Aid Effectiveness to Infrastructure: A Comparative Study of East Asia and Sub-Saharan Africa

Case Studies of Sub-Saharan Africa

July 2008

JBIC Institute
Japan Bank for International Cooperation
Aid Effectiveness with regard to the Financial Capacity of the Government and the Augmenting Capacity of the Private Sector

~Comparison Between Ghana and Thailand on Highway Sector Development~

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<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>CBU</td>
<td>Completely built up</td>
</tr>
<tr>
<td>DOH</td>
<td>Department of Highway</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment</td>
</tr>
<tr>
<td>GFSY</td>
<td>Government Finance Statistics Yearbook</td>
</tr>
<tr>
<td>GHA</td>
<td>Ghana Highway Authority</td>
</tr>
<tr>
<td>GRF</td>
<td>Road Fund of Ghana</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>JBIC</td>
<td>Japan Bank for International Cooperation</td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>LLDC</td>
<td>Least Developed Countries</td>
</tr>
<tr>
<td>ODA</td>
<td>Official Development Assistance</td>
</tr>
<tr>
<td>PMMP</td>
<td>Pavement Management Maintenance Program</td>
</tr>
<tr>
<td>SEA</td>
<td>South-East Asia</td>
</tr>
<tr>
<td>SSA</td>
<td>Sub-Saharan Africa</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

When one wonders if Official Development Assistance (ODA) is a horse or a wagon on the road to development as posed in the framework paper of this research project, it can be assumed that it is a horse in the context of Sub-Saharan Africa and a wagon in South-East Asia. This difference determines how ODA affects economic growth, occasioned by the institutional change initiated during the implementation stage as well as the benefits of infrastructure facilities. This research project examines how the institution has developed differently in South-East Asia (SEA) in comparison with Sub-Saharan Africa (SSA), as a result of ODA implementation. This study examines such differential growth in the two regions from a different angle wherein the direct output of specific projects is not considered. Instead, the effect of the background system on aid contribution is examined not only with respect to the capacity of a specific institution such as the executing agency, but also with respect to the broader institutional capacity such as the capacity of concerned industry, via spill-over effects.

Although the available conditions at the beginning of sector development influence the effectiveness of aid, sector development can still be effectively carried out without fulfilling the initial conditions. On the contrary, it is important that the unfavorable conditions be recognized so that they can be gradually countervailed.

1.1 The Scenario Behind

The rapid growth of mega cities in conjunction with motorization and rapid urban development seems to have accelerated the nationwide economic growth of many South-east Asian countries. Infrastructure development encouraged the rapid construction of cities and industries in those countries; construction itself fueled growth, attracting higher government revenue, which, in turn, hastened infrastructure development—thereby constituting a virtuous circle\(^1\). (They accompany the bubbles that also seem to contribute to growth.)\(^2\)

In Thailand, the high-speed growth conveyed the impression so-called "supply itself creates demand", in the sense that construction was generating employment and income, which increased the purchasing power under the ubiquitous labor supply—thereby increasing the demand for construction. This process also reminds us of the Keynesian views.

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\(^1\) Although this is reminiscent of out-dated theories such as the Lewis model and growth pole, such were the author’s impressions at the site. A revival may be underway as the industrial cluster has recently attracted attention again.

\(^2\) The author believes that when a bubble is created and sustained, it provides the momentum for take-off.
Thus, although such developments in the urban infrastructure may have been the results of high-speed growth, it is undeniable that these were also the engines of growth. Such a scenario that unfolded in Thailand demonstrates the clear contrast between East Asian growth and African stagnation in the past. Presently, Laos and Cambodia, once the lowest income countries in South-East Asia, even poorer than many African countries until only a decade ago, have begun to experience metropolitan growth. If a momentum is generated in those countries, it may induce high-speed growth around the capital cities and the people living along the national trunk road are likely to be the first to receive the share of the benefits. Similarly, if African cities experience significant activities in urban construction, one may expect them to experience a take-off in the near future.

The impact of the ODA implementation on capacity building as well as the factors that facilitate capacity building will be examined with respect to certain relationships suggested in this scenario. The study encompasses issues such as the development of infrastructure and private contractors, motorization, and revenue capacity, all of which bolsters one another. The differences with respect to region that are found may suggest different foci and modality in the aid implementation system.

1.2 Reason for Selecting Ghana and Thailand

In this paper, we compare and contrast two countries: Thailand from SEA and Ghana from SSA. The differences between these two countries during the late 1980s and the early 1990s will be explored. Thailand and Ghana are selected because they have relatively high capacity and performance in the context of their respective regions. Both countries possessed relatively abundant human resources even in the early ‘80s, particularly, with regard to primary education as well as sound reputations. In the mid ‘70s, the state of the economy was not very different between the two countries unlike that in late ‘80s, which allows us to avoid addressing significant differences in the initial conditions. In Ghana, the performance of the economy was not always poor; in fact, Ghana had several chances for take-off after the mid-’80s. Recently, several countries in SSA have begun to attract more Foreign Direct Investment (FDI) than before, reminiscent of the substantial flow of FDI into SEA in the late ‘80s after the Plaza Agreement. Thus, as another perspective, the comparison of SEA of the early ‘90s with SSA of the early ‘00s could yield meaningful implications. In this paper, the situation in Ghana around the year 2000 is also compared with that in Thailand around 1990 when the country experienced high growth.

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3 One may raise a counter-example of Abidjan in Ivory Coast wherein the opportunity for urban growth in the ‘70s did not materialize. The urban growth there did not seem to be sustainable. In case of Lagos, the growth of one mega city may not have been sufficient because of its high population.
1.3 Reasons for Selecting the Highway Sector

We have chosen to examine the highway sector of the two countries as the primary sector. The highway sector is one of the critical components of infrastructure for any country. Regardless of the region wherein a country is located and the initial conditions of each country therein, all developing countries have several projects in this sector. Although few studies have concluded that the country that developed the highway first tended to succeed in taking-off, several observations intuitively support the idea. The importance of the highway sector to development and the fact it is amenable to comparison across countries, are the primary reasons for its selection. Further, the sector has been recently evaluated as the highest performing among the various sectors in Ghana; therefore, plotting the development of this sector therein in comparison with that in Thailand, may yield certain insights regarding aid effectiveness. Presently in Ghana, the implementation and financial capacity of the government as well as the private sector capacity with regard to highway constructions have shown remarkable progress, resembling that of Thailand during the period of its high growth.

1.4 Structure of the Paper

The remainder of the paper, subsequent to the introduction, is organized as follows. In Section 2, we explore the differences in donor capacity with respect to region, the background of the discussion, and overview of the highway sector in each country. Section 3 describes the influence of the government’s financial capacity on aid effectiveness and compares the past trends of aid dependency between the two countries. Section 4 addresses the issue of revenue capacity of the government more specifically, with respect to the revenue raised by user charges. Moreover, it addresses the effect of highway development on revenue briefly. Finally, section 5 demonstrates the development of private sector capacity by means of project implementation, which is one of the important spill-over effects. The linkages presumed in this study are depicted in Figure 1. The focal linkages are depicted by thick arrows.
Figure 1: Linkages Discussed in this Chapter
2. BACKGROUND

2.1 Background of the Two Countries and Regions

2.1.1 Brief Comparison of the Economic Capacities of the Two Countries

First, the size of the economy and levels of income are briefly compared in Table 2.1. The population of Thailand is nearly three times that of Ghana and its area more than twice as large. The difference in the size of the economy is greater, because the per capita income of Thailand is more than five times that of Ghana. The GDP of Thailand is sixteen times greater than that of Ghana. On the other hand, Ghana had a higher growth rate than Thailand in 2006. The share of the GDP in gross capital formation, government revenue, and imports are similar for the two countries; although, with respect to the first two, the figures for Ghana are presently slightly higher. However, the gross capital formation in Thailand during the period of two-digit growth, reached nearly 40%.

<table>
<thead>
<tr>
<th></th>
<th>Population (million)</th>
<th>Area (1000km²)</th>
<th>Income per Capita (US Dollars)</th>
<th>GDP (billion US Dollars)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Economic Growth (annual %)</th>
<th>Gross Capital Formation (% of GDP)</th>
<th>Gov. Revenue (% of GDP)</th>
<th>Imports (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>5.0(2006)</td>
<td>29.1(2006)</td>
<td>17.3('06)</td>
<td>70.2('06)</td>
</tr>
<tr>
<td>Ghana</td>
<td>6.2(2006)</td>
<td>32.3(2006)</td>
<td>21.6('06)</td>
<td>63.8('06)</td>
</tr>
</tbody>
</table>

Data: World Development Indicators and thers

2.1.2 Differences in the Donors' Capacity by Region

Before comparing the aid effectiveness for the two countries in the next section, we should consider the geographical dimension with respect to the location of Japan. Although this dimension is not visible and aid agencies do not pay much attention to it, it is a critical factor that must be taken into account when we examine the differences between South-East Asia (SEA) and Sub-Saharan Africa (SSA).

In the case of Thailand, the Japan Bank for International Cooperation (JBIC) has operated its field office therein for a long time. With respect to various sectors, it has established important personal networks among various staffs of the recipient
government. Close information exchanges have occurred between JBIC and the recipient via frequent telephone conversations, joint meetings, and other gatherings. Such exchanges facilitated detailed communication, which were supported by daily observations on various political and economic phenomena. Such activities also facilitate to accumulate the donor's institutional memory.

On the other hand, in Ghana, JBIC does not have a field office. This requires the frequent recurrence of commitments for new projects irrespective of the sector in question, in order to maintain the general channels for communication with the staffs of the recipient government. The experiences of conducting aid operations in SEA countries indicate that it is quite necessary to maintain a continuous relationship in order to develop an efficient and effective partnership. This implicit strategy on continuous relationships was applied to the highway sector in Ghana. Then, the sector acquired intermittent commitments for several projects, maintaining continuous communication over a certain period with a specific executing agency. Nevertheless, the partnership with the executing agency in Ghana is weaker than that in SEA countries. If one were to assume that there are daily local telephone conversations and fax exchanges between the two parties in SEA, in regard to SSA, there are at most two dispatching missions a year for specific projects. Until the advent of internet communication and the institutional relaxation of information control over the technical staff by the SSA government, only very little information could be exchanged between a recipient government and a remote donor. This prohibited a remote donor from being involved in sophisticated tailor-made projects that required frequent negotiation between a recipient and a donor during the implementation stage.

The implication of these is that the integration of Yen loan operation into the new Japan International Cooperation Agency (JICA), which has many field offices in SSA already, may facilitate the Yen loan operation in SSA.

