise special accounting	Fund
Grand total	282,960	109,935	84,182	88,614	229
Seoul Metropolitan City	52,822	5,130	46,121	1,571	-
Busan Metropolitan City	27,781	14,079	11,034	2,637	31
Daegu Metropolitan City	19,597	11,930	5,845	1,822	-
Incheon Metropolitan City	32,764	12,423	12,333	8,008	-
Gwangju Metropolitan City	8,026	3,730	-	4,296	-
Daejeon Metropolitan City	6,990	2,970	-	4,004	16
Ulsan Metropolitan City	5,295	743	-	4,533	19
Sejong Special Self-Governing City	1,245	1	-	1,244	-
Gyeonggi-do	39,572	18,729	1,584	19,233	26
Gangwon-do	11,226	6,912	464	3,850	-
Chungcheongbuk-do	6,676	2,301	304	4,071	-
Chungcheongnam-do	9,989	2,903	3,320	3,753	13
Jeollabuk-do	10,293	5,521	498	4,274	-
Jeollanam-do	12,712	5,020	1,074	6,546	72
Gyeongsangbuk-do	13,388	6,959	711	5,718	-
Gyeongsangnam-do	17,657	6,795	671	10,141	50
Jeju Special Self-Governing Province	6,927	3,789	223	2,913	2

Note: "Local loan status as of end of 2013" (<http://lofin.mospa.go.kr>)

National Accounting Standards Article 46
(Evaluation based on the present value of bonds and debts)

- (1) When the difference between nominal value and present value is important in the bonds and debts resulting from transactions of long-term deferred payment terms, long-term cash loans or other similar transactions are evaluated in terms of present value.
- (2) The equivalent value of the total amount of earnings or payment for bonds and debts, according to Clause 1, is determined after discounting effective interest rate of the transaction. (If the effective interest rate is difficult to identify, apply the Korean National Treasury distributed profits rate.)

interest rate of the transaction is to be discounted. The effective interest rate can be viewed as the rate of profit in BTL projects. However, considering the fact that there was no virtual reduction in BTL rental fees, and that the private operators of the BTL projects during the operation phase assume the rental fee to be at the same level of risk of the national debt, there is a limit when viewing the total PPP investment applied as taxation as fair value. Moreover, if the total PPP investment cannot easily be viewed at fair value, the effective interest rate cannot be viewed as profit. Therefore, this study applied 3.38%, the average yield of Korean Treasury bonds (five-year maturity) over the past three years, as a “Korean National Treasury distributed profits rate of similar requirements in case the effective interest rate is difficult to identify,” as stated in the National Accounting Standards.

When the remaining balance of BTL leases (present value) is added to the local debt amount under these assumptions, the total debt of 41 low-level local governments that are planning or operating BTL projects increases by approximately 22%, and the debt-to-budget ratio increases by approximately 3.4%p compared to the exiting ratio. The debt-to-budget ratio for some local autonomous entities increased dramatically. Specifically, the debt ratio of local entities, including Gyeryong-si of Chungnam (20.48%p), Gangjin-gun of Jeonnam (14.32%p), Gyeongju-si of Gyeongbuk (12.31%p), Cheonan of Chungnam (12.10%), Jecheon-si of Chungbuk (11.23%p) and Iksan-si of Jeonbuk (10.04%p), increased tremendously.

As shown above, facility leases during BTL projects can pose a major burden on local finance, and BTL rental fees must be considered when managing local finance in the future. Due to these needs, the “Local Bond Plan Standards” (Ministry of Security and Public Administration, 2014) has identified the balances of BTL leases to be managed as debt, but they are not included in the monitoring of the identification of organizations at risk of financial crisis.¹⁹

¹⁹It can be considered for inclusion during the monitoring of the identification of organizations at risk of a financial crisis, as BTL lease balances have a major impact on local finances. With this intention, the Board of Audit and Inspection told the Ministry of Security and Public Administration to reflect the BTL lease balance in the “Pre-Warning System Operation Regulation for Local Financial Crisis” during its audit in August of 2014. However, instead of simply applying the sum of the BTL lease balances to the existing debt while keeping the current Pre-Warning System standards (“Caution” if the debt-to-budget ratio is more than 25%; “Serious” if it is over 40%), introducing new standards in reflecting BTL lease amounts can be considered through a comprehensive review, considering the future status of local finance.

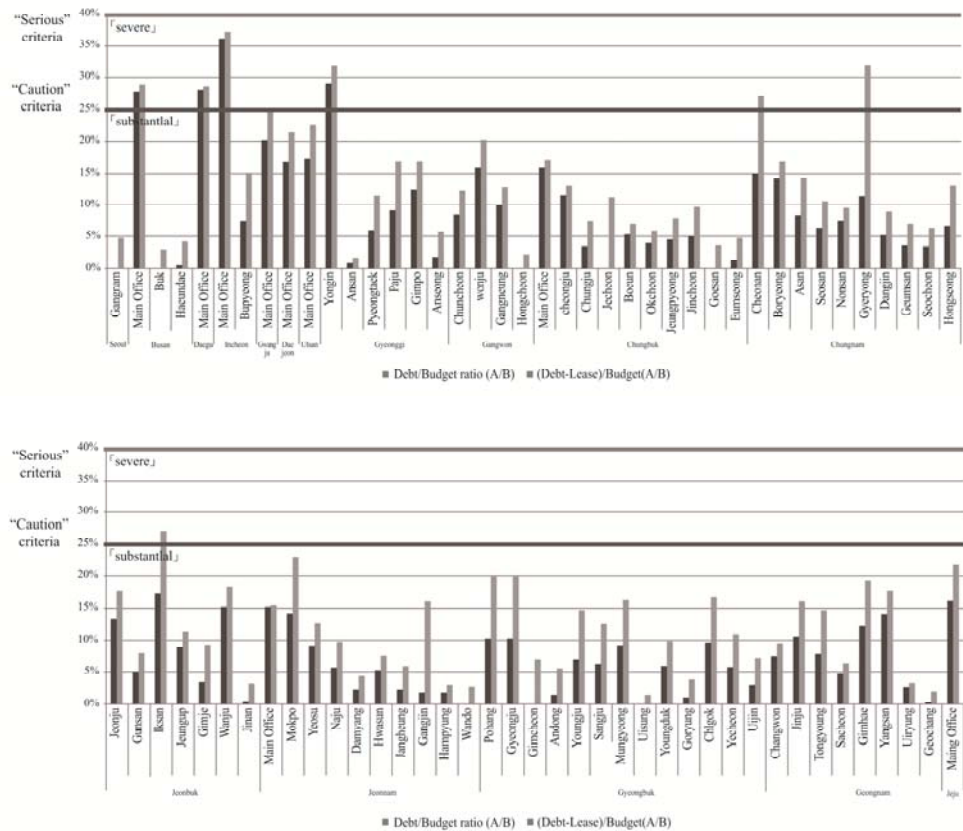


FIGURE 1. CHANGE IN THE DEBT RATIO WHEN INCLUDING THE BTL LEASE BALANCE OF LOW-LEVEL LOCAL GOVERNMENTS

TABLE 7—REVIEW OF DESIGNATION STANDARDS OF ORGANIZATIONS IN FINANCIAL CRISIS

Category	Local government	Debt-to-budget ratio (Existing)	Debt-to-budget ratio (Inclusive of BTL lease balance)	Change after including BTL lease balance
Busan	Headquarters	27.80%	28.92%	“Caution”
Daegu	Headquarters	28.10%	28.69%	“Caution”
Incheon	Headquarters	36.10%	37.13%	“Caution”
Gyeonggi	Yongin-si	29.00%	31.93%	“Caution”
Chungnam	Cheonan-si	15.00%	27.10%	“Caution”
	Gyeryong-si	11.40%	31.88%	“Caution”
Jeonbuk	Iksan-si	17.20%	27.24%	“Caution”

Note: The grades for Busan, Daegu and Incheon Metropolitan City were originally “Caution,” and none had changes.

C. The Need to Reflect the Debt of Fixed Charges in BTO Environmental Projects

Certain BTO environmental projects contracted between the years 2001 and 2004 have regulated fixed charges, and nine projects were confirmed to be paying fixed charges.²⁰ These fixed charges are in fact similar to debts, as they work as an agreement for the government to pay fixed amounts to PPP projects every fiscal year. Therefore, this study estimated the total fixed charges to be paid by the government until the completion of future operations of the projects that are currently receiving the fees. The estimation was then reflected in terms of debt.

To do so, the unchangeable, contract-based fixed charges of the relevant projects were utilized to estimate the remaining fixed charges to be paid after 2014 through to the conclusion of the projects' operations. The current fixed charges of 2014 were calculated based on the actual prices as of 2013 (2010 equivalent to an index of 100), and a 3% annual inflation rate was assumed for the charges thereafter until completion. The same method was used to calculate the remaining fixed charges of BTO environmental projects, and the calculated balance was included as local government debt. As a result, Chilgok-gun was degraded to receive the grade of "Caution," while Pohang-si (23.35%) was very close to this grade as well.

