Curbing Fraud, Corruption, and Collusion in the Roads Sector
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The World Bank
Integrity Vice Presidency

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Acknowledgments

This report was authored by Richard Messick (INT) under the direction of Leonard McCarthy, Vice President, INT, and Galina Mikhlin-Oliver, Director for Strategy and Core Services, INT. Valuable inputs were provided by Anders Agerskov with support from Virginia Fatourou-Papanikolaou, Alba Struga, and Athene A. Vila-Boteler of INT’s Preventive Services Unit.

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Foreword

From earliest times one of the strongest indicators of a society’s development has been its road infrastructure, or lack thereof. At its height, the Roman Empire reputedly built the best engineered and most complex road network worldwide. The Old Testament also contains references to the ancient King’s Highway. Corduroy roads were built in Glastonbury, England in 3300 BC with street paving going back to early human settlement around 4000 BC in the Indus Valley on the Indian subcontinent. Our history speaks roads.

Well planned, properly maintained, and safe roads are critical for economic growth and overcoming poverty in developing countries. The roads sector has been a major target for development financing over the entire history of the World Bank and remains important today. Between 2000 and 2010, the World Bank committed close to $56 billion on road construction and maintenance projects. However, despite the World Bank's active support for the roads sector in its client countries for years to come, the sector worldwide is much more costly in terms of opportunity costs and lost economic growth for developing countries. Given the importance of roads to the poor, this challenge is of special significance to the World Bank.

Fraud, corruption, and collusion are problems in the roads sector that the World Bank Group has had to confront. While road projects supported by the World Bank Group have had consistently positive development results, dangers of fraud, corruption, and collusion plague the sector worldwide. Though this is a problem for both developed and developing countries, it is much more costly in terms of opportunity costs and lost economic growth for developing countries. The World Bank's Preventive Services Unit (INT) supports this effort by turning both the results of its own investigations and the experiences of our development partners into practical advice about a range of measures in order to stem collusion in road contracts.

The report recognizes that conditions across borrowing countries differ significantly, as they do in developed countries. Diagnoses of the nature of the problems are important in devising suitable solutions. Our aim is to spur dialogue among all stakeholders on how to improve the way the World Bank and its clients do business in the roads sector. The encouraging news is that the countries that are committed to stamping out these problems can draw upon the learning and successful experiences of others. To help our clients safeguard their roads projects from fraud, corruption, and collusion, the World Bank must be innovative and learn more systematically from our experiences and those of our development partners and client countries. This report of the Preventive Services Unit (INT) supports this effort by turning the results of our investigations into practical advice about a range of measures in order to stem collusion in road projects.
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May 2011

Robert B. Zoellick

We want this report to be a living document, the breeding ground for new solutions, as we seek to protect and safeguard an important driver of growth. The World Bank and other development partners stand ready to help. The corrupt can be bested, fraud can be thwarted, colluding networks can be countered and even broken.
because an extensive, well-maintained network of roads is essential for economic development, road construction and maintenance projects have been a mainstay of the World Bank's lending portfolio since its founding. This long experience in the roads sector is reflected in favorable project evaluations. The Bank's Independent Evaluation Group reports that roads and other transport projects consistently score higher on measures of outcomes, institutional development, and sustainability than non-transport projects. The Bank's Quality Assurance Group has found that roads projects are well-supervised.

At the same time, roads projects around the globe remain plagued by fraud, corruption, and collusion. A Transparency International poll ranked construction as the industry most prone to corruption and a survey of international firms revealed that companies in the construction industry were more likely than firms in any other sector to have lost a contract because of bribery. World Bank-financed projects are not immune. Roughly one-fourth of the 500 plus projects with a Bank-funded roads component approved over the past decade drew one or more allegations of fraud, corruption, or collusion; to date, the Bank's Integrity Vice Presidency (INT) has confirmed allegations in 25 projects resulting in 29 cases of misconduct under Bank rules.

The most common forms of wrongdoing in these 29 cases are collusion among firms bidding on a project and fraud and corruption in the execution of the resulting contract. The Bank has controls to reduce these forms of misconduct—procurement process reviews, financial audits, and field supervision—and evidence suggests that losses in Bank-financed programs are less than in those not subject to Bank oversight. Nonetheless, for the developing countries of the world, any loss on a road project, whether funded by the World Bank or not, is unacceptable.

The report explores how the World Bank and developing nations can reduce losses from collusion in procurement and fraud and corruption in contract execution, drawing on what INT has learned from its investigations of Bank-funded roads projects, investigations and reports by borrowing country governments, and the experience of developed countries. The aim is twofold:

(a) to explore what measures the World Bank and its governments are taking to prevent collusion in procurement and fraud and corruption in contract execution and how these measures can reduce losses from collusion in projects,

(b) to explore how the developed countries' experience can be adapted to the environment in developing countries.

The report begins with a review of the findings in 29 cases of misconduct in Bank-funded projects. It follows with an analysis of the incidence of collusion in procurement in non-Bank projects and estimates of its impact on project price. It then examines measures developed countries have taken to attack collusion and suggests how they can be adapted to the environment in developing countries. Some steps will be the same regardless of the country context. A country should have laws penalizing bid rigging, market division, and other forms of collusive behavior along with the commitment and capacity to enforce them. Other steps will depend upon the market conditions and other country-specific circumstances.

Executive Summary
Curbing Fraud, Corruption, and Collusion in the Roads Sector

Some countries may wish to limit subcontracting or revise the rules governing how firms qualify to bid on contracts. Other countries may decide that more significant changes in procurement procedures are required. The report suggests that in considering such reforms, trade-offs may be required to ensure that the values of transparency, capacity-building through subcontracting, and other goals are pursued in a manner that does not inadvertently limit competition by facilitating collusion.

While preventing fraud and corruption during the execution of a road contract should be everybody’s job, the standard road contract used by the World Bank and most developing countries assigns this responsibility to the consulting engineer. The engineer approves all payment requests and change orders, ensuring in every instance that the road is built according to specifications and that value for money is received. The engineer is thus the guardian of project integrity. In World Bank-supported projects, however, INT has found instances where the engineer was asleep at the post and others where the post was altogether deserted. Strengthening the engineer, changing the incentives faced on the job, or even retaining a second guardian are some of the suggestions the report advances.

A need to appoint someone to guard the guardian is a sign of a systemic problem and INT’s findings echo earlier reports by governments, NGOs, academics, and donor agencies. Collusion and corruption are sometimes