The channel of donor's intervention for a project differs entirely by region. For countries that are geographically close to the donor, the donor has many choices of channels via which to influence the project; they include the borrowing agency, executing agency of the project, the consulting firm, or the project contractor. In cases wherein the recipient country is geographically far from the donor country, the communication channels are rather limited, if not virtually non-existent, to the borrowing agency. With regard to institutional contribution to a remote country, the only feasible channel is constituted by the consulting firms hired for the project. It is, however, limited because the consultant is hired not by the donor but by the borrower.

For SEA countries, owing to its location, JBIC enjoys greater advantages than do European and American (hereafter “Western”) donors and international financial institutions, with the exception of the Asian Development Bank (ADB). In SEA,
the number of major donors is limited. On the contrary, for SSA countries, Western donors and international financial institutions enjoy advantages over Japan, due to its location and history. In SSA, since the number of major donors is relatively large, greater coordination is required among donors. In Ghana, Western donors and the World Bank (WB) have had far greater opportunities to provide advices to the government. Japan’s advantage is limited to the areas wherein several SEA countries have succeeded and wherein the aid experiences in SEA are relevant to SSA. As an actual example, Yen loan projects have assisted in producing a manual for the routine and periodic maintenance of highways as a reference for the executing agency in Ghana for a long time.

The JBIC could provide with its experiences in East Asia as references to SSA executing agencies. However, the experiences could not be directly applied to SSA without examining its applicability to the region.

These factors may partly explain why the aid effectiveness of JBIC operation in SSA was lower than it was in SEA. However, it should be noted that the effectiveness of Western donors’ ODA has also been relatively weak in SSA. Thus, the donor side capacity may be merely one of minor factors that explain the differences between the regions. Nevertheless, it should be borne in mind in order to eliminate the impediments to the future operations of Yen loan in SSA.

2.1.3 Differences in the Expected Function of Aid Finance by Region

The two countries appear to have had different reasons for seeking aid finance. In Thailand, one of the reasons for seeking aid finance for large projects appear to be that a large project escalates the expenditure of the relevant department. If the fund comes from the general budget, the relevant department may elicit the increased expenditure perpetually, leading to unnecessary fiscal expansion. If the general budget is not enough, the government has to curtail expenditure on other activities. If it is curtailed within the department, the maintenance expenditure may decrease. Curtailing the expenditure outside the department may also cause serious problems. In the case of aid finance, however, the government need not change the structure of expenditure as much. This may facilitate the continuous efforts by the government with regard to highway maintenance and construction of rural road. If adequate domestic funds could be raised for the large project, they could be devoted to the acceleration of highway construction or poverty reduction as far as the fund is fungible. Thus, no problem would arise.

The story unfolds in quite the opposite manner in SSA. The limitations of the general budget prevented the government from beginning a large project without aid. Actually, the large project had failed to start because of the absence of aid fund. This implies that no other finance is available for the project. If the aid fund were fungible,
this project could be started by other fund, and the aid fund could be used for other purposes. Thus, the fund derived from aid was regarded not fungible in SSA. Even after receiving aid, due to its non fungible nature, the local costs of the large project had squeezed other expenditure of the government. In many SSA countries, the shortage of local resources have frequently stopped and delayed projects.

This difference between SSA and SEA should be taken into account when considering the future trajectory of the operative aid finance in SSA, although this study will not directly address this issue any further.

2.1.4 Comparison by means of Counter Factual Conjecture

Thus far, the potential factors on the difference in aid effectiveness have been discussed, firstly with respect to the economic capacity and secondly, the donor side capacity in the two regions. An exercise in counter factual conjecture may provide insights that facilitate comparison of the ODA operation in the two countries. One of the critical questions may be how the ODA flow and outcome would have been different had Ghana been located next to Thailand. If that were the case, sizable loans committed every year would have accelerated infrastructure development, and in a decade, akin to Vietnam’s experience, significant FDI could have been attracted, accompanied by upgraded infrastructure and business environment. It is worth asking why these differences in expectation arise. This is because the surrounding forerunners can present a clear picture of the momentum in the take-off and the process of transition, encouraging donors with confidence to invest in infrastructure. These also encourage private investors to enter the market. To obtain a more concrete image, the industrial cluster of a neighboring country is observed both by the government and potential investors. When many private investors locate factories in a specific area, the government and donors can assist in augmenting the infrastructure because it is not forwarded to a specific private company but to the entire industry as a whole. When several investors request that the bottlenecks in infrastructure, such as those in road networks and electricity supply, be cleared, the request is accepted not only to sustain the investors’ interest in expanding operation, but also for increasing local employment and industrial potential. In the case of SEA, these types of examples are easily found in a neighboring country by various stake holders of development.

2.2 Background of Highway Sector

2.2.1 Overview on Aid to Highway Sector

Donor contribution to the highway sector usually takes the form of financial input. Since activities involved in this sector, such as road construction works, are generally
simple in nature, bridge building being an exception, the contribution made by non-financial input is limited in comparison with the aid provided to other sectors that involve complicated technology or system design. More specifically, the contribution to the highway sector in any form other than funding tends to take the form of transferring institutional knowledge conducting operations and maintenance. Also provided is the system knowledge on contracting-out activities, which is relevant to innumerable projects, and the training scheme in general. As can be imagined from these examples, the contribution is not directed to a specific project but an entire sector. It is quite important to build up the system with regard to operation and maintenance, and planning and monitoring. Because such technical contributions is, for the most part, country specific, it requires the knowledge of and experiences in that country. Consequently, a commitment of several years with daily base communication is quite helpful. With regard to the timing of the project cycle in the highway sector, it is very common to provide advices during the implementation stage for the issues arising before and after the implementation.

With regard to implementation, the technical input provided by foreign consultants or contractors to local contractors includes the following areas: construction management, logistic system, machine operation, material choice, and testing. These input are not recorded in formal reports. However, manuals for operation and maintenance are an exception, because these can be included in the TOR of the consultant’s contract, and the outcome physically remains over time. Although each manual is merely a draft that the executing agency integrates, the manuals prepared by means of the support from donors are quite helpful in establishing a solid system as well as in transferring knowledge to local contractors.

2.2.2 The Highway Sector in Thailand

Both passenger and freight traffic mostly takes the form of road transportation in Thailand. The share of the road transportation has been approximately 90%. Motorization has increased road traffic at a rapid pace since 1989. The traffic growth in the early ‘90s was dramatic, approximately 15% per annum.

The paved road network expanded ten times from 5,500 km in 1965 to 55,000 km in late ‘90s. The National trunk and provincial roads stretching about 57,000 km are now almost paved and are under the jurisdiction of the Department of Highway (DOH). During the same period in the mid-90s, the rural roads accounted for about 150,000 km and urban (municipal) roads, 15,000 km.

Presently, rather than paving, the up-grading of highways into 4-lanes is an acute issue in many sections; the improvement in highway services in order to avoid congestion and to facilitate high-speed traffic is also acute.
Table 2.2: Highway under the jurisdiction of the DOH in Thailand [Unit: km]

<table>
<thead>
<tr>
<th>Year</th>
<th>National Roads</th>
<th>Provincial Roads</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Paved</td>
<td>Unpaved</td>
<td>Paved</td>
</tr>
<tr>
<td>1965</td>
<td>5,046</td>
<td>4,436</td>
<td>405</td>
</tr>
<tr>
<td>1975</td>
<td>11,840</td>
<td>818</td>
<td>3,396</td>
</tr>
<tr>
<td>1985</td>
<td>5,132</td>
<td>86</td>
<td>17,124</td>
</tr>
<tr>
<td>1995</td>
<td>Both Roads Merged with the National Road</td>
<td>46,331</td>
<td>2,574</td>
</tr>
<tr>
<td>2000</td>
<td>Both Roads Merged with the National Road</td>
<td>56,559</td>
<td>844</td>
</tr>
</tbody>
</table>

2.2.3 The Highway Sector in Ghana

A road network in Ghana is composed of 13,300 km of trunk roads (it is little less than a quarter of that in Thailand), 23,600 km of feeder roads, and 3,000 km of urban roads in 1999. The volume is approximately one-fourth to one-sixth that of Thailand. All the trunk roads are under the jurisdiction of the Ghana Highway Authority (GHA). The majority of the trunk roads are not paved in a good condition. Certain portions require reconstruction and major rehabilitation, while certain portions have not yet been paved. Thus, the current stage of development requires the expansion of paved road via reconstruction or new construction.

Pavements mostly consist of asphalt overlay and very small portions are covered with concrete. Consequently, maintenance efforts need to be undisrupted in order to preserve them. It is still too early to prioritize the conversion of two-lane highways to four-lane ones except in the case of specific sections of urban roads, which are about to be expanded rapidly, to respond to the increase in traffic demand in various sections.

Table 2.3: Highways under the jurisdiction of the GHA

<table>
<thead>
<tr>
<th>Year</th>
<th>National Trunk</th>
<th>Interregional</th>
<th>Regional</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Paved</td>
<td>Unpaved</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>1999</td>
<td>4,379</td>
<td>2,732</td>
<td>6,134</td>
<td>13,245</td>
</tr>
<tr>
<td>2001</td>
<td>5,968</td>
<td>7,465</td>
<td>33%</td>
<td>37%</td>
</tr>
<tr>
<td>2005</td>
<td>5,998</td>
<td>6,659</td>
<td>Missing Links: 710, Town Roads: 680</td>
<td>14,047</td>
</tr>
</tbody>
</table>

Data source: June 1999 “Preliminary Study for Highway Master Plan”
July 2001 “Project Appraisal WB”
June 2005 “Second Quarter Road Sector Development Programme Report”

2.2.4 Commitment of JBIC to the Highway Sector in Both Countries

JBIC committed twenty road projects executed by the DOH of Thailand. The commitment of these 20 loans amounts to 182.1 billion yen. Some or the other of these projects have been under implementation continuously over thirty years in Thailand.

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The JBIC has committed to five road projects executed by the GHA. The commitment of these five loans amounts to 42.0 billion yen. A project or the other has undergone implementation, albeit intermittently, for nearly twenty years. In addition to financing constructions and equipments, since the early ‘90s, consultants hired for these projects have provided continuous support in establishing maintenance systems. Currently, the Pavement Management Maintenance Program (PMMP), the system consolidated by the World Bank in 1997, is widely applied in Ghana.
3. THE FINANCIAL CAPACITY OF THE GOVERNMENT

3.1 Overview of the Impact of the Government’s Financial Capacity

Our overall research focuses on the effectiveness of donor input at the implementation stage. At this point, we begin a discussion of how the financial capacity of the government affects the results of the implementation with regard to three aspects: the timely preparation with regard to implementation; changes in design/scope of the project initiated by its own funds; and the replication of its experience for government-funded projects.