TABLE 8—LEASE BALANCE + FIXED CHARGES BALANCE

(UNIT: 100 MIL. KRW)

Category	Local government	Debt	Budget (Grand total including fund)	Debt-to-budget ratio	Debt ratio including lease balance	Balance of environmental fixed charges	Rent balance + fixed charges balance debt	Rent balance + fixed charges balance debt ratio
		(A)	(B)	(A/B) (%)	(A'/B)	(Present value)	(A'')	(A''/B)
Busan	Headquarters	28,670	103,085	27.80%	28.92%	1,326	31,136	30.20%
Incheon	Headquarters	31,981	88,593	36.10%	37.13%	651	33,542	37.86%
Gyeonggi	Pyeongtaek-si	719	11,956	6.00%	11.50%	693	2,068	17.30%
Gyeonggi	Hwaseong-si	1,715	14,050	12.20%	12.20%	582	582	16.35%
Jeonbuk	Headquarters	7,546	53,235	14.20%	14.20%	2,143	9,689	18.20%
Jeonnam	Bosung-gun	0	3,942	0.00%	0.00%	118	118	3.00%
Gyeongbuk	Pohang-si	1,414	13,678	19.99%	19.99%	459	3,193	23.35%
Gyeongbuk	Chilgok-gun	446	4,614	16.75%	16.75%	459	1,231	26.69%

Note: 1) Hwaseong-si and Bosung-gun, Jeollabuk-do had no remaining BTL rents. Only remaining fixed charges would be generated. 2) 3.38%, the average yield of Korean Treasury bonds (five-year maturity) over the past three years, is applied as the discount rate of the present value.

²⁰The projects that were to be paid at the beginning of operation were excluded, as the payment period has expired.

TABLE 9—FIXED CHARGES OF ENVIRONMENTAL PROJECTS

Competent authority		Name of project	Operation completion date	Fixed charges (Unchangeable, 1 mil. KRW/yr)	Current fixed charges in 2014 (100 mil. KRW /yr)	Total balance of fixed charges (100 mil. KRW)
Gyeonggi-do	Pyeongtaek-si	Pyeongtaek-si Sewage Treatment Equipment (Tongbok, Jangdang, Hyeondeok of Anjung)	June 30, 2026	Tongbok+Jangdang 2,561.99 mil. KRW/yr Hyeondeok 1,453.24 mil. KRW/yr	59	873
	Hwaseong-si	Hwaseong-si Sewage Treatment Equipment	June 30, 2026	3,379 mil. KRW/yr	49	733
Gyeongsangbuk-do	Chilgok-gun	Waegwan Terminal Sewage Disposal Plant (Stage 1 of extension)	March 31, 2026	2,636.1 mil. KRW/yr	40	575
	Pohang-si	Pohang Terminal Sewage Disposal Plant Stage 2 (Extension)	October 31, 2022	3,866 mil. KRW/yr	54	542
Busan Metropolitan City		Dongbu Terminal Sewage Disposal Plant	October 26, 2021	7,682 mil. KRW/yr	113	983
		Yongdo Terminal Sewage Disposal Plant	December 31, 2020	4,900 mil. KRW/yr	71	548
Incheon Metropolitan City		Geomdan Terminal Sewage Disposal Equipment	February 18, 2028	272.874 mil. KRW/yr	49	844
Jeollanam-do	Bosung-gun	Beolgyo and Hoecheon Terminal Sewage Disposal Plants	December 1, 2021	861 mil. KRW/yr 237 mil. KRW/yr (Ecology park)	16	137
Jeollabuk-do		Building and operation of Jeollabuk-do Basic Environmental Treatment Facility	June 24, 2028	10,854 mil. KRW/yr	157	2,795

D. Estimation of Further Government Payments and Analysis of Local Financial Burdens Regarding Local Governments' PPP Projects

Government payments for PPP projects are generated in various forms aside from lease fees for BTL projects and fixed charges for certain BTO projects. The minimum revenue guarantee payment for BTO projects and operation costs for BTL projects are some of the typical payment forms. However, these forms were not discussed in the preceding section as they do not satisfy the requirements of debt in terms of government payment methods. Nonetheless, in order to grasp the effect of government payments for PPP investments on the finances of local governments, it is necessary continuously to forecast the scale and amount of government payments and feed the results of such an analysis into regulations, even if some payment forms cannot be categorized as debt. Therefore, this part of the study estimates future MRG payment amounts for BTO projects and operation costs for BTL projects, which are not considered as debt funds but which can have a tremendous impact on the finances of local governments. In doing so, we can come to understand the anticipated scale of the burden to be carried by each local government for private sector investments in addition to BTL leases and BTO fixed charges, as previously discussed.

First, based on year-end data recorded as of 2013, there are 19 local government projects and five Korean cash-reserve subsidized projects that are forecasted to need future MRG payments, as explained in detail below:

TABLE 10—PROJECTS SUBJECT TO MRG

Category	Project
Local government projects	The following 19 projects: the Busan Sujeongsan Tunnel, Daegu Buman Road, Gwangju Second Circulation Section 3-1, Gwangju Second Circulation Section 4, Incheon Munhaksan Tunnel, Incheon Manweolsan Tunnel, Incheon Wonjeoksan Tunnel, Yeosu-si Food Disposal Facility, Boryeong River Sewage System, Mungyeong Gaeun Sewage Treatment Plant, Yangju Sincheon Sewage System, Gangwon Misiryeong Road, Gyeryong-Si Waste Incineration Facility, Icheon-Si Sewage System, Gunpo-Si Daeya Sewage System, Gyeongju-Si OedongGeoncheon Sewage System, Gongheung Doyang Sewage Treatment Plant, Pocheon Sludge Fluidized Bed Incineration Facility, and the Gongju Yugu Gongam Donghaksa Sewage System
Korean government-subsidized projects	The following five projects: Gwangju Second Circulation Section 1, Seoul Umyeonsan Tunnel, Seoul Metro Line 9, Gyeonggi Ilsan Bridge, and Gyeongnam Machang Bridge

TABLE 11—ASSUMPTIONS FOR THE ANALYSIS

Category	Assumption
Base year	December 31, 2013
Inflation rate	Through 2013: CPI record After 2014: Apply annual rate of 3%
Discount rate	Apply annual rate of 3.38% (the average yield of five-year Korean Treasury bonds over the past three years)
Actual operation income	Apply a weighted average ratio of actual income from user charges to the anticipated income from user fees at the time of the contract for the past three years (2011-2013)
Minimum responsibility management standard	Reflect the future MRG estimation if the minimum responsibility management standard exists where MRG is not paid in case the achieved actual operation income does not exceed a certain proportion of the contracted operation income
Assumed charges	If the actual income from user charges is calculated based on the assumed charges at a certain ratio to the charges decided upon at the time of the contract in assessing the MRG amount, apply a weighted average of the ratio between the actual traffic and charges at the time of the contract to the actual traffic and charges for the past three years. This method is used rather than applying the ratio between the anticipated income from charges to the actual income from charges for the past three years in order to apply the traffic factor (Q) and the user charge unit (P) separately.

Note: The weighted average is calculated at the ratio of (2013:2012:2011) = (3:2:1).

Furthermore, the assumptions below were made to estimate the MRG amount to be generated for the projects after 2014. The base point was the end of 2013, and a 3% future annual inflation rate was applied. Moreover, the future income from user charges was forecasted based on the actual charges earned during the past three years, where the income from 2013 was given more weight than that of 2011; the weighted average income from each year was calculated at a ratio of 3:2:1.²¹

The forecasted MRG amount based on the above suppositions are shown in the table below. The MRG payment to be issued after 2014 for government-subsidized local projects is estimated to be approximately 100 billion KRW per year for a total of 200 billion KRW. However, local governments are recently easing or abolishing the MRG for the projects that are anticipated to generate excessive MRG payments, targeting the restructuring of the process to result in both low risk and low profit levels. The currently posed burden of the MRG is expected to become lighter if these new attempts succeed.

In addition, similar to the rental fee calculations of BTL projects, the remaining balances of the operation costs were estimated per project and then summed by the local government. Moreover, based on the above data, the sum total of BTL project rental fees, operation costs, estimated MRG amounts for BTO projects, and fixed charges are presented in Table A5 in the appendix.

²¹The payment forecast based on the assumptions in this analysis is a simplified means of forecasting which differs from the forecasting method of the IMF's PFRAM (PPP Fiscal Risk Assessment Model).