First, in case the government does not possess the funds to prepare feasibility studies that are acceptable with regard to international standards, the government waits for technical assistance. If the project is urgent and sufficiently funded, the government initiates the study by means of its own funds. When the timing is favorable for commencing a project immediately, the government can use its own budget to fund the project and request finances for other projects that are next on the agenda. Thus, the implementation can be occasioned in a timely fashion. This implies that most stakeholders can also commit to the project in a timelier and more whole-hearted manner, and the momentum of the project that helps in solving potential problems is not lost. The conclusion of external finance is usually reached nearly three years after the feasibility of the project is confirmed, as the study report has to be finalized and approved, and the government has to arrive at budgetary decisions with regard to the financing; subsequently, the donor begins the appraisal for financing in response to the requests for financial assistance.

With regard to the second aspect outlined earlier, the changes in design at the implementation stage, is more flexible when the government can mobilize its own funds. The design change is often necessary if the project has to adjust to the altered environments. According to the meta-evaluation report [JBIC (2003)], three-quarters of highway sector projects financed by the JBIC experienced design/scope change during the project. Although such changes are quite common during the stage wherein the detailed design is carried out, they may happen at various points during the implementation. Occasionally, it is quite important to adjust the design because the circumstances have significantly changed long after the study was completed. It takes two additional years from the time the financing is concluded until the construction to begin, as international rules prohibit contractors and consultants from committing before the financing is concluded, and also, the open international competitive bidding can take place only after the details of the tender documents have been prepared. After the tender takes place, the bid is evaluated, and finally, the contract is signed. A country that has strong financial capacity is able to overcome such disadvantages in
various ways.

Further, changes in design/scope are easier to set hand if the additional components can be financed and supplemented by the government. For instance, in the case of the Ghanaian highway mentioned in the country study, a weighing station could have been constructed to prevent overloading, representing a minor change in scope, if the government had deemed it necessary. Further, a toll collection system to finance the cost of up-grading the standard of the highway could have been introduced if the government had possessed enough funds and a decisive political will. Maintenance systems also can be efficiently established if the government possesses adequate funds. The number and types of construction machineries purchased for maintenance can be adjusted and supplemented if the government procures them on its own, and more accurately reflect the circumstantial changes that have occurred over several years since the planning stage. If the maintenance policy changes such that it relies more on contracting-out to new small private contractors that need equipment rental services, the optimal combination of machines and equipments also changes significantly.

Finally, with regard to the third aspect, the replication of good practices and project experiences is easier when the government has many self-funded projects. For a self-funded project, only the government undertakes the decision to adopt such lessons, whereas in ODA projects, both the government and the donor have to reach their own decisions. If the practices are not attractive, the government may not follow them in the case of a self-funded project. If the practices appear to be suitable, the government will apply them to its projects. Thus, only good practices are replicated. On the other hand, the government is required to follow even unattractive practices if the project is externally-financed and the donor insists on the practices. A country with few self-funded projects is always compelled to follow the diverse practices that vary from donor to donor, irrespective of whether they are beneficial or not. Thus, governments realize only an average of good and unattractive practice, and they can not develop their own system suitable to them.

3.2 Differences in Financial Capacity and Aid Dependency

In this section, the proportion of the expenditure corresponding to self-funded and ODA projects will be examined, the former of which, as we have seen, amplify the impact of good practices; however, only very rough figures can be derived. Many countries among the Least Developed Countries (LLDC) possessed budgetary characteristics that necessitated that almost all the development expenditure be externally financed. However, certain governments seem to have more self-funded projects than before. Even private projects are implemented. In Sub-Saharan Africa, the situation is the same. One of the questions this study will attempt to answer is regarding the type of external aid that helps in enhancing capacity in self-funded and/
or private projects.

First, let us consider the aid dependency of capital expenditure (or development expenditure) in general. Table 3.1 compares the aid dependency of Ghana with that of Thailand using the data from Government Finance Statistics Yearbook (GFSY). After 1989, this ratio is always less than 10% in Thailand, whereas it is more than 50% for several years in Ghana. However, attention should be paid to Sub-Saharan countries, wherein, unlike South East Asia, money printing is occasionally a source of finance that can be categorized as self-financing or domestic borrowing. Such differences prevent the two regions from being easily comparable. In the case of Ghana, it could not acquire external financing for some years, while it repaid its debt. Consequently, Ghana’s foreign borrowing recorded a negative value.

Table 3.1: External Finance and Capital Expenditure

<table>
<thead>
<tr>
<th>Year</th>
<th>Thailand [Unit: million Baht, %]</th>
<th>Ghana [Unit: Million Cedi, %]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) Capital Expenditure</td>
<td>(B) Foreign Borrowing</td>
</tr>
<tr>
<td>1984</td>
<td>33,877</td>
<td>4,747</td>
</tr>
<tr>
<td>1985</td>
<td>41,593</td>
<td>18,172</td>
</tr>
<tr>
<td>1986</td>
<td>40,056</td>
<td>11,383</td>
</tr>
<tr>
<td>1987</td>
<td>37,216</td>
<td>4,992</td>
</tr>
<tr>
<td>1988</td>
<td>35,850</td>
<td>9,873</td>
</tr>
<tr>
<td>1989</td>
<td>38,545</td>
<td>1,449</td>
</tr>
<tr>
<td>1990</td>
<td>56,103</td>
<td>-32,264</td>
</tr>
<tr>
<td>1991</td>
<td>78,911</td>
<td>3,637</td>
</tr>
<tr>
<td>1992</td>
<td>109,094</td>
<td>-10,761</td>
</tr>
<tr>
<td>1993</td>
<td>151,363</td>
<td>3,550</td>
</tr>
<tr>
<td>1994</td>
<td>190,992</td>
<td>-3,027</td>
</tr>
<tr>
<td>1995</td>
<td>228,122</td>
<td>7,460</td>
</tr>
<tr>
<td>1996</td>
<td>272,700</td>
<td>2,864</td>
</tr>
</tbody>
</table>


Because of such and various other reasons, the GFSY raw data should be adjusted to distinguish between domestic and foreign financial sources, particularly for countries possessing high aid dependency, in order for the aid dependency to be calculated more accurately. Moreover, the GFSY data after 1994 is not available in the case of Ghana. Consequently, we employ the break-down data that divides domestic and foreign finances with respect to capital expenditure, as estimated by the International Monetary Fund (IMF). In Table 3.2, such figures are cited from IMF Publications (1999) and subsequently, the dependency is calculated. The figure for Ghana seems a little higher than that calculated in Table 3.1, especially for earlier years. Even after averaging sixteen years of data, from 1991 to 2006, Ghana’s dependency is recorded
at approximately 57 %\textsuperscript{5}. However, a decreasing trend is clearly observable after 1997 with a few exceptional years.

Table 3.2: Domestic and External Finance of Capital Expenditure in Ghana

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic [billion cedi]</th>
<th>Foreign</th>
<th>Aid Dependency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>78.6</td>
<td>111.9</td>
<td>58.7%</td>
</tr>
<tr>
<td>1992</td>
<td>131.3</td>
<td>157.6</td>
<td>54.6%</td>
</tr>
<tr>
<td>1993</td>
<td>143.3</td>
<td>286.9</td>
<td>66.7%</td>
</tr>
<tr>
<td>1994</td>
<td>236.2</td>
<td>456.0</td>
<td>65.9%</td>
</tr>
<tr>
<td>1995</td>
<td>524.1</td>
<td>564.8</td>
<td>51.9%</td>
</tr>
<tr>
<td>1996</td>
<td>682.3</td>
<td>826.8</td>
<td>54.8%</td>
</tr>
<tr>
<td>1997</td>
<td>541.8</td>
<td>1214.1</td>
<td>69.1%</td>
</tr>
<tr>
<td>1998</td>
<td>759.9</td>
<td>1195.6</td>
<td>61.1%</td>
</tr>
<tr>
<td>1999</td>
<td>851.0</td>
<td>1,157</td>
<td>57.6%</td>
</tr>
<tr>
<td>2000</td>
<td>1,091</td>
<td>1,346</td>
<td>55.2%</td>
</tr>
<tr>
<td>2001</td>
<td>1,341</td>
<td>3,532</td>
<td>72.5%</td>
</tr>
<tr>
<td>2002</td>
<td>1,338</td>
<td>1,652</td>
<td>55.3%</td>
</tr>
<tr>
<td>2003</td>
<td>3,015</td>
<td>2,897</td>
<td>49.0%</td>
</tr>
<tr>
<td>2004</td>
<td>5,057</td>
<td>4,812</td>
<td>48.8%</td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td>50.8%</td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td>36.9%</td>
</tr>
</tbody>
</table>


\textsuperscript{5} Although this figure looks quite high, it is relatively low for SSA. It is more than 80% in Malawi, and it is around 65% in Tanzania. Debt forgiven is neither counted as domestic nor ODA finance.
Second, the aid dependency of the highway sector, is specifically examined, albeit briefly, for each of the two countries. As shown in Table 3.3, containing data collected from the Thai government in August 2007, ever since the late 1980s, highway projects in Thailand have been financed largely by its own budget. Table 3.3 suggests that approximately a quarter has been externally financed between 1988 and 1993 only in cases wherein there is a disbursement from donors. In the case of Ghana, figures from 1996–99 are available. The figure for domestic finance for the highway sector over four years is 450 million dollars, while that for ODA finance is 360 million dollars. The share of ODA finance is about 44%, which is lower than the 50–60% in Table 3.2. As will be discussed later in section 4, the highway sector in Ghana is benefited by a special domestic source of finance, the so-called Ghana Road Fund, which has been functioning since 1996. This is the major reason for the dependency to be lower than the average. Although the aid dependency of the highway sector is relatively low in comparison with general trends in capital expenditure in Ghana, it is still far higher than that in Thailand. Further, as shown in Table 3.4, the financial plan of the highway expenditure in 2005 shows that the ODA finance is approximately 47%. Thus, the decline in the aid dependency of the highway sector in Ghana has not occurred in a sustainable manner, despite the relatively low aid dependency for SSA countries.
Table 3.4: Aid Dependency of the Highway Sector in Ghana

<table>
<thead>
<tr>
<th></th>
<th>Government Expenditure (billion Cedi)</th>
<th>Ghana Road Fund (billion Cedi)</th>
<th>Donor (billion Cedi)</th>
<th>Total (billion Cedi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005 Allocation</td>
<td>429</td>
<td>1,044</td>
<td>1,653</td>
<td>3,125</td>
</tr>
<tr>
<td>Proportion (%)</td>
<td>13.7%</td>
<td>33.4%</td>
<td>52.9%</td>
<td>100%</td>
</tr>
</tbody>
</table>

3.3 Impact on Implementation Stage

At the implementation stage, a sufficient government budget could lead to the policy that the Thai government employs—external finance is forwarded only to the foreign cost portion of expenditure. This means that only the costs of imported materials and equipments necessary for highway construction are financed by ODA. In a country that lacks an adequate budget, such a policy would lead to the method of force account construction, which had not been successful partly due to the inadequacy of a budget for construction operations. To solve such problem, donors tend to support not only foreign but also local costs.