TABLE 12— ESTIMATION OF THE MRG AMOUNT TO BE GENERATED IN THE FUTURE

(UNIT: 100 MIL. KRW)

Category	Name of project	Estimated MRG generation after 2014	Estimated MRG generation after 2014 (Present value)	Payment period for remaining MRG after 2014	Annual average of MRG paid during the remaining period
Local government projects	Busan Sujeongsan Tunnel	1,012	758	15	67
	Daegu Buman Road (4)	-	-	-	-
	Gwangju Second Circulation Section 3-1	2,297	1,470	21	109
	Gwangju Second Circulation Section 4	-	-	20	-
	Incheon Munhaksan Tunnel	667	502	9	74
	Incheon Manweolsan Tunnel (3)	-	-	-	-
	Incheon Wonjeoksan Tunnel (3)	-	-	-	-
	Yeoju-si Food Disposal Facility	5	3	9	1
	Boryeong River Sewage System	81	60	12	7
	Mungyeong Gaeun Sewage Treatment Plant	52	42	11	5
	Yangju Sincheon Sewage System (1)	-	-	-	-
	Gangwon Misiryeong Road	1,033	657	23	45
	Gyeryong-Si Waste Incineration Facility	-	-	8	-
	lcheon-Si Sewage System	-	-	6	-
	Gunpo-Si Daeya Sewage System	106	74	16	7
	Gyeongju-Si OedongGeoncheon Sewage System	-	-	5	-
	Gongheung Doyang Sewage Treatment Plant	4	3	12	-
	Pocheon Sludge Fluidized Bed Incineration Facility	-	-	8	-
	Gongju Yugu Gongam Donghaksa Sewage System (2)	-	-	12	-
	Sub-total	5,258	3,569	187	315
Korean government-subsidized projects	Gwangju Second Circulation Section 1	4,940	3,704	15	329
	Seoul Umyeonsan Tunnel	1,425	1,034	21	68
	Seoul Metro Line 9 (3)	-	-	-	-
	Gyeonggi Ilsan Bridge	3,535	2,225	25	141
	Gyeongnam Machang Bridge	6,688	4,160	25	268
	Sub-total	16,587	11,123	86	806
	Grand total	21,846	14,692	273	1,121

Note: 1) Changed into financial projects as Yangju-si took over PPP projects. 2) The MRG amount is calculated by simply carrying over the unchangeable estimated income by contract, which only came into effect as of January of 2006, for 10 months. 3) The MRG is abolished for these projects due to reasons including changes in contracts.

Establishing an upper ceiling for annual government spending for PPP projects is one of the solutions proposed to manage the government's financial risk. This solution involves managing the total annual spending on PPP projects, typically including rental fees for BTL projects, operation costs, MRG payments for BTO projects and fixed charges, by holding it to within 2% of the total annual expenditure budget (a 2% ceiling rule).²² This study estimates the annual government

²²The 2% ceiling rule, however, is proposed for the central government level, and there has not been a suggested rule for the local level. In this paper, we consider each local government as an independent central government and apply the 2% ceiling rule. Even if the 2% rule in this paper is restrictive, our approach is not excessive because each local government with its own budget takes all responsibility for its PPP contracts with private partners. Regarding the relative size of the local government budget, the rule should be tightened. Moreover, the rule was initially proposed based upon the case of the U.K., where the fiscal risk is relatively well managed and the PPP management history is longer than in any other country. Thus, the rule cannot be applied to

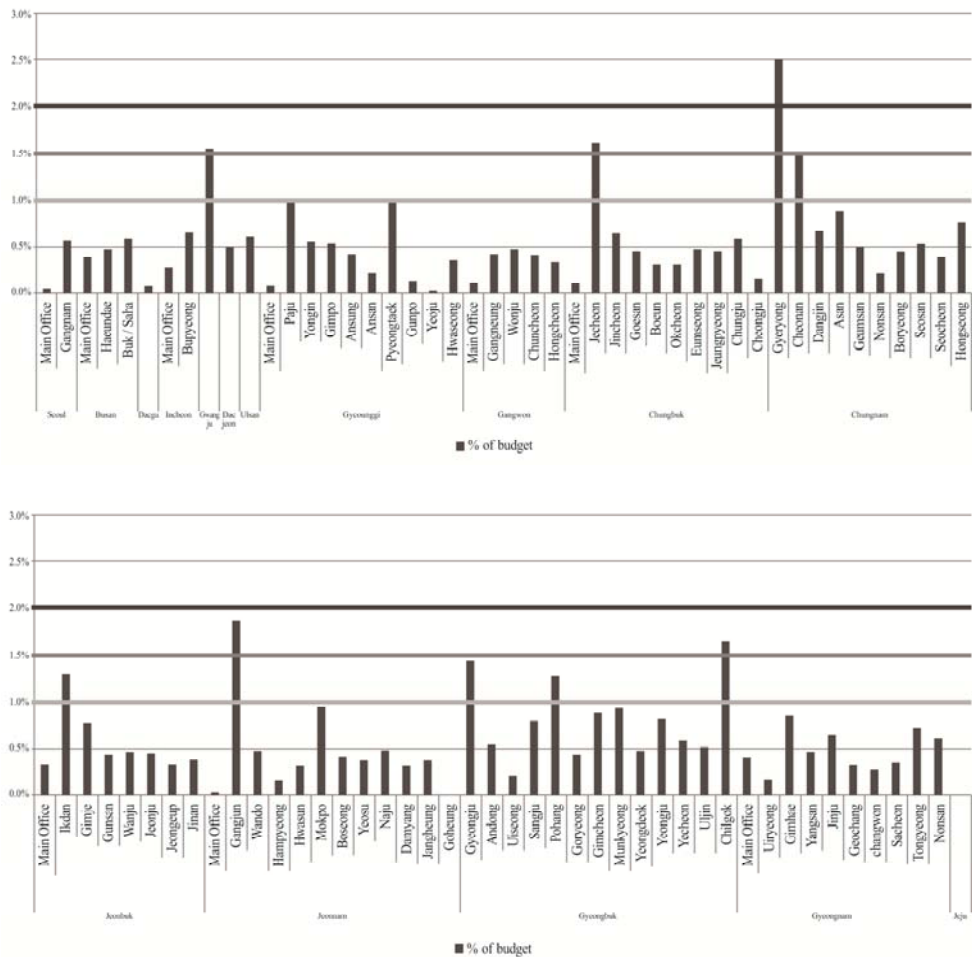


FIGURE 2. RATIO BETWEEN ANNUAL EXPENDITURES AND BUDGETS BY LOW-LEVEL LOCAL GOVERNMENTS

expenditure on PPP projects by local governments and attempts to determine the ratio with regard to the budget. This methodology allows us to examine whether each local government is effectively managing its financial risk in PPP projects based on the 2% ceiling rule. To do this, it was necessary to gather the annual expenditures of various types of government spending, as previously calculated. Due to limited resources, however, annual lease and operation costs were utilized as indicated in contracts, and the average amount of annual payments is presented for the MRG. Therefore, there is a possibility of a gap compared to the actual annual spending. Nonetheless, the analysis used here assumed that the available data was sufficient to understand the scale of the financial burden placed on each

any country, and it must be stricter for countries where fiscal risk is not well maintained. Therefore, the 2% rule is not the only reference, and local governments should not feel comfortable only because the 2% rule is met in their cases.

local government due to PPP projects compared to the original budget.

The results of the analysis conducted here found that the annual spending on PPP projects by Gyeryong-si, Chungnam (2.50%) exceeded 2%, while four local governments, in this case Gangjin-gun in Jeonnam (1.75%), Chilgok-gun in Gyeongbuk (1.64%), and Jecheon-si (1.61%) and Gwangju-si (1.54%) in Chungbuk, recorded annual spending amounts which exceeded 1.5%. These local governments are thus shown to be burdened with excessive financial responsibilities for PPP projects compared to their budgets. The analysis calls for some efforts to ease the financial burdens on local governments from various perspectives as well as a cautious approach for a better execution of new projects in the future.²³

E. Conclusion

The scale of the burden on local finance posed by the PPP investment system pursued by local governments was estimated and changes in financial risk levels were examined. It was a common understanding that local finance does not face a high level of risk if rental fees for BTL and fixed charges for BTO, which carry the features of debt, are included in local government finances. In contrast, the study showed that there are in fact some local governments that have financial risk.

In addition, the estimated annual payment as various government subsidiaries for PPP projects, aside from the payment forms that fall under the debt category, were calculated. These results showed that most local autonomous entities, with an exception of a few, are managing the expenditure within the aforementioned 2% rate of their annual budgets.

This paper differs from earlier work for the following reasons. First, earlier works mainly studied the institutional or policy aspects of PPP projects and did not include a quantitative analysis. At best, some of them merely reviewed one or two PPP projects of a local government to derive policy implications. This paper overcame these limitations and analyzed all of the PPP projects at the local level. Secondly, this paper adopts the Accrual and Double-Entry Bookkeeping Accounting System and considers the lease payment of local governments as government debt. It is unique, in Korea, to sum all lease payments as government debt and consider the fiscal risk of each local government, though doing so is closer to global standards. Thirdly, this work also represents the first attempt to include fixed charges of BTO projects in the analysis. At the earlier stage of Korean PPP, fixed charges were introduced to relieve the risk of the private sector. However, previous works did not include them when considering the fiscal risks of local governments. The characteristics of the charges are very similar to those of the lease fee of BTL projects because the payment of fixed charge is confirmed by agreements. Thus, we included these charges in our analysis. Fourthly, papers related to the fiscal burden from MRG have been published in the literature, but the studies were done mainly at the central level. The present paper can be considered to be the first attempt to analyze all of the fiscal burdens from MRG at the local level and then to provide important policy implications for each local government.

²³See Tables A6 and A7 of the appendix for details.

Finally, the paper is the first to apply the 2% ceiling rule to local governments. With this approach, we can easily check and compare the levels of fiscal risk from the PPP projects of each local government.

PPP projects must be carefully examined before their execution, as they may develop long-term financial risks while lessening the financial burdens. Only considering the fact that PPP projects do not pose short-term burdens may increase the long-term financial risks for local governments, which ultimately can imperil the national financial status. A detailed review and analysis of the financial risk forecast is required for both national and local government-managed PPP projects. Decision making for project execution also requires consideration of the possible financial risks that may harm local governments. In doing so, this study presents the three suggestions below.

First, it is necessary to examine potential financial burdens during the early stage of PPP project execution, which usually includes the steps of eligibility investigation, proposal review, and validation. This will provide an institutional tool as a reference to use when determining a project's validity and eligibility by reviewing the financial burdens during the planning process.

Second, information on the financial risk level, based on the financial status of the local government and project in question, must be studied according to the process of the PPP project review board. A comprehensive review would not only examine the validity of a project but also the potential effects of the project on local finances. Furthermore, the fiscal impact of a PPP project on a smaller local governments can be higher, which should be considered during the project selection process.

Third, it is necessary to consider the extension of the 2% ceiling rule, which is now only applicable to projects managed by central governments, to those managed by local governments. Continuous management is essential for holding estimated expenditures below the 2% ratio relative to the annual budget, whether it is considered as debt or not. Focusing only on debt funds for government subsidiaries may result in some financial risk stemming from MRG payments or BTL operation costs. Therefore, local governments must closely examine the scale of annual government funds for current PPP projects. In addition, it is important to examine the possibility of managing the share of annual government funds within 2% of the annual budget for long-term financial risk management, especially when planning new projects.

A concerted effort to manage the financial risk of PPP projects will ultimately increase the sustainability of and stabilize the PPP investment system. Indiscrete execution of PPP projects that only consider short-term relief of financial burdens and political interests harm the safety of the system and foster negative perspectives toward PPP projects in the long run. We expect a stable, long-term advancement of the PPP investment system through rigorous management of the financial risks of PPP investments based on the suggestions presented here.

APPENDIX

TABLE A1—FACILITY LEASE STATUS BY PROJECT TYPE (PRESENT VALUE)

(UNIT: 100 MIL. KRW)

Competent authority (Lower level)		Name of project	Total facility lease (present value)	Annual facility lease (present value)
Seoul Metropolitan City (2)	Gangnam-gu	Gangnam Geriatric Hospital	686	34
		Establishment of Daechi Reservoir Themed Sports Park	305	15
Busan Metropolitan City (6)	Haeundae-gu	Haeundae New Town Library	238	12
	Buk-gu/Saha-gu (Multiple) Headquarters	Hwamyong Library and Dadae Library	216	11
		Establishment of the 4 th Busan City Geriatric Hospital	154	8
		Establishment of Busan Information Highway	180	23
		Busan Metropolitan City (Gamjeonbun-gu) Sewer Maintenance 2011	1,067	53
		Busan Metropolitan City (Samrak-gu & Deokcheon-gu) Sewer Maintenance 2012	908	45
Daegu Metropolitan City	Headquarters	Daegu City Art Museum	986	49
Incheon Metropolitan City (3)	Bupyeong-gu	Bupyeong Culture & Art Center (Bupyeong Art Center)	670	33
	Headquarters	Relocation of Incheon City Library	339	17
		Incheon Metropolitan City Sewer Maintenance	1,509	75
Gwangju Metropolitan City (2)	Headquarters	Gwangju Metropolitan City Sewer Maintenance 2007	2,272	114
		Gwangju Metropolitan City Sewer Maintenance 2008	1,639	82
Daejeon Metropolitan City (2)	Headquarters	Daejeon Metropolitan City Sewer Maintenance 2006	2,246	112
		Daejeon Metropolitan City Sewer Maintenance 2008	1,593	80
Ulsan Metropolitan City (3)	Headquarters	Ulsan Museum	840	42
		Ulsan Metropolitan City Sewer Maintenance 2006	1,906	95
		Ulsan Metropolitan City Sewer Maintenance 2008	1,940	97
Gyeonggi-do (10)	Paju-si (3)	Paju Kyoha Library	204	10
		Paju-si Sewer Maintenance 2011	1,508	75
		Paju-si Sewer Maintenance	1,454	73
	Yongin-si (2)	Yongin-si Sewer Maintenance 2009	819	41
		Yongin-si Sewer Maintenance	1,791	90
	Gimpo-si	Gimpo-si Sewer Maintenance	1,627	81
	Anseong-si	Anseong-si Sewer	1,219	61
	Ansan-si (2)	Safe Ansan Secure Ansan U-City Establishment Stage 2	98	12
		Establishment of High-Tech Ansan U-City Broadband Information Network	180	18
	Pyeongtaek-si	Pyeongtaek Sewer Maintenance	2,854	143

TABLE A1—FACILITY LEASE STATUS BY PROJECT TYPE (PRESENT VALUE) (Continued)

Competent authority (Lower level)		Name of project	Total facility lease (present value)	Annual facility lease (present value)
Gangwon-do (4)	Gangneung-si	Gangneung-si Sewer Maintenance	1,305	65
	Wonju-si	Wonju-si Sewer Maintenance	2,104	105
	Chuncheon-si	Chuncheon-si Sewer Maintenance	1,902	95
	Hongcheon-gun	Hongcheon-gun Sewer Maintenance	621	31
Chungcheongbuk-do (14)	Jecheon-si (4)	Excellent Herbal Medicine Retail Support Facility	181	9
		Herbal Medicine Life Science Center	321	16
		Jecheon-si Sewer Maintenance 2007	1,391	70
		Jecheon-si Sewer Maintenance 2009	948	47
	Jincheon-gun (2)	Jincheon-gun Sewer Maintenance 2005	360	18
		Jincheon-gun Sewer Maintenance 2006	537	27
	Goesan-gun	Goesan-gun Sewer Maintenance	682	34
	Boeun-gun	Boeun-gun Sewer Maintenance	353	18
	Okcheon-gun	Okcheon-gun Sewer Maintenance	402	20
	Eumseong-gun	Eumseong-gun Sewer Maintenance	856	43
	Jeungpyeong-gun	Jeungpyeong-gun Sewer Maintenance	337	17
	Chungju-si	Chungju-si Sewer Maintenance	1,748	87
	Cheongju-si	Cheongju-si Sewer Maintenance	518	26
	Headquarters	Relocation of Chungju-si Medical Center	1,153	58
Chungcheongnam-do (19)	Gyeryong-si (2)	Gyeryong Culture Multiplex	417	21
		Gyeryong-si Sewer Maintenance	700	35
	Cheonan-si (6)	Cheonan-si Sewer Maintenance (Stage 1)	2,198	110
		Cheonan-si Sewer Maintenance (Stage 2)	942	47
		Establishment of North Cheonan Library	253	13
		Cheonan Life Sports Park	231	12
		Cheonan Hong Dae Yong Science Museum	336	17
		Cheonan Culture & Art Multiplex	1,145	57
	Dangjin-si (2)	Dangjin-si Sewer Maintenance	781	39
		Establishment of Dangjin Education, Culture & Sports Center	350	18
	Asan-si (3)	Asan Indoor Life Sports Center	422	21
		Asan Sewer Maintenance	1,583	79
		Asan Jang Young Sil Science Museum	243	12
	Geumsan-gun	Geumsan-gun Sewer Maintenance	653	33
	Nonsan-si	Nonsan-si Sewer Maintenance	641	32
	Boryeong-si	Boryeong-si Sewer Maintenance	718	36
	Seosan-si	Seosan-si Sewer Maintenance	1,366	68
	Seocheon-gun	Seocheon-gun Sewer Maintenance	598	30
	Hongseong-gun	Hongseong-gun Sewer Maintenance	1,361	68