In countries that possess an adequate budget, the implementation entails the mobilization of local contractors, providing them the opportunities to upgrade their construction equipments, reflecting their own strategies for increasing capacity. After the completion of the ODA project, the equipments can be utilized in the government’s self-funded projects. Thus, the equipments do not remain unused for long and contractors are provided high incentives for upgrading capacity. In such countries, in reality, contractors do not critically distinguish between ODA projects and self-funded projects. High financial capacity, therefore, leads to more efficient implementation of the projects.

The proportions of expenditure on new construction activities versus maintenance activities should be taken into account when the two countries are compared. In Thailand, in the boom period that experienced significant new construction, the expenditure on maintenance is one-third of that entailed in new construction; in periods of recession marked by stagnation of new construction, this proportion is around a half. In recent years, after the completion of several large projects, the proportion seems to be converging to a half. In Ghana, the government budget financed all the routine maintenance expenditure which had cost approximately 50 million dollars over four years, from 1996 to 1999. Thus, routine maintenance was not aid dependent. In order to conduct activities pertaining to periodic maintenance and rehabilitation over four years, from 1996 to 1999, approximately 160 million dollars were financed by the government, and a little more than 120 million dollars, by donors. For new construction activities including reconstruction, approximately 240 million dollars were financed by the government and 240 million dollars, by
donors. Aid covers a half of new construction costs. The amount of expenditure for maintenance and rehabilitation was 330 million dollars against 480 dollars for new construction. Maintenance expenditure was more than two thirds of new construction. A reason why maintenance activities account for a higher proportion in Ghana is that the country does not have many maintenance-free roads—those that possess concrete covers.

For the highway sector, on the whole, the maintenance and rehabilitation expenditures of 330 million dollars is lower than the domestic financing of 440 million dollars in 1996~1999. This implies that maintenance and rehabilitation activities can, to a certain extent, be managed without aid.

3.4 Implications

The comparison between the two countries and the trend over the last decade in Ghana may suggest that the sustainable increase in the government’s budget can strengthen the relevant institution either by stabilizing maintenance activities, rendering the institution adjustable, or by enabling the development of its own operation systems. Further, aid may be used to account for the temporary increase in expenditure that accompanies a large project, so that it does not adversely affect the routine and periodic maintenance activities of the highway sector.

Another possible implication may entail the encouragement of mixing project-specific aid with sector-wise programs for financially weak government. Sector-wise programs can function as the substitute of self-funded projects. The former involves international technical components and the latter, less-monitored budget-support for packaging small projects in cases wherein the government does not have adequate funds. The annual size of the budget support should be stable in order for planning to be effective. At the same time, the larger projects are usually accompanied by higher technical standards and require high transparency. This may facilitate the adaptation and replication of the technical and institutional practices from the larger to the smaller projects, in their simplified versions. The budget-support for a specific sector may also encourage the government to elaborate its own systems.
BOX COLUMN A  The Impact of Implementation on the Demand Side

A1. The Aggregate Demand Aspect at the Implementation Stage

Although the main objective of this research is to seek the impact of aid on the capacity built during the implementation stage, implementation (construction) itself has a direct impact on the macro economy both with respect to production and demand. This does not occur at the planning stage, because the immediate impact on the macro economy is quite negligible. It does not occur after completion either, because the infrastructure functions toward the supply side inducing improved performance in various industries. The impact of infrastructure on aggregate demand occurs only during the implementation stage. However, this is usually ignored, despite its magnitude.

Considering an example from the construction of a Japanese expressway in the 60's and 70's, the Pacific side of Japan's coast seemed to develop faster than the Japan Sea side. This was partly explained by the fact that labor, as a factor of production in the Pacific side, was abundant and available during the season after harvest, while the Japan Sea side could not utilize the available labor owing to heavy snow fall. Highway construction activities that occurred after the harvest, employing idle labor, could provide additional income for farmers without replacing other earning opportunities, thereby increasing aggregate demand, obviating the need to travel for work at a distant big city for seasonal employment. This practice functioned as a fiscal and income policy. It may not apply to African countries in general, since they may not have the post harvest season, and labor surplus may be little unlike their Asian counterparts. However, the two regions may experience the same consequences of infrastructure development; if well-scheduled, it increases income without creating pressure on the labor market.

A2. Why the Demand Side Story is Ignored

We usually do not pay attention to the impact of aid on the demand side for two major reasons. The first is that one of the objectives of aid is to increase GDP not by fiscal policy but by increasing the supply capacity. The demand side impact, if any, tends to be regarded as merely incidental. The second reason is that external financing is, in many cases, allocated to the imports necessary for the project; thus, the increase in investment is off-set by the increase in import, thereby not affecting demand.

As was evidenced in the late '80s and early 90's, during the take-off stage in Thailand, construction activities seemed to increase demand by providing earning opportunities. Around one-eighth of the growth was generated by the construction industry. The regression on GDP over construction output of the previous year
tends to show a higher correlation than that on construction output over the GDP of the previous year. Though causality is not confirmed, an increase in construction activities may affect the GDP of the following year.

A3. Multiplier Effect

One can expect the multiplier effect of government expenditure in a developing country to be higher than that in a developed country. When considered from the opposite perspective, it is quite often observed that the austerity budget causes an unexpectedly sharp decline with multiplier effects\(^6\), although the positive impact of government expenditure is rarely highlighted. The foreign cost (import finance) of aid does not affect the demand side, unlike the expenditure from the government’s own budget (and the local cost aid financing). Thus, the increase in government expenditure in excess of the foreign cost portion can explain the quick expansion of the economy under different circumstances. Chains of impact that begin from production (construction) via income, and eventually to the demand deserve attention. This chain may amplify positive direct effect. Further, this could also effectively involve participation of the residents on site in the ways that are different from the usual participatory approach.

The multiplier effects tend to be higher in Thailand than in Ghana. This can be seen from regression on the change in GDP over the change in the sum of investment and government consumption. Figure 3A and 3B below illustrate these images.

\(^6\) A simple calculation, the algorithm of which partly reflected ICOR, is still used for rough predictions of the economic performance from the supply side perspective over the subsequent years. To say the extreme, under ICOR is 5, one unit increase in investment will raise the output by one-fifth. This can be interpreted such that the multiplier equivalent is 0.2 for the change in investment. If, for the change in investment, Keynesian multiplier is applicable and assumes is the value of 2, the impact is 10 times greater than estimated by ICOR. This applies more to fiscal contraction, which often reflects a far more pessimistic outcome than that calculated by ICOR.

One can expect multiplier effects in countries wherein idle resources always exist and investments always increase. The Keynesian view can be reoriented to be applicable to developing countries.
A4. Remarks with respect to the Supply Side

The forward linkages of infrastructure constitute the objective of each project. Needles to say, they function as the public capital for industries that utilize them. However, they do not relate much to the implementation, stage. On the other hand, backward linkage of each project has received little attention, although this linkage, especially in the case of highway projects, is deeply related to the implementation stage of the project.
4. THE REVENUE CAPACITY OF THE GOVERNMENT AND THE VIRTUOUS CIRCLE

The revenue capacity of the government is discussed in this section, and the development of the revenue capacity augmented by user charges in Thailand and Ghana are compared.

4.1 Taxing Principle

With respect to the beneficiary principle of taxation, the infrastructure should be financed by beneficiaries through specific taxes, opposite to the discussion on the uniform rate VAT. In the case of certain countries in East Asia, the excise tax was effectively imposed for automobile sales, which was high enough to cover government expenditure for highways, despite it not being earmarked. This point is worth confirmation, although this is only one of the many indirect channels through which the revenue increases in response to infrastructure development. Only the excise for gasoline (fuel surcharge or fuel levy, hereafter) was widely admitted by free trade supporters and international organizations. However, in developing countries, lowering the fuel subsidy was politically a critical issue in cutting the budget at the time. Therefore, it was, in general, neither expected to increase the revenue nor recover the costs of the highway by imposing fuel surcharge. At the same time, road user charge to cover costs of highway construction had been not in fashion for developing countries even among donors, except for toll collection under privatization and toll collection only for maintenance. Instead of fuel surcharge, import duties on automobiles were quite common and substantial in raising the general revenue, although it did not involve any concept of user charges.

4.2 Revenue Related to Automobile Taxes in Thailand

Before the currency crisis, during the stage wherein Thailand was undergoing the motorization, a rough observation indicates that the increase in excise revenue exclusively from petroleum products (and subsequently, half the increase in revenue from domestic taxes on goods and services) was sufficient to cover government expenditure on items within the “transportation and communication” category, as

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7 Usually, specific tax is regarded something harmful. Further, under the name of reducing protection, custom duties on imported cars are generally urged to cut down to a level equivalent to low VAT rate, thus losing the revenue from beneficiary of highway. Increasing excise rate for cars up to the level comparable for custom duties before would be the way in reducing protection without decreasing revenue, though very few advocates.
recorded in the table of fiscal expenditure.