TABLE A1—FACILITY LEASE STATUS BY PROJECT TYPE (PRESENT VALUE) (Continued)

Competent authority (Lower level)		Name of project	Total facility lease (present value)	Annual facility lease (present value)
Jeollabuk-do (11)	Iksan-si (4)	Establishment of Iksan Culture Multiplex	647	32
		Iksan City Mohyun Library	219	11
		Iksan-si Sewer Maintenance 2006	1,279	64
		Iksan-si Sewer Maintenance 2009	1,568	78
	Gimje-si (2)	Gimje-si Sewer Maintenance 2009	1,223	61
		Gimje-si Sewer Maintenance	592	30
	Gunsan-si	Gunsan-si Sewer Maintenance	1,433	72
	Wanju-gun	Wanju-gun Sewer Maintenance	910	45
	Jeonju-si	Jeonju-si Sewer Maintenance	1,987	99
	Jeongeup-si	Jeongeup-si Sewer Maintenance	1,050	53
	Jinan-gun	Jinan-gun Sewer	499	25
Jeollanam-do (14)	Gangjin-gun (2)	Establishment of Gangjin Culture & Welfare Town	753	38
		Gangjin-gun Sewer	604	30
	Wando-gun	Wando Customized Culture Multiplex	305	15
	Headquarters	Relocation of Gangjin Hospital	602	30
	Hampyeong-gun	Hampyeong-gun Public Geriatric Medical Care Hospital	103	5
	Hwasun-gun	Hwasun Geriatric Hospital	290	15
	Mokpo-si (3)	Mokpo-si Sewer Maintenance 2005	1,101	55
		Mokpo-si Sewer Maintenance 2006	1,302	65
		Mokpo-si Sewer Maintenance 2009	643	32
	Yeosu-si (2)	Yeosu-si Sewer Maintenance 2008	926	46
		Yeosu-si Sewer Maintenance 2005	768	38
	Naju-si	Naju-si Sewer Maintenance	1,207	60
	Damyang-gun	Damyang-gun Sewer Maintenance	480	24
	Jangheung-gun	Jangheung-gun Sewer Maintenance	681	34
Gyeongsangbuk-do (20)	Gyeongju-si (3)	Establishment of Gyeongju Culture & Art Center	1,338	67
		Gyeongju-si Sewer Maintenance 2005	1,785	89
		Gyeongju-si Sewer Maintenance 2008	1,424	71
	Andong-si	Andong Culture & Art enter	951	48
	Uiseong-gun	Uiseong-gun Public Hospital for Dementia	207	10
	Sangju-si (2)	Sangju-si Sewer Maintenance 2005	1,405	70
		Sangju-si Sewer Maintenance 2006	932	47
	Pohang-si (3)	Pohang-si Sewer Maintenance 2007	2,862	143
		Pohang-si Sewer Maintenance 2009	1,537	77
		Pohang-si Sewer Maintenance 2010	1,730	86

TABLE A1—FACILITY LEASE STATUS BY PROJECT TYPE (PRESENT VALUE) (*Continued*)

Competent authority (Lower level)		Name of project	Total facility lease (present value)	Annual facility lease (present value)
Gyeongsangbuk-do (20)	Goryeong-gun	Goryeong-gun Sewer Maintenance	530	27
	Gimcheon-si (2)	Gimcheon-si Sewer Maintenance	1,347	67
		Gimcheon Green Future Science Museum	568	28
	Mungyeong-si	Mungyeong-si Sewer Maintenance	1,749	87
	Yeongdeok-gun	Yeongdeok-gun Sewer Maintenance	708	35
	Yeongju-si (2)	Yeongju-si Sewer Maintenance 2010	744	37
		Yeongju-si Sewer Maintenance	1,425	71
	Yecheon-gun	Yecheon-gun Sewer Maintenance	820	41
	Uljin-gun	Uljin-gun Sewer Maintenance	1,200	60
	Chilgok-gun	Chilgok-gun Sewer Maintenance	1,603	80
Gyeongsangnam-do (13)	Uiryeong-gun	Uiryeong Geriatric Hospital	74	4
	Gimhae-si (3)	Gimhae-si Sewer Maintenance 2005	1,599	80
		Gimhae-si Sewer Maintenance 2006	1,470	74
		Gimhae-si Sewer Maintenance 2008	1,052	53
	Yangsan-si (2)	Yangsan-si Sewer Maintenance 2006	958	48
		Yangsan-si Sewer Maintenance 2008	660	33
	Jinju-si (2)	Jinju-si Sewer Maintenance 2006	1,333	67
		Jinju-si Sewer Maintenance 2008	1,758	88
	Geochang-gun	Geochang-gun Sewer	587	29
	Changwon-si (2)	Changwon-si Masan Sewer Maintenance	2,207	110
		Changwon Science Experience EXPO	534	27
	Sacheon-si	Sacheon High-Tech Aviation Space Science Museum	227	11
	Tongyeong-si	Tongyeong Sewer Maintenance	1,696	85
Jeju Special Self-Governing Province (10)		Establishment of Jeju Culture Multiplex	270	13
		Jeju Special Self-Governing Province Art Museum	288	14
		Seogwipo Hospital	744	37
		Seogwipo-si Country & Town Sewer Maintenance 2006	1,719	86
		Jeju-si Country & Town Sewer Maintenance 2006	1,135	57
		Jeju-si (East) Sewer Maintenance 2006	1,045	52
		Jeju-si (East) Sewer Maintenance 2008	1,201	60
		Jeju-si Country & Town Sewer Maintenance 2008	1,776	89
		Jeju-si Country & Town Sewer Maintenance 2009	893	45
		Jeju-si Country & Town Sewer Maintenance 2010	771	39
Total			132,139	6,634

Note: 1) “()” Indicates the number of projects. 2) Total facility rental fee is the national treasury and local funds combined by contract at the present value.

TABLE A2—ESTIMATED BALANCE OF BTL LEASES BY LOCAL AUTONOMOUS ENTITIES

(UNIT: 1 MILLION KRW)

Headquarters		Total Amount of Lease	Lease payments expected from 2014
Seoul	Gangnam	98,974	53,701
Busan	Haeundae	23,782	19,139
	Buk/Saha	21,621	12,181
	Main Office	230,940	155,895
Daegu		98,576	50,202
Incheon	Bupyeong	66,983	51,860
	Main Office	184,779	124,636
Gwangju		391,102	264,179
Daejeon		383,886	250,315
Ulsan		468,527	221,802
Gyeonggi	Paju	316,618	95,120
	Yongin	261,002	72,458
	Gimpo	162,652	48,795
	Ansung	121,867	36,253
	Ansan	27,788	20,647
	Pyungtaek	285,446	90,695
Gangwon	Gangneung	130,538	28,142
	Wonju	210,423	57,207
	Chunchun	190,153	57,048
	Hongchun	62,054	15,825
Chungbuk	Jecheon	284,123	88,019
	Jincheon	89,684	21,564
	Goisan	68,222	18,217
	Boeun	35,309	7,207
	Ogchen	40,208	9,999
	Umsung	85,642	21,517
	Jeungpyung	33,655	7,994
	Chungju	174,766	46,966
	Cheongju	51,837	23,762
	Main Office	115,340	52,623
Chungnam	Gyeryong	111,732	48,703
	Cheonan	510,570	221,256
	Dangjin	113,194	35,368
	Asan	224,801	75,947
	Geumsan	65,340	16,906
	Nonsan	64,147	15,153
	Boryung	71,789	21,219
	Seosan	136,587	38,754
	Seocheon	59,759	15,911
	Main Office	975	17,807

TABLE A2—ESTIMATED BALANCE OF BTL LEASES BY LOCAL AUTONOMOUS ENTITIES (*Continued*)

(UNIT: 1 MILLION KRW)

Headquarters		Total Amount of Lease	Lease payments expected from 2014
Jeonbuk	Iksan	371,259	141,743
	Gimje	181,507	54,450
	Gunsan	143,285	37,611
	Wanju	90,987	23,199
	Jeonju	198,710	81,135
	Jeongup	105,020	22,071
	Jinan	49,928	11,897
Jeonnam	Gangjin	60,181	28,084
	Wando	135,660	60,015
	Main Office	30,456	14,991
	Hampyung	10,274	4,880
	Hwasun	28,995	14,532
	Mokpo	304,662	81,060
	Yeosu	169,376	46,398
	Naju	120,679	34,393
	Damyang	48,032	9,127
Gyeongbuk	Janheung	68,104	17,535
	Gyeongju	454,659	196,817
	Andong	95,112	48,889
	Uisong	20,711	10,101
	Sanju	233,648	56,715
	Pohang	612,819	183,840
	Goryung	53,040	9,869
	Gimcheon	191,498	63,590
	Mungyung	174,914	47,767
	Youngduk	70,783	16,810
	Youngju	216,877	65,064
	Yecheon	82,025	24,607
	Uljin	120,009	32,700
	Chilgok	160,268	44,472
Gyeongnam	Uiryeong	7,409	3,222
	Gimhae	412,131	112,800
	Yongsan	161,776	38,968
	Jinju	309,096	88,731
	Geochang	58,708	11,873
	Changwon	274,123	79,021
	Sacheon	22,743	10,801
Jeju	Tongyeong	169,644	49,407
		984,048	340,932

TABLE A3—CHANGE IN DEBT RATIO WHEN INCLUDING THE BTL LEASE BALANCE

(UNIT: 100 MIL. KRW, %)

Category	Low-level local government	Debt (A)	Budget (Grand total including fund) (B)	Debt-to-budget ratio (A/B) (%)	Rent balance of BTL project (Present value)	Debt including BTL lease balance (A')	Debt-to-budget ratio (A'/B)
Seoul	Gangnam-gu	0	8,333	0/00	398	398	4.77%
Busan	Headquarters	28,670	103,085	27.80	1,140	29,810	28.92%
	Buk-gu	1	3,116	0.00	93	94	3.01%
	Haeundae	25	4,123	0.60	146	171	4.14%
Daegu	Headquarters	19,379	68,877	28.10	382	19,761	28.69%
Incheon	Headquarters	31,981	88,593	36.10	910	32,891	37.13%
	Bupyeong-gu	384	5,169	7.40	396	780	15.09%
Gwangju	Headquarters	7,987	39,787	20.10	1,918	9,905	24.89%
Daejeon	Headquarters	6,687	40,003	16.70	1,834	8,521	21.30%
Ulsan	Headquarters	5,215	30,461	17.10	1,647	6,862	22.53%
Gyeonggi	Yongin-si	5,211	17,993	29.00	535	5,746	31.93%
	Ansan-si	187	21,092	0.90	181	368	1.75%
	Pyeongtaek-si	719	11,956	6.00	656	1,375	11.50%
	Paju-si	833	9,185	9.10	701	1,534	16.70%
	Gimpo-si	981	7,941	12.40	351	1,332	16.77%
Gangwon	Anseong-si	122	6,600	1.80	261	383	5.80%
	Chuncheon-si	910	10,812	8.40	410	1,320	12.21%
	Wonju-si	1,563	9,810	15.90	419	1,982	20.20%
	Gangneung-si	736	7,449	9.90	213	949	12.74%
	Hongcheon-gun	0	5,265	0.00	119	119	2.26%
Chungbuk	Headquarters	6,105	38,384	15.90	388	6,493	16.92%
	Cheongju-si	1,482	12,847	11.50	181	1,663	12.94%
	Chungju-si	303	8,715	3.50	348	651	7.47%
	Jecheon-si	0	5,753	0.00	646	646	11.23%
	Boeun-gun	165	3,116	5.30	55	220	7.05%
	Okcheon-gun	157	3,921	4.00	76	233	5.93%
	Jeungpyeong-gun	85	1,878	4.50	61	146	7.78%
	Jincheon-gun	170	3,460	4.90	164	334	9.66%
	Goesan-gun	0	3,711	0.00	134	134	3.61%
Chungnam	Eumseong-gun	65	4,798	1.40	164	229	4.78%
	Cheonan-si	2,033	13,534	15.00	1,634	3,667	27.01%
	Boryeong-si	857	6,067	14.10	157	1,014	16.72%
	Asan-si	777	9,413	8.30	570	1,347	14.31%
	Seosan-si	429	6,737	6.40	283	712	10.57%
	Nonsan-si	433	5,745	7.50	116	549	9.56%
	Gyeryong-si	199	1,746	11.40	358	557	31.88%
	Dangjin-si	358	7,023	5.10	269	627	8.92%
	Geumsan-gun	129	3,611	3.60	127	256	7.08%
	Seocheon-gun	138	4,016	3.40	118	256	6.38%
Jeonbuk	Hongseong-gun	309	4,611	6.70	292	601	13.03%
	Jeonju-si	1,917	14,335	13.40	616	2,533	17.67%
	Gunsan-si	489	9,627	5.10	280	769	7.99%
	Iksan-si	1,780	10,324	17.20	1,032	2,812	27.24%
	Jeongeup-si	594	6,749	8.80	168	762	11.29%
	Gimje-si	219	6,359	3.40	371	590	9.27%
	Wanju-gun	827	5,443	15.20	174	1,001	18.40%
	Jinan-gun	18	3,326	0.50	88	106	3.18%

TABLE A3—CHANGE IN DEBT RATIO WHEN INCLUDING THE BTL LEASE BALANCE (*Continued*)

(UNIT: 100 MIL. KRW, %)

Category	Low-level local government	Debt (A)	Budget (Grand total including fund) (B)	Debt-to-budget ratio (A/B) (%)	Rent balance of BTL project (Present value)	Debt including BTL lease balance (A')	Debt-to-budget ratio (A'/B)
Jeonnam	Headquarters	10,683	69,987	15.30	206	10,889	15.56%
	Mokpo-si	953	6,717	14.20	602	1,555	23.14%
	Yeoju-si	916	9,923	9.20	341	1,257	12.67%
	Naju-si	344	6,041	5.70	251	595	9.85%
	Damyang-gun	78	3,446	2.30	70	148	4.29%
	Hwasun-gun	261	4,900	5.30	108	369	7.54%
	Jangheung-gun	80	3,523	2.30	131	211	6.00%
	Gangjin-gun	55	3,140	1.80	451	506	16.12%
	Hampyeong-gun	60	3,309	1.80	36	96	2.89%
Gyeongbuk	Wando-gun	0	4,223	0.00	114	114	2.69%
	Pohang-si	1,414	13,678	10.30	1,321	2,735	19.99%
	Gyeongju-si	593	12,008	4.90	1,475	2,068	17.22%
	Gimcheon-si	0	6,791	0.00	467	467	6.87%
	Andong-si	130	8,951	1.50	370	500	5.58%
	Yeongju-si	395	5,820	6.80	467	862	14.82%
	Sangju-si	423	6,771	6.20	428	851	12.57%
	Mungyeong-si	454	4,943	9.20	349	803	16.25%
	Uiseong-gun	0	4,879	0.00	73	73	1.50%
	Yeongdeok-gun	199	3,318	6.00	129	328	9.87%
	Goryeong-gun	33	2,889	1.10	74	107	3.71%
	Chilgok-gun	446	4,614	9.70	327	773	16.75%
Gyeongnam	Yecheon-gun	210	3,552	5.90	177	387	10.89%
	Ulsan-gun	159	5,575	2.90	241	400	7.18%
	Changwon-si	2,013	27,307	7.40	593	2,606	9.54%
	Jinju-si	1,215	11,584	10.50	645	1,860	16.06%
	Tongyeong-si	398	5,083	7.80	358	756	14.87%
	Sacheon-si	232	4,813	4.80	79	311	6.46%
	Gimhae-si	1,419	11,645	12.20	839	2,258	19.39%
	Yangsang-si	1,122	7,926	14.20	290	1,412	17.81%
Jeju	Uiryeong-gun	96	3,651	2.60	24	120	3.29%
	Geochang-gun	8	5,014	0.20	88	96	1.92%
	Headquarters	6,927	42,914	16.10	2,504	9,431	21.98%

Note: 1) 3.38%, the average yield of Korean Treasury bonds (five-year maturity) over the past three years, is applied as the discount rate of the present value. 2) Although Buk-gu and Saha-gu, Busan, are multiple competent authorities in charge of the Hwamyeong Library and Dadae Library projects, the comparison is made under Buk-gu, as it is difficult to identify each local government's share due to limited resources. 3) Local governments that have a debt-to-budget ratio exceeding 20% are in bold.