Table 4.1: History of Customs Duty and Excise Tax on Automobiles

<table>
<thead>
<tr>
<th>Year</th>
<th>Customs Duty for Automobiles</th>
<th>Excise for Automobiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>CBU Passenger car: 150%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pick-up Track/Van: 30%</td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>CBU Passenger car: 200%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pick-up Track/Van: 40%</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>CBU Passenger car</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;2,300 cc: 250%</td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>CBU Passenger car</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,400 cc: 42%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;2,400 cc: 68.5%</td>
<td></td>
</tr>
<tr>
<td>Jan. 1992</td>
<td>Passenger cars and Vans not more than 10 seats</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,400 cc: 32.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;2,400 cc: 38%</td>
<td></td>
</tr>
<tr>
<td>Mar. 1994</td>
<td>&gt;3,000 cc: 45%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Off Road P.C.: 27%</td>
<td></td>
</tr>
<tr>
<td>Nov. 1997</td>
<td>CBU Passenger car: 80%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>increased by 5% for each 4 above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,400: 37.5%, 2400~3000: 43%,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;3,000: 50%, ORPC: 32%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pick-up: 5%</td>
<td></td>
</tr>
<tr>
<td>Jan. 2000</td>
<td>2,400: 35%, 2400~3000: 41%,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;3,000: 48%, ORPC: 29%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pick-up: 3%</td>
<td></td>
</tr>
<tr>
<td>Feb. 2000</td>
<td>Pick-up Passenger Vehicle (PPV):</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18%, Double Cab: 12%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modified Pick-up: 20%</td>
<td></td>
</tr>
<tr>
<td>July 2003</td>
<td>2,000: 30%, 2,000~2,500: 35%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,500~3,000: 40%, &gt; 3,000: 50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPV: 3,250: 20%, &gt; 3,250: 50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Double Cab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3,250: 12%, &gt; 3,250: 50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pick-up: 3,250: 3%, &gt; 3,250: 50%</td>
<td></td>
</tr>
</tbody>
</table>

Data Source: Ministry of Finance, Thailand

More specifically, the excise tax collected exclusively from automobiles is sufficient to cover all the construction and maintenance costs of highways under the jurisdiction of the DOH. Before illustrating this by means of figures, we will briefly review the history of excise tax on automobiles. Until 1992, when VAT was introduced, business taxes functioned in lieu of excise on automobiles. In 1992, business tax was abolished and excise tax on automobiles was introduced thereafter, because the rate of VAT was only 7% and therefore too low for automobiles. Before excise was introduced, customs duty on the import of completely built up (CBU) cars could have served as
an indicator with respect to the magnitude of tax. The history of customs duty and excise rate imposed on automobiles is briefly summarized in Table 4.1. The excise rate is superficially low except in the cases of large cars. The rate inclusive of other indirect charges, however, can be on the level comparable to the customs duty on CBU passenger cars.

Table 4.2: Highway Expenditure covered by Excise on Automobiles

<table>
<thead>
<tr>
<th>Year</th>
<th>Construction and Maintenance Expenditure of DOH (billion Baht)</th>
<th>Excise Tax Revenue from Automobile (billion Baht)</th>
<th>The ratio of expenditure covered only by the excise (% )</th>
<th>WB Team Estimate*</th>
<th>Excise Duties Department (billion Baht)</th>
<th>Customs Department (billion Baht)</th>
<th>Total Including all others (billion Baht)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>8.0</td>
<td>est. 7.3</td>
<td>est. 91%</td>
<td></td>
<td>30.3</td>
<td>19.2</td>
<td>71.9</td>
</tr>
<tr>
<td>1989</td>
<td>9.7</td>
<td>est. 10.4</td>
<td>est. 107%</td>
<td></td>
<td>28.3</td>
<td>27.1</td>
<td>80.3</td>
</tr>
<tr>
<td>1990</td>
<td>13.3</td>
<td>est. 11.7</td>
<td>est. 88%</td>
<td></td>
<td>38.3</td>
<td>19.6</td>
<td>86.3</td>
</tr>
<tr>
<td>1991</td>
<td>15.1</td>
<td>est. 11.1</td>
<td>est. 74%</td>
<td></td>
<td>36.2</td>
<td>18.7</td>
<td>79.9</td>
</tr>
<tr>
<td>1992</td>
<td>19.1</td>
<td>15.7</td>
<td>82%</td>
<td></td>
<td>37.5</td>
<td>25.7</td>
<td>80.8</td>
</tr>
<tr>
<td>1993</td>
<td>26.2</td>
<td>34.4</td>
<td>131%</td>
<td></td>
<td><strong>Estimation by means of statistical regression for revenue, if applied, results in values that are too high to accept.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>31.5</td>
<td>34.5</td>
<td>110%</td>
<td></td>
<td>50.3</td>
<td>22.7</td>
<td>73.0</td>
</tr>
<tr>
<td>1995</td>
<td>34.5</td>
<td>38.1</td>
<td>111%</td>
<td></td>
<td>64.5</td>
<td>28.7</td>
<td>93.2</td>
</tr>
<tr>
<td>1996</td>
<td>43.5</td>
<td>37.3</td>
<td>86%</td>
<td></td>
<td>49.0</td>
<td>36.7</td>
<td>85.7</td>
</tr>
<tr>
<td>1997</td>
<td>53.9</td>
<td>32.3</td>
<td>60%</td>
<td></td>
<td>76.2</td>
<td>47.0</td>
<td>123.2</td>
</tr>
<tr>
<td>1998</td>
<td>49.7</td>
<td>8.6</td>
<td>17%</td>
<td></td>
<td>26.7</td>
<td>8.6</td>
<td>35.3</td>
</tr>
<tr>
<td>1999</td>
<td>39.6</td>
<td>13.9</td>
<td>35%</td>
<td></td>
<td><strong>Estimation by means of statistical regression for revenue, if applied, results in values that are too high to accept.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>32.2</td>
<td>26.8</td>
<td>83%</td>
<td></td>
<td><strong>Estimation by means of statistical regression for revenue, if applied, results in values that are too high to accept.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>29.4</td>
<td>30.3</td>
<td>103%</td>
<td></td>
<td>38.3</td>
<td>21.8</td>
<td>60.1</td>
</tr>
<tr>
<td>2002</td>
<td>23.9</td>
<td>41.6</td>
<td>174%</td>
<td></td>
<td>32.1</td>
<td>23.9</td>
<td>56.0</td>
</tr>
<tr>
<td>2003</td>
<td>22.0</td>
<td>56.5</td>
<td>257%</td>
<td></td>
<td>35.9</td>
<td>29.4</td>
<td>65.3</td>
</tr>
<tr>
<td>2004</td>
<td>24.2</td>
<td>65.0</td>
<td>269%</td>
<td></td>
<td>40.7</td>
<td>37.2</td>
<td>78.0</td>
</tr>
<tr>
<td>2005</td>
<td>36.0</td>
<td>58.8</td>
<td>163%</td>
<td></td>
<td>60.8</td>
<td>41.7</td>
<td>102.5</td>
</tr>
<tr>
<td>2006</td>
<td>30.5</td>
<td>59.8</td>
<td>196%</td>
<td></td>
<td>32.4</td>
<td>66.9</td>
<td>99.3</td>
</tr>
<tr>
<td>2007</td>
<td>37.9</td>
<td>41.3</td>
<td>109%</td>
<td></td>
<td><strong>Estimation by means of statistical regression for revenue, if applied, results in values that are too high to accept.</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Author's estimate and the data from MOF, MOI, DOH] [cited from WB(1995)]

Table 4.2 compares the highway expenditure and the revenue generated from taxes on automobiles. The two left-most columns in Table 4.2 depict the trend over the

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past fifteen years of highway expenditure and excise collected from vehicle sales in Thailand. During the latter half of the high growth period, progress in motorization augmented this trend. It can also be evidenced from Table 4.2 that more than 80% of the expenditure was financed merely by means of the excise on automobiles, except for during the period of the Asian currency crisis. (The estimation for the first half of the high growth period, estimated for reference and depicted in Table 4.2, also reveals that more than 80% of the highway expenditure was covered by excise tax.)

Although excise taxation for passenger vehicles in Thailand was not designed to raise revenue for highway construction but designed to function as luxury tax, it greatly aided the acceleration of the highway sector development. Further, fuel surcharge had supplemented the revenue, without being ear-marked for either highway construction or maintenance. The magnitude of the fuel surcharge is also summarized in Table 4.3.

<table>
<thead>
<tr>
<th>Table 4.3: Fuel Levy paid by Road Users through Premium Gasoline in 2006</th>
<th>[Unit: Baht/liter]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excise for Gasoline</td>
<td>Municipal Gasoline</td>
</tr>
<tr>
<td>3.685</td>
<td>0.369</td>
</tr>
</tbody>
</table>


Currently, according to the institute under the Ministry of Industry of Thailand, the burden caused by excise on vehicles is estimated to be at a level similar to that in Japan, if year by year expenses in Japan are accumulated for 11~12 years. The rate of fuel surcharge, 3.685 Baht/liter, is a quarter of the level that is imposed in Japan. If rate in Thailand is compared with that in Japan excluding the temporal surcharge, the charge in Thailand is half the size of that in Japan. Then, the charge in Thailand including that for Oil Fund is the same as that in Japan. This is rather high in light of the differences of per capita income between Japan and Thailand. For gasoline, excluding diesel, the revenue accounted for 69.4 billion Baht in 2004 [WB(2007)].

The excise revenue from passenger cars accounts for only 5% of the total revenue, which is lower than what the author expected it to be before starting the study. Although the burden is similar to that in Japan, new cars are more than twice as expensive as those in Japan. This arises partly because of the import duty levied when the parts of the cars are imported before assembling. Although the local manufacturing may cost more because it cannot bring to bear a full-scale economy, the

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9 In Thailand most of the burden falls at the time of purchase. Used car is also expensive reflecting the excise paid at the new car purchase. On the other hand, in Japan, the burden is accumulated year by year at inspection. When the entire burden is added up, the burden in Japan is similar to the initial burden in Thailand.
cost differential is no more than some ten percent. Thus, the price difference of 100% can be explained only after taking into account the taxation in various other forms.

In the case of passenger vehicles, the total revenue from this excise is consistent with the tax rate and volume of sales. The indirect import duty on automobile and its parts, which is not categorized or shown in the breakdown in the revenue table, should be added. In the case of commercial vehicles and pick-ups, only VAT is imposed and excise is not. However, we should not forget that the import duties for parts, which are 10 to 30%, are imposed even in such a case. Taking these features into account, we still suspect that tax revenue generated by the sales of vehicles and fuel surcharges account for 10% of the tax revenue, which is the proportion similar to (or slightly lower than) that in Japan. Certain estimations are available in the WB (1995), part of which is cited in the columns on the right in Table 4.2. If we look at the total revenue relating to the road users estimated by the WB, the size is more than twice in 1993. The amount of 80.8 billion Baht is more than 13% of the total government revenue.