TABLE A4—ESTIMATED OPERATION COST BALANCE OF
BTL PROJECTS BY LOCAL GOVERNMENTS

Competent authority (Lower level)		Estimation of average annual operation cost by local government	Estimation of remaining operation cost as of year-end 2013	Competent authority (Lower level)		Estimation of average annual operation cost by local government	Estimation of remaining operation cost as of year-end 2013
Seoul Metro- politan City	Gangnam-gu (2)	15	264	Jeolla buk-do (11)	Iksan-si (4)	44	837
Busan Metro- politan City (6)	Haeundae	7	117		Gimje-si (2)	17	316
	Buk-gu/ Saha-gu	11	169		Gunsan-si	16	280
	Headquarters (4)	37	513		Wanju-gun	9	151
Daegu Metropolitan City		12	194		Jeonju-si	8	133
Incheon Metro- politan City (3)	Bupyeong-gu	0.018	3		Jeongeup-si	6	98
	Headquarters	40	736		Jinan-gun	5	87
Gwangju Metropolitan City (2)		36	699	Jeolla nam-do (14)	Gangjin-gun (2)	7	124
Daejeon Metropolitan City (2)		58	1,101		Wando-gun	19	332
Ulsan Metropolitan City (3)		54	969		Headquarters	9	144
Gyeonggi- do (10)	Paju-si (3)	39	704		Hampyeong-gun	2	43
	Yongin-si (3)	58	1,060		Hwasun-gun	5	88
	Gimpo-si	17	333		Mokpo-si (3)	15	272
	Anseong-si	8	167		Yeosu-si (2)	13	243
	Ansan-si (2)	13	91		Naju-si	10	194
	Pyeongtaek-si	18	354		Damyang-gun	5	79
Gangwon- do (4)	Gangneung-si	13	219		Jangheung-gun	3	48
	Wonju-si	15	278		Gyeongju-si (3)	52	896
	Chuncheon-si	14	280	Gyeong sang buk-do (20)	Andong-si	19	309
	Hongcheon-gun	9	147		Uiseong-gun	5	91
					Sangju-si (2)	18	299

TABLE A4—ESTIMATED OPERATION COST BALANCE OF
BTL PROJECTS BY LOCAL GOVERNMENTS (*Continued*)

Competent authority (Lower level)		Estimation of average annual operation cost by local government	Estimation of the remaining operation cost as of year-end 2013	Competent authority (Lower level)		Estimation of the average annual operation cost by local governments	Estimation of the remaining year-end operation cost as of 2013
Chung cheong buk-do (14)	Jecheon-si (4)	45	797	Chung cheong nam-do (19)	Pohang-si (3)	31	610
	Jincheon-gun (2)	8	129		Goryeong-gun	8	135
	Goesan-gun	7	122		Gimcheon-si (2)	23	422
	Boeun-gun	5	79		Mungyeong-si	16	293
	Okcheon-gun	6	100		Yeongdeok-gun	5	85
	Eumseong-gun	9	154		Yeongju-si (2)	19	387
	Jeungpyeong-gun	3	50		Yecheon-gun	7	143
	Chungju-si	23	419		Uljin-gun	10	190
	Cheongju-si	3	52		Chilgok-gun	13	236
Chung cheong nam-do (19)	Headquarters	10	178		Uiryeong-gun	3	51
	Gyeryong-si (2)	15	262		Gimhae-si (3)	26	474
	Cheonan-si (6)	77	1,393		Yangsan-si (2)	17	296
	Dangjin-si (2)	25	403		Jinju-si (2)	26	495
	Asan-si (3)	37	648		Geochang-gun	5	94
	Geumsan-gun	8	140		Changwon-si (2)	18	300
	Nonsan-si	3	52		Sacheon-si	7	137
	Boryeong-si	8	141		Tongyeong-si	14	272
	Seosan-si	15	292		Jeju Special Self-Governing Province (10)	100	1,824
	Seocheon-gun	6	108				
	Hongseong-gun	14	282				

Note: 1) “()” indicates the number of projects. 2) All operation costs are paid by local governments.

TABLE A5—ESTIMATION TOTAL OF
FUTURE PAYMENT AMOUNTS (PRESENT VALUES) REGARDING
PPP PROJECTS BY LOCAL GOVERNMENTS

(UNIT: 100 MIL. KRW)

Competent authority (Lower level)		Estimation of BTL lease balance by local governments	Estimation of BTL operation cost balance by local governments	Estimation of MRG balance by local governments	Estimation of fixed charges balance by local governments	Total
Seoul Metropolitan City	Headquarters			1,425		1,425
	Gangnam-gu	537	264			801
Busan Metropolitan City	Headquarters	1,559	513	1,012	1,531	4,615
	Haeundae-gu	191	117			308
	Buk-gu/Saha-gu	122	169			291
Daegu Metropolitan City			502	194		696
Incheon Metropolitan City	Headquarters	1,246	736	667	844	3,494
	Bupyeong-gu	519	3			521
Gwangju Metropolitan City		2,642	699	7,237		10,578
Daejeon Metropolitan City		2,503	1101			3,604
Ulsan Metropolitan City		2,218	969			3,187
Gyeonggi-do	Headquarters			3,535		3,535
	Paju-si	951	704			1,655
	Yongin-si	725	1060			1,784
	Gimpo-si	488	333			821
	Anseong-si	363	167			530
	Ansan-si	206	91			297
	Pyeongtaek-si	907	354		873	2,134
	Gunpo-Si			106		106
	Yeoju-si			5		5
Gangwon-do	Hwaseong-si				733	733
	Headquarters			1,033		1,033
	Gangneung-si	281	219			501
	Wonju-si	572	278			850
	Chuncheon-si	570	280			851
	Hongcheon-gun	158	147			306
Chungcheong buk-do	Headquarters	526	178			704
	Jecheon-si	880	797			1,677
	Jincheon-gun	216	129			345
	Goesan-gun	182	122			304
	Boeun-gun	72	79			151
	Okcheon-gun	100	100			200
	Eumseong-gun	215	154			369
	Jeungpyeong-gun	80	50			130
	Chungju-si	470	419			888
	Cheongju-si	238	52			290
	Gyeryong-si	487	261			749
Chungcheong nam-do	Cheonan-si	2,213	1393			3,606
	Dangjin-si	354	403			757
	Asan-si	759	648			1,407
	Geumsan-gun	169	140			309
	Nonsan-si	152	52			204
	Boryeong-si	212	141	81		434
	Seosan-si	388	292			680
	Seocheon-gun	159	108			268
	Hongseong-gun	405	282			687

TABLE A5—ESTIMATION TOTAL OF
FUTURE PAYMENT AMOUNTS (PRESENT VALUES) REGARDING
PPP PROJECTS BY LOCAL GOVERNMENTS (*Continued*)

(UNIT: 100 MIL. KRW)

Competent authority (Lower level)		Estimation of BTL lease balance by local governments	Estimation of BTL operation cost balance by local governments	Estimation of MRG balance by local governments	Estimation of fixed charges balance by local governments	Total
Jeollabuk-do	Headquarters				2,795	2,795
	Iksan-si	1,417	837			2,254
	Gimje-si	545	316			861
	Gunsan-si	376	280			656
	Wanju-gun	232	151			383
	Jeonju-si	811	133			944
	Jeongeup-si	221	98			318
Jeollanam-do	Jinan-gun	119	87			206
	Headquarters	281	124			405
	Gangjin-gun	600	332			932
	Wando-gun	150	144			294
	Hampyeong-gun	49	43			92
	Hwasun-gun	145	88			233
	Mokpo-si	811	272			1,082
	Bosung-gun				137	137
	Yeosu-si	464	243			707
	Naju-si	344	194			538
	Damyang-gun	91	79			170
	Jangheung-gun	175	48			223
	Goheung-gun			4		4
Gyeongsang buk-do	Gyeongju-si	1,968	896			2,865
	Andong-si	489	309			797
	Uiseong-gun	101	91			192
	Sangju-si	567	299			866
	Pohang-si	1,838	610		542	2,991
	Goryeong-gun	99	135			233
	Gimcheon-si	636	422			1,058
	Mungyeong-si	478	293	52		823
	Yeongdeok-gun	168	85			253
	Yeongju-si	651	387			1,038
	Yecheon-gun	246	143			389
	Uljin-gun	327	190			517
	Chilgok-gun	445	236		575	1,255
Gyeongsang nam-do	Headquarters			6,688		6,688
	Uiryeong-gun	32	51			83
	Gimhae-si	1,128	474			1,602
	Yangsang-si	390	296			686
	Jinju-si	887	495			1,382
	Geochang-gun	119	94			213
	Changwon-si	790	300			1,090
	Sacheon-si	108	137			245
Jeju Special Self-Governing Province	Tongyeong-si	494	272			766
		3,409	1,824			5,233

TABLE A6—RATIO BETWEEN ANNUAL EXPENDITURE AND
BUDGET BY LOW-LEVEL LOCAL GOVERNMENTS

Local government (Basics)		Ratio to budget Annual Gov't Payment/Budget ratio
Seoul	Main Office	0.03%
	Gangnam	0.54%
Busan	Main Office	0.37%
	Haeundae	0.46%
	Buk/Saha	0.58%
Daegu		0.06%
Incheon	Main Office	0.26%
	Bupyeong	0.63%
Gwangju		1.54%
Daejeon		0.48%
Ulsan		0.59%
Gyeonggi	Main Office	0.08%
	Paju	1.00%
	Yongin	0.55%
	Gimpo	0.52%
	Ansung	0.40%
	Ansan	0.21%
	Pyungtaek	1.02%
	Gunop	0.13%
	Yeoju	0.01%
Gangwon	Hwasung	0.34%
	Main Office	0.09%
	Gangneung	0.41%
	Wongju	0.46%
	Chunchun	0.39%
Chungbuk	Hongchun	0.34%
	Main Office	0.10%
	Jecheon	1.61%
	Jincheon	0.62%
	Goisan	0.44%
	Boeun	0.30%
	Okcheon	0.31%
	Umsung	0.46%
	Jengpyung	0.44%
	Chungju	0.57%
Chungnam	Cheongju	0.14%
	Gyeryong	2.50%
	Chenan	1.47%
	Dangjin	0.67%
	Asan	0.87%
	Geumsan	0.50%
	Nonsan	0.22%
	Boryung	0.44%
	Seosan	0.53%
	Seocheon	0.38%
	Hongsung	0.75%