4.3 Automobile Related Revenue in Ghana

Certain developing countries in Sub Saharan Africa have recently improved their financial capacities, particularly, for the purpose of highway maintenance. The fuel surcharge is imposed in certain countries for accumulating road maintenance funds. A good example is evidenced in the Road Fund of Ghana (hereafter “GRF”). The GRF was initiated years ago, in 1985, for financing maintenance activities of highways. However, the GRF did not function well and encountered several problems until its restructuring, which began in 1996. Since then, the fund size itself has been increasing year by year. Table 4.4 illustrates the trend from 1990 until the recent year. As shown in the first row, the fuel levy rate increased every year in absolute terms of cedi, although depreciation and inflation have eroded much of this increase.

| year | Fuel Levy Total Share of Share of |
|------|----------------------------------|-------------------------------|
|      | Cedi /liter US cent /liter billion Cedi Million US $ GDP (%) Domestic Revenue (%) |
| 1990 | 6.3  1.83  7.4  21.4  0.36  | 3.08 |
| 1992 | 15   2.88  12.9  24.7  0.46  | 3.86 |
| 1994 | 18   1.71  18.3  17.4  0.35  | 1.88 |
| 1996 | 60   3.43  40.7  23.3  0.55  | 2.04 |
| 1998 | 150  6.36  180  76.3  1.10  | 5.67 |
| 2000 | 150  2.13  298  42.3  1.10  | 6.19 |
| 2002 | 230  2.73  460  54.5  0.76  | 5.23 |
| 2004 | 230  2.54  765  84.6  0.96  | 4.03 |
| 2006 | 600  6.50  1,069 116  0.90  | 4.18 |

[Author's estimate and calculation from various data sources]
In 2006, the size of revenue for the road fund surpassed 110 million dollars, which is equivalent to nearly 1% of GDP and 4% of government domestic revenue. This magnitude is sufficient for reconstructing 100 km of relatively high quality highway, although the fund’s usage is limited to rehabilitation and maintenance. This magnitude appears to be equivalent to that disbursed by aid for the highway sector, and a self funded project might have increased its size considerably. Thus, beneficiary taxation has been materialized by means of road funds, which enable sustainable highway construction and maintenance activities. Thus, the virtuous circle may have already begun. As mentioned in Section 3, the maintenance costs can be largely covered by means of such taxes.

4.4 Comparison of Revenue Capacity between Thailand and Ghana

In this section, we summarize the history of revenue capacity of both countries. The Automobile-related revenue raised in Thailand was not intended to finance highway development, i.e., was not earmarked, but began functioning in such direction, twenty years earlier. On the other hand, in Ghana, automobile-related revenue has been planned, initiated, and earmarked for financing highway maintenance, but began functioning only recently. The revenue comes more from excise on automobiles in Thailand, while most revenue comes from fuel surcharges in Ghana. This revenue is estimated to be approximately 5% of the total government revenue in both Thailand and Ghana. The size is comparable. Motorization helped in increasing the revenue in Thailand, while such is yet to happen in Ghana. Table 4.5 compares the number of four tire-vehicles in the two countries. Although the definition in registration differs from country to country, the number of registrations in Japan is 10 times that of Thailand and in Thailand, 10 times that of Ghana. The annual sales evince similar proportion for the three countries. In Thailand, automobile production has reached a stage wherein it became a exporting base for oversea market as well as a base for domestic market; thus, motorization has generated another momentum of development. Since Ghana does not unfortunately own and operate the industry within its territory, highway development can not generate an increased demand for automobile production as a side benefit of the project.

| Table 4.5: Numbers of Vehicles Registered and Sold Every Year [Unit: thousand] |
|---|---|---|

*Approximated by the increase in registered numbers during 2004

The delay in establishing a sustainable highway system in Ghana can be explained
by the fact that the Ghanaian economy encountered repercussions every 4~5 years whenever its take-off was expected, partly owing to the political cycle before elections and partly because of the slump in the world prices of primary commodities exported from Ghana. The quick depreciation resulting from these factors eroded the resources for highway development in relative terms even when the revenue from fuel levy increased.

If such factors could have been avoided, the situation would have changed significantly and favored the sustainable development of the Ghanaian highway sector. The ownership of sector strategy would have been much enhanced already. Recent environment may induce the effectiveness of aid on the highway system higher than it was, as per the experiences of some South East Asian (SEA) countries. Moreover, also in Kenya, fuel surcharge is imposed for road maintenance. The foreign direct investment seems to be increasing in recent years, indicating that the highway development may be effective in the future. With regard to the question of the horse or wagon, the answer for these countries may change from a horse to a wagon. Taking these possibilities into account, future external assistance may be able to function in an effective way similar to the case in SEA twenty years earlier.

One of the advantages in SEA is that smuggling for the purposes of evading tax may not have been very lucrative, firstly, because many neighbors imposed either high sales tax or high import duties for automobiles, and secondly, because countries are divided by natural boundaries that limit the number of channels available for crossing the boarder between two countries. Similar strategies may not be relevant to the African geographical situation, wherein the tax system is largely different from one country to another and there is greater cross border traffic that bypasses the customs. However, uniform excise rate across countries, may aid taxation on highway under the beneficiary principle and also help facilitate road transportation across country. This also applies to SEA in the near future, because the demand for international commodity flow via land transport is increasing.

4.5 Impact of Highway Development on Revenue Capacity

If infrastructure development can improve tax revenues substantially, the number of self-funded project will increase; subsequently, the capacity of the government may increase by amplifying the capacity raised by the ODA project and as a result of the higher revenue. Thus, the effectiveness of infrastructure aid will also be magnified. In fact, sales volumes of passenger vehicles seem to possess a high correlation with highway (construction and maintenance) expenditure including ODA (at the 1988 price). Despite the high significance, in order to avoid a spurious regression, the sales of passenger vehicles are regressed instead, over the increment in highway construction and increase in GDP, in order to mitigate potential problems. Even the
increment in highway expenditure in the previous year can explain the sales volume of passenger vehicles in the following year, for the period 1988~97. At the same time, it is quite salient that the excise revenue from automobiles (at the 1988 price) has a close correlation with the sales volume of passenger vehicles. Further, even the increment in highway expenditure displays a direct correlation with the level of excise revenue from automobiles during 1992~97.

An outline of the results of the simple regression is presented in Table 4.6. Although they are not enough to confirm linkages, they can reinforce the impressions formed through the observations during the high growth period in Thailand. Figure 4 illustrates this image of correlation.

In this section, we try to describe the virtuous circle wherein more highway construction generates more users, more users generate more revenue, and finally,
more revenue enables more highway construction. Evidence of this circle is partly visible in Thailand’s past. Presently in Ghana, the highway sector may have arrived at a point wherein maintenance activities can be executed better than before by means of this circle.

Before discussing the private sector capacity in conjunction with infrastructure project in the next section, it is important to pay attention to the differences between the two regions with respect to public-private relations. Because the differences between the two regions with regard to the general capacity of private sector can be attributed to the differences in their history, Box Column B tries to describe and explore the differences in their background.
The Differences in Government Sentiment toward Private Sector by Region

Since the attitudes toward the private sector have been largely different in East Asia and Sub-Saharan Africa (SSA) in the past, we try to compare the historical background of public-private relations. The time lag in the private sector development between the two regions may be partly caused by this difference.

In Thailand, the government controlled and facilitated the activities of the private sector for the prosperity of the kingdom since the advent of modernization. The private sector was not inaccessible to the majority of the ordinary people. Because the private sector was perceived as a component of the economy from an early period, there has not been much bias in perceptions against the private sector. The situation was similar in Japan. Although the private sector was not supported by the government in the eighteenth century, its importance was recognized by the late nineteenth century, and its recognition was strengthened in the middle of the twentieth century, as the engine of growth. Korea and Taiwan also develop their private sectors quite quickly. Although there were SEA countries that involved Chinese capital as represented by the minority group, their governments maneuvered the control of and relation with the capital. Animosities between the government and private sector were avoided, although occasionally the public would protest against the incursion of foreign capital.

On the other hand, in the case of SSA countries, only the foreign private sector existed at the time of their independence. The leader of the government represented the people who were not involved in the private sector. The local private sector was not yet firmly established as a fundamental component of the economy. The private sector may have appeared to represent either colonial capital or the merchants of foreign ethnic groups. Thus, the private sector was perceived to be distanced from the people and was not the sector the government should encourage. Further, the people viewed public-private relations a sort of rent generation and rent seeking.

Although the contrast above is biased and exaggerated for the purposes of simplification, it might explain the past attitudes of the government toward the private sector in each region.
5. CAPACITY OF PRIVATE SECTOR

The capacity, governance, and ownership of the government are expected to affect private sector activities through various channels during the implementation stage. In this section, at first, we will review two entities here. One of them is the construction industry, which is emphasized in this section, and the other is the private industrial estate. After a brief discussion on them, we concentrate on the construction industry.

5.1 Two Private Sector Activities strengthened by ODA

5.1.1 Capacity Building of the Construction Industry

The growth in capacity of construction industries induced by ODA projects can be enhanced, firstly via similar self-funded projects implemented by the government, and secondly via various private construction projects encouraged by the development in infrastructure. While this industry expands quickly when the economy grows fast, it also enables the city to grow. Although this causal-effect relation is not identifiable, the capacity of the construction industry can be appraised by means of the increase in size and number of contractors, and can be compared with growth.

As shown in country studies for the Philippines, the problems in tender awarded to local contractors have surfaced quite often in South-East Asia (hereafter referred as SEA). However, this implies that there have been many local contractors for a long time in SEA. Consequently, well-designed tender systems may encourage private contractors by assuring sound competition.

5.1.2 Capacity Building through Industrial Estate Development

In SEA countries, the government had once tried to develop an industrial estate under its own initiative. Presently, many industrial estates are developed by the domestic private sector. Government staff as well as the contractors involved in ODA financed industrial estate projects may sometimes join or initiate private estate projects. Owing to the global trend with regard to privatization, it becomes relatively rare for ODA to establish an industrial estate. However, it should not be forgotten that the industrial estate involves several public components, whose combination and coordination are quite important.

One can visualize that the first project is financed by ODA, the second is the government assisted project, and the third, purely a private project. A possible implication of such a situation involves the grand design of how the government will withdraw from the first project and instead, assist the second project—which
will affect the aid plan and mode of capacity building. The government may sell the first project and spend the sales revenue on the second project (a revolving fund is necessary). Under such circumstances, the first project experiences substantial capacity building via implementation. The preparation for the second project can be utilized as an opportunity for OJT to occasion capacity building. The staff of the privatizing organization can be also accepted in new private enterprises. Although such development issues can be described merely in anecdotal manner, various examples are available in SEA.

5.2 The Physical Capacity of Contractors

With regard to private capacity mobilization in the highway sector, we begin by contrasting that the process in Thailand in the early 90’s with that in Ghana in the same period to determine the differences. However, those that were identified before the mid-90s in Ghana were included in the Road Sub-Sector Programme 1996–2000. In light of this, the recent trends in Ghana may be more similar to those in Thailand than before. Firstly, this can be interpreted to mean that the kinds of aid operation that take place in Thailand can be effective in Ghana for certain aspects of highway sector development. Secondly, the system developing in Ghana can be extended to other countries in the Sub-Saharan region. We should note, however, that even in South-east Asia, various problems have arisen in relation to private contractors, and the magnitude of the problems differ from country to country. Hence, attention should be paid to the problems that may arise in Ghana.