TABLE A6—RATIO BETWEEN ANNUAL EXPENDITURE AND BUDGET BY LOW-LEVEL LOCAL GOVERNMENTS (*Continued*)

Local government (Basics)		Ratio to budget Annual Gov't Payment/Budget ratio
Jeonbuk	Main Office	0.29%
	Iksan	1.15%
	Gimje	0.69%
	Gunsan	0.39%
	Wanju	0.41%
	Jeonju	0.40%
	Jeungup	0.29%
Jeonnam	Jinan	0.34%
	Main Office	0.03%
	Gangjin	1.75%
	Wando	0.42%
	Hampyung	0.15%
	Hwasun	0.27%
	Mokpo	0.90%
	Bosung	0.39%
	Yeosu	0.39%
	Naju	0.47%
Gyeongbuk	Damyang	0.31%
	Jangheung	0.37%
	Goheung	0.01%
	Gyeongju	1.39%
	Andong	0.54%
	Uisung	0.20%
	Sangju	0.77%
	Pohang	1.29%
	Goryung	0.48%
	Gimcheon	0.84%
	Mungyeong	0.92%
	Youngduk	0.48%
	Youngju	0.74%
Gyeongnam	Yecheon	0.55%
	Uljin	0.51%
	Chilgok	1.64%
	Main Office	0.35%
	Uiryung	0.13%
	Gimhae	0.78%
	Yangsan	0.49%
	Jinju	0.63%
	Geochang	0.24%
Jeju Special Self-Governing Province	Changwon	0.24%
	Sacheon	0.27%
	Tongyoung	0.78%
Jeju Special Self-Governing Province		0.66%

TABLE A7—TOTAL ANNUAL EXPENDITURE ON PPP PROJECTS COMPARED TO THE BUDGET BY LOCAL GOVERNMENTS

(UNIT: 100 MIL. KRW)

Competent authority (Lower level)		Budget (Grand total including funds)	Annual BTL lease	Fixed charges in 2013	Annual BTL operation cost	Average annual MRG payments	Total	Ratio to budget (%)
Seoul Metropolitan City	Headquarters	260,345				68	68	0.03%
	Gangnam-gu	8,333	31		15		45	0.54%
Busan Metropolitan City	Headquarters	103,085	96	183	37	67	383	0.37%
	Haeundae-gu	4,123	12		7		19	0.46%
	Buk-gu	3,116	8		10		18	0.58%
Daegu Metropolitan City		68,877	31		12		43	0.06%
Incheon Metropolitan City	Headquarters	88,593	66	48	40	74	229	0.26%
	Bupyeong-gu	5,169	33		0.18		33	0.63%
Gwangju Metropolitan City		39,787	137		36	439	612	1.54%
Daejeon Metropolitan City		40,003	134		58		193	0.48%
Ulsan Metropolitan City		30,461	125		54		180	0.59%
Gyeonggi-do	Headquarters	174,935				141	141	0.08%
	Paju-si	9,185	53		39		92	1.00%
	Yongin-si	17,993	40		58		98	0.55%
	Gimpo-si	7,941	24		17		41	0.52%
	Anseong-si	6,600	18		8		27	0.40%
	Ansan-si	21,092	30		13		43	0.21%
	Pyeongtaek-si	11,956	46	58	18		122	1.02%
	Gunpo-Si	4,963				7	7	0.13%
	Yeoju-si	3,731				1	1	0.01%
Gangwon-do	Hwaseong-si	14,150		49			49	0.34%
	Headquarters	48,461				45	45	0.09%
	Gangneung-si	7,449	17		13		30	0.41%
	Wonju-si	9,810	31		15		45	0.46%
	Chuncheon-si	10,812	29		14		43	0.39%
	Hongcheon-gun	5,265	9		9		18	0.34%
Chungcheong buk-do	Headquarters	38,384	29		10		39	0.10%
	Jecheon-si	5,753	48		45		92	1.61%
	Jincheon-gun	3,460	13		8		21	0.62%
	Goesan-gun	3,711	10		7		16	0.44%
	Boeun-gun	3,116	4		5		9	0.30%
	Okcheon-gun	3,921	6		6		12	0.31%
	Eumseong-gun	4,798	13		9		22	0.46%
	Jeungpyeong-gun	1,878	5		3		8	0.44%
	Chungju-si	8,715	26		23		50	0.57%
	Cheongju-si	12,847	15		3		18	0.14%
Chungcheong nam-do	Gyeryong-si	1,746	28		15		44	2.50%
	Cheonan-si	13,534	122		77		199	1.47%
	Dangjin-si	7,023	22		25		47	0.67%
	Asan-si	9,413	45		37		82	0.87%
	Geumsan-gun	3,611	10		8		18	0.50%
	Nonsan-si	5,745	10		3		13	0.22%
	Boryeong-si	6,067	12		8	7	26	0.44%
	Seosan-si	6,737	20		15		36	0.53%
	Seocheon-gun	4,016	9		6		15	0.38%
	Hongseong-gun	4,611	20		14		35	0.75%

TABLE A7—TOTAL ANNUAL EXPENDITURE ON PPP PROJECTS COMPARED TO THE BUDGET BY LOCAL GOVERNMENTS (*Continued*)

(UNIT: 100 MIL. KRW)

Competent authority (Lower level)		Budget (Grand total including funds)	Annual BTL lease	Fixed charges in 2013	Annual BTL operation cost	Average annual MRG payments	Total	Ratio to budget (%)
Jeollabuk-do	Headquarters	53,235	0	155			155	0.29%
	Iksan-si	10,324	74		44		119	1.15%
	Gimje-si	6,359	27		17		44	0.69%
	Gunsan-si	9,627	21		44		65	0.68%
	Wanju-gun	5,443	14		9		23	0.41%
	Jeonju-si	14,335	50		8		58	0.40%
	Jeongeup-si	6,749	14		6		20	0.29%
	Jinan-gun	3,326	6		5		11	0.34%
Jeollanam-do	Headquarters	69,987	15		7		22	0.03%
	Gangjin-gun	3,140	35		19		55	1.75%
	Wando-gun	4,223	9		9		18	0.42%
	Hampyeong-gun	3,309	3		2		5	0.15%
	Hwasun-gun	4,900	8		5		13	0.27%
	Mokpo-si	6,717	46		15		61	0.90%
	Bosung-gun	3,942	0	15			15	0.39%
	Yeosu-si	9,923	25		13		38	0.39%
	Naju-si	6,041	18		10		28	0.47%
	Damyang-gun	3,446	6		5		11	0.31%
	Jangheung-gun	3,523	10		3		13	0.37%
	Goheung-gun	5,557				0.36	0	0.01%
Gyeongsang buk-do	Gyeongju-si	12,008	115		52		167	1.39%
	Andong-si	8,951	29		19		48	0.54%
	Uiseong-gun	4,879	5		5		10	0.20%
	Sangju-si	6,771	34		18		52	0.77%
	Pohang-si	13,678	92	54	31		176	1.29%
	Goryeong-gun	2,889	6		8		14	0.48%
	Gimcheon-si	6,791	34		23		57	0.84%
	Mungyeong-si	4,943	25		16	5	46	0.92%
	Yeongdeok-gun	3,318	11		5		16	0.48%
	Yeongju-si	5,820	23		19		43	0.74%
	Yecheon-gun	3,552	12		7		19	0.55%
	Uljin-gun	5,575	18		10		28	0.51%
	Chilgok-gun	4,614	24	39	13		76	1.64%
Gyeongsang nam-do	Headquarters	76,969				268	268	0.35%
	Uiryeong-gun	3,651	2		3		5	0.13%
	Gimhae-si	11,645	64		26		90	0.78%
	Yangsan-si	7,926	22		17		39	0.49%
	Jinju-si	11,584	46		26		72	0.63%
	Geochang-gun	5,014	7		5		12	0.24%
	Changwon-si	27,307	46		18		65	0.24%
	Sacheon-si	4,813	6		7		13	0.27%
Jeju Special Self-Governing Province	Tongyeong-si	5,083	25		14		39	0.78%
		42,914	185		100		285	0.66%

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