5.2.1 Contract-out System in South-East Asia (SEA)

At the stage of project implementation, the contractors of the project may affect the effectiveness of aid. With regard to highway construction in SEA after the late ‘80s, the local contractors and subcontracted local consultants have been the central actors in externally financed projects, while the method of force account construction remained mostly in Sub-Saharan Africa. Dating back to the 60’s, there were several projects executed by means of force account construction even in SEA. However, at the time of high growth in the late ‘80s and early ‘90s, many local contractors had already been established and the capacity and number of such contractors were increasing.

The transition with regard to the central actors in aid projects can be summarized in case of SEA as follows. Firstly, force account construction was replaced with the contract out system that employs foreign contractors. Foreign contractors usually hired local sub-contractors at the first stage; some local contractors became local

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10 “Joint Evaluation of the Road Sub-Sector Programme 1996-2000”
partners at the second; and all the small projects become contracted directly to local contractors at the third. Finally, irrespective of the project size, foreign contractors cannot compete with respect to costs with local contractors for the tender. Throughout the various said stages, local contractors may have engaged many private construction projects and expanded their operations. Consequently, aid projects indirectly facilitate their import of construction machinery, thereby equipping their capacity, and creating significant employment. This process may constitute another channel of capacity enhancement. In SSA, on the contrary, it was quite difficult to find, at the stage of appraisal for aid projects, reliable local contractors who could engage in the project, while private contractors were expanding their operations in SEA.

As mentioned earlier, a sizable development of the infrastructure can strengthen the local construction industry, particularly, when several projects are in the pipeline. The scale economy may benefit the capacity building in the sense that limiting the time the machinery remains idle renders the investment in construction machinery more efficient. In other words, the efficiency of the industry increases in response to the demand. However, this applies only in the long term and only with respect to competent local contractors. The demand is constrained not only with respect to financial resources but also the capacity to undertake construction activities in the short term. Since bottlenecks in the financial resources in SSA have been overly emphasized, the attention was not paid to the construction capacity. In other words, the bottleneck on the supply side has not been addressed. Once again, the virtuous circle is necessary to the interaction of demand and supply, and their coordination with respect to timing. Although it is possible that sufficient external financing enables construction capacity to improve quickly by importing everything necessary for construction, it is not very efficient or sustainable unless local contractors already possess sufficient capacity. The contractor’s capacity may improve also when donor and/or government seek higher quality. Contractors can acquire to upgrade physical equipments and/or to accumulate experiences. However, this is not efficient if those are not used again. Thus, a continuous expansion in government demand in conjunction with gradual improvement in supply capacity appears to be more critical to this industry. Further, the situation may improve if a hierarchical ladder develops, along which contractors can grade up, allowing each contractor to choose both its position in the ladder and its specialty depending on its capacity.

5.2.2 Contractors in Thailand

In the mid-90s in Thailand, there were already 800 members in the contractors’ association. In 1995, 278 major road contractors already existed, who focused on highway construction, and in 2004, the number increased to 534 on the registered list of the DOH, composed of five classes. Moreover, in 1995, the registered contractors
exclusively for bridge-related activities, numbered 200 in four classes; the number rose to 257 in 2004. At the same time, the contractors involved with only maintenance numbered 479 in sixteen classes.

In addition to the increase in the number of contractors, the industry itself may have evolved to the structured shape containing hierarchy and specializations. This development was initiated at a very early stage. In fact, the DOH began to encourage contracting-out systems in 1964, when most construction activities were carried out via the force account system. In the mid-90s, 90% of the highway construction under the DOH had already been executed via the contracting-out method.

Although the DOH has a long history with regard to the contracting-out system, the system is still evolving. Procurement may appear to be a simple administrative task at first glance. However, the system requires significant fine tuning in order to solve system-specific problems on the one hand, and to counter various sophisticated reactions under the system on the other.

In parallel to the development of private contractors, the DOH also improved its own maintenance system. A system for equipment rental to local branches was developed, as were training facilities for the DOH staff. Various forms of foreign technical assistance contributed to this type of institutional building, although the component of donor activities that contributed the most is not easily identifiable.

The construction industry also increased its capacity by means of private construction. Public infrastructure construction and many civil works related to FDI had developed this industry as leading tandem engines. Under such circumstances, new projects added by external finance had contributed either to the enhancement of quality or the enlargement of the volume of activities. Table 5.1 describes the growth of construction industry in Thailand. From the increase of the GDP share, one can imagine that the growth of the industry from the mid-80s till the mid-90s was faster than that for other industries on average.
### Table 5.1: Growth in the Share of Construction Industries in Thailand

<table>
<thead>
<tr>
<th>Year</th>
<th>Output GDP Share (A)</th>
<th>GDP (B)</th>
<th>Share of GDP (A)/(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>59.39</td>
<td>1138.4</td>
<td>5.22%</td>
</tr>
<tr>
<td>1985</td>
<td>59.27</td>
<td>1191.3</td>
<td>4.98%</td>
</tr>
<tr>
<td>1986</td>
<td>60.14</td>
<td>1257.2</td>
<td>4.78%</td>
</tr>
<tr>
<td>1987</td>
<td>66.06</td>
<td>1376.8</td>
<td>4.80%</td>
</tr>
<tr>
<td>1988</td>
<td>74.45</td>
<td>1559.8</td>
<td>4.77%</td>
</tr>
<tr>
<td>1989</td>
<td>95.55</td>
<td>1750.0</td>
<td>5.46%</td>
</tr>
<tr>
<td>1990</td>
<td>116.61</td>
<td>1945.4</td>
<td>5.99%</td>
</tr>
<tr>
<td>1991</td>
<td>132.49</td>
<td>2111.9</td>
<td>6.27%</td>
</tr>
<tr>
<td>1992</td>
<td>138.70</td>
<td>2282.6</td>
<td>6.08%</td>
</tr>
<tr>
<td>1993</td>
<td>150.71</td>
<td>2470.9</td>
<td>6.10%</td>
</tr>
<tr>
<td>1994</td>
<td>172.04</td>
<td>2693.0</td>
<td>6.39%</td>
</tr>
<tr>
<td>1995</td>
<td>183.60</td>
<td>2941.7</td>
<td>6.24%</td>
</tr>
<tr>
<td>1996</td>
<td>196.54</td>
<td>3115.3</td>
<td>6.31%</td>
</tr>
</tbody>
</table>

[Unit: Billion Baht
1987 constant price]

#### 5.2.3 Contractors in Ghana

Ghana also started promoting the contracting-out system in the mid-80s, a couple of decades later than in Thailand. The GHA introduced the concept of “Single Man Contractor” at that time. Labor-based contractors, which only own light equipments, were also promoted through the fourth highway projects in the late 80s\(^\text{11}\). Since the mid-90s, by means of the Highway Sector Investment Program, contracting-out received more support from donors. Since then, the maintenance works of the GHA were conducted more and more by private contractors. As of 2000, most routine maintenance activities were solely conducted by the contractors and 90% of the periodic maintenance was also contracted out.

First, this trend of contractors increasing activities in Ghana is examined closely. By 1995, the number of contractors for road works increased to about 270 and the number of contractors for bridge and drainage-related activities numbered about 700. In the MRT registration base, 257 were registered in September 1998 and nine in class 1. In December 1999, 570 were registered and twelve in class 1 (A1 & B1) for both road and bridge-related activities, and one in class 1 (B1) for only the latter.

\(^\text{11}\) Stock (1996)
Further, in February 2008\textsuperscript{12}, with regard to contractors for bridge and drainage-related activities, the number of registered contractors in total increased to 1584. The contractors registered for class 1 (A1 & B1) numbered 24. The number of contractors for relatively large road work contracts (up to 0.65 million US $; class A1~A3) is 525 and for a medium-sized contract (up to 0.25 million US $; A1~A4) 1322. Thus, the number of contractors became quite high after the government and donors promoted the contracting-out system and private participation.

Although the number of qualified contractors in Ghana is not directly comparable with that in Thailand in terms of figures, the system used to classify the qualified contractors is the same as in Thailand. The number of qualified contractors with respect to highway construction seems to be increasing quickly. Although the population of Thailand is three times greater than Ghana’s, the number of contractors in Ghana presently, is higher than that in Thailand\textsuperscript{13}. At the same time, GHA is attempting to transfer some of its responsibilities to the private sector and increases the volume of such transfer gradually through contracting-out system. Further, the GHA has offered training to local contractors for many years. Consequently, in the recent years, the private sector capacity regarding highway development as well as the implementation capacity of the government has demonstrated remarkable progress in Ghana.

Although various potential developments with respect to the contract-out system are observable in Ghana, there are still several bottlenecks in the system. The payment system of the GHA, for instance, involves serious problems regarding which donors have recommended improvement for nearly a decade. Delays in payment and payment arrears are very common. These result in higher unit costs in highway construction for contractors to avoid additional financial burden due to the delay of payment. Although this is not often mentioned, such delays will impede construction works from being completed on schedule. A part of the problems have to do with the contractors, with respect to the works that are not completed. However, both sets of problems—the difficulty in expecting payment as well as the completion of works on time—engender the vicious circle of inefficient implementation. Consequently, the government’s side has to initiate efforts to prevent the circle.

In Ghana, between the early ‘90s and the 2000s, the construction industry as a whole continuously increased its contribution to the GDP, as shown in Table 5.2. The development of an effective highway sector may have contributed to this trend. This trend seems similar to that of Thailand ten years earlier, during the period of rapid growth. If construction growth precedes economic growth as was the case for the Thai economy, it indicates that there may be accelerated growth in the near future.

\textsuperscript{12} The number for 2008, followed hereafter, is counted from the list in \url{http://www.mrt.go.gh/}

\textsuperscript{13} The size of each contractor would be far smaller than those in Thailand.
However, urban development in Ghana does not seem to be significantly fueled by this growth unlike the case in Thailand.

<table>
<thead>
<tr>
<th>Year</th>
<th>Output (A)</th>
<th>GDP (B)</th>
<th>Share of GDP (A)/(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>287</td>
<td>3,873</td>
<td>7.41%</td>
</tr>
<tr>
<td>1994</td>
<td>390</td>
<td>5,205</td>
<td>7.49%</td>
</tr>
<tr>
<td>1995</td>
<td>582</td>
<td>7,753</td>
<td>7.51%</td>
</tr>
<tr>
<td>1996</td>
<td>857</td>
<td>11,339</td>
<td>7.56%</td>
</tr>
<tr>
<td>1997</td>
<td>1,200</td>
<td>14,113</td>
<td>8.50%</td>
</tr>
<tr>
<td>1998</td>
<td>1,474</td>
<td>17,296</td>
<td>8.52%</td>
</tr>
<tr>
<td>1999</td>
<td>1,772</td>
<td>20,580</td>
<td>8.61%</td>
</tr>
<tr>
<td>2000</td>
<td>2,366</td>
<td>27,153</td>
<td>8.71%</td>
</tr>
<tr>
<td>2001</td>
<td>3,347</td>
<td>38,071</td>
<td>8.79%</td>
</tr>
<tr>
<td>2002</td>
<td>4,316</td>
<td>60,705</td>
<td>7.11%</td>
</tr>
<tr>
<td>2003</td>
<td>5,866</td>
<td>66,158</td>
<td>8.87%</td>
</tr>
<tr>
<td>2004</td>
<td>7,030</td>
<td>79,888</td>
<td>8.80%</td>
</tr>
</tbody>
</table>

[Unit: Billion Cedi current price]

5.2.4 Certain Aspects of the Contractors in Sub-Saharan Africa (SSA)

As a disadvantage in SSA that has not received much attention thus far, contractors, if any, were not necessarily the firms controlled by domestic majority group but those controlled by other ethnic groups. This is a situation that does not occur in Asia. The political environment may not encourage local contractors in such situations. However, if diverse ethnic groups including foreigners enter the industry, competition is enhanced, and the people’s impression to be exploited by a specific ethnic group is mitigated.

In Ghana, this process has already begun. First, contractors with diverse European origins participate in the market. Each conducts an intensive operation in a specific region wherein it possesses a comparative advantage in terms of accumulated experiences and knowledge with regard to the society of the region. Even if a specific ethnic group enjoys a superior performance in the construction market, the entry and growth of several competitors with diverse origins mitigate the possibilities of the market being dominated by a specific minority group. This can also assuage
concerns that the government may be favoring the specific minority group, even if the
government implicitly subsidizes the industry. Second, new small contractors have
increasingly been establishing themselves, encouraged by the government and donors.
Presently, the situation is significantly different from that in the post-independence
period, wherein there was no effective local organization that could independently
construct highways; thereby, the government had to start from zero capacity relying
on either force account or a foreign contractor.

5.2.5 Comparison between the Two Countries and Regions

On the one hand, Ghana seems to be approaching the situation in Thailand when
it began to experience rapid growth in its construction capacity. Both public and
private construction seems to start increasing. On the other hand, unlike the case
for Thailand, private construction does not seem to be induced by public highway
development as much as was the case in Thailand. Ghana has not reached the
virtuous circle that was observed at the peak of rapid growth in Thailand. In other
words, ODA for highway development in Ghana may not have amplified its impact
on the private economy through motorization and fueled private investment; such as,
building construction lash in the capital, and factory construction lash in Free Trade
Zone.

With regard to the capacity increase of the private contractors, the situation is
similar for both countries, albeit with a time lag. In other words, the process seems
similar. Once contractors of various technical levels are established, various types
of construction activities become possible when foreign investors want to construct
factories and buildings by employing local contractors. In this sense, Ghana may have
already acquired its potential and the momentum necessary for quick development
as had happened in Thailand in the late ‘80s, which can be regarded as a precedent
to other SSA countries. However, the reservation must be shown. While the volume
of contractors’ activities has increased, their quality has not been discussed much.
Even among the contractors in East Asia, the quality level is different from country
to country. The quality of contractors in Ghana has not reached the same standards
as those available in top level SEA countries, owing to the short history of those
operations and the narrow scope of their works. This will require further effort in the
near future as has been recommended by many donors.

5.3 Men-Power Capacity of the Highway Sector

The government employees who can enhance private sector activities by means of
their own man power form the third\textsuperscript{14} factor that can augment the capacity of aided projects; however, such discussions are not widely accepted despite having functioned well in certain countries. Limited skilled man-power possessing higher education is sometimes allocated to and reserved within the government and state enterprises and devoted to bureaucratic activity without deepening job experience in their specialty.

In some Asian countries, government officials are allowed to engage in additional employment during off-duty hours. If they refrain from corrupt activities when they engage in such employment, they can help entrepreneurs in sustaining new businesses. The knowledge on project implementation and technical issues that they absorb in on-duty hours can be utilized to invigorate private businesses. However, only in rare situations are such supplementary additional activities fruitful, and are skilled officials openly admitted in engaging part time in private sectors.

5.3.1 Professional Men-Power in Thailand

At the stage wherein the Thai economy was growing quickly, many engineers in the public sector had moved from the public to the private sector because the latter paid higher salary, as a result of the high demand for engineers in the private sector.

In case of the highway sector in Thailand, 100–200 engineers in the Department of Highway, left for the private sector in the ’80s and the early ’90s in the midst of the rapid growth. This may have facilitated the increase in capacity of the private sector. On the whole, however, the number of engineers with the Department of Highway continued to increase, even after the interruption caused by the financial crisis. In 1992, the Department of Highway held around 370 civil engineers. In 2007, the number is 770, while the number of qualified contractors has been also increasing. In the mid-90s, there were about 1400 professional staff members out of a total of 8,400 staff and 840 engineers including civil engineers.

Engineering services for public works, however, have continued to be concentrated on the Department of Highway. The design of a complicated bridge, for instance, is conducted by government engineers as well as foreign engineers for ODA projects, neither by local private consultants nor contractors. Thus, the public sector retains a considerable proportion of high class engineers who possess the requisite skill for public works.

Once the capacity of a country increases, moderate salary of government officials with abundant engineers in private sector will discourage the part-time side job; consequently, normal public-private separation can bring far better performance as in the advanced countries. Side jobs are no longer allowed in Thailand and salary levels

\textsuperscript{14} So far, increase in revenue capacity was demonstrated first, and strengthening contractor was shown second.
are equivalent to those in the private sector. Many engineers in the private sector, opposite to the past move, have been much interested in the position of government engineers again.

5.3.2 Professional Men-Power in Ghana

The GHA had a workforce of 4650 composed of 90 engineers (840 engineers out of a staff size of 8400 in the DOH in the mid-90s) and 620 administrative, technical, and supervisory staff and 3940 workers in 1995. Compared with 8400 staff in 1985, the total number decreased drastically. The government policy for GHA is to reduce the number of workers and strengthen the professional staff. The reduction of workers has progressed further and the number of total staff reduced to 4,085 in Jan. 1996; 3,589 in Dec. 1999; and 3,300 in 2000. Encouraging the contracting-out system may have reduced the number of workers. On the other hand, recruiting professional staff has not progressed well, firstly because the government does not allow the GHA to recruit new staff, and secondly because the salary of professionals in the GHA has been quite low compared with the salary in the private sector. Against the acute need for increasing the professional work force, the situation is the reverse of that wherein several professionals have left the GHA, attracted by the high salaries in the private sector. These are the phenomenon observed in Thailand in the 1980s when the high-speed growth began. However, this should not be understood only from a negative perspective. On the contrary, it can be recognized from a positive angle. Ghana enters the stage that government engineers are the sources of professional men-power for private contractors and consultants. Even if this mode of spill-over does not directly create much impact on the institutional capacity of the sector, as long as private contractors hire abundant engineers instead of the GHA, the spill-over from ODA projects will directly reach private contractors.

In addition to the technical skill dissemination via the transfer of men-power from the GHA to the private contractor, GHA has a training system for private contractors. Although foreign technical assistance has to play a substantial role in this practice, it will facilitate technical spill-over to the private sector. The training is offered not only for GHA contractors but also for the contractors hired by Department of Feeder Roads. The performance of this type of training has been attracting high evaluation of donors as well.

Another way of capacity building for contractors involves the GHA exploring a leasing system of equipments to contractors which do not have the adequate financial capacity to purchase construction machines. Only a few contractors, such as those categorized in class 1, own sufficient equipments to independently complete a sizable

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contract. The government also explores the ways in which it can assist financially weak contractors so that they can participate in GHA projects; these government initiatives include improvements in the payment system, the creation of a mobilization fund, the provision of credit facilities for operation costs.

5.4 Certain Implications

Ownership in implementation affects the growth of the local construction industry. Forms of assistance that involve budgetary support may be beneficial if the supervising agency has high governance and if a reasonable and efficient local system of implementation is developed. If the provision of budget support requires the procedure and documentation complicated similarly to that in project support, it may neither develop local ownership nor a local implementation system. Once the local system has successfully functioned, the local contractors should share the responsibility in completion and attempt to adjust the construction method and schedule in order to save time and expenses.
6. CONCLUDING REMARK

This study tries to explore some of the linkages, presumed at the start, to explain the impact of implementation on development. Firstly, the financial capacities of the governments of Ghana and Thailand were compared and their possible effects on implementation, described. The aid dependence of the highway sector in the two countries was compared and the transition over time, examined. At the same time, the direct impact of the construction activities on aggregate demand is briefly examined, because it seems to have been significant in SEA. Secondly, the impact of highway development on the revenue capacity of the Thai government was examined. The revenue capacity was reinforced by taxation on automobiles. In fact, the revenue exceeded the expenditure on highway construction, despite not being planned as beneficially taxation. On the other hand, beneficially taxation has been planned and applied to Ghana for ten years and it started functioning only recently.

Thirdly, contracting-out system seemed to have encouraged the construction industries in Thailand before; a similar development is observable in Ghana now. The number of contractors has been increasing rapidly in Ghana. The government agency will contract out more and more to the private sector, and reduce its own workers employed for the purposes of force account implementation. In Ghana, engineers are still leaving government agencies and they have had difficulty in recruiting new ones because their salaries are low. Although this may be a serious concern, this spill-over of manpower may upgrade the capacity of private contractors in the future, either by transferring them from the public to private sector or via new recruitment.

Although donor intervention began with the operation and maintenance system, it has extended to the efficient contracting-out system. This may render the private construction industry more efficient on the whole. Further, it may facilitate private investment. Although this far-reaching target was not demonstrated by donors except for a few specialists within the group, this spill-over effect may play a key role in accelerating the growth of the private sector.

As we conclude, we get the impression that Ghanaian experiences considerably mirrored those in SEA, albeit implicitly. Although the factors that contributed to the current improved shape of the sector in Ghana are not easily identifiable, the recent developments therein seem promising. The policy of encouraging the creation and upgrading of private contractors, different from the simple privatization policy promoted by WB in the early stage of structural adjustment, seems far more realistic with regard to the fact that the visible local industry has been encouraged instead of the invisible foreign investors which were merely expected to come. As was the case with WB operations in Ghana, more precedent detailed studies in situ enabled policy design to be realistic and process toward the target more foreseeable and visible.
Meanwhile, in Thailand, a further fine-tuning of the contracting-out system such as the performance-based contract system for contractors, are being explored. Also required here is a simple rule for efficiently coordinating sophisticated reactions.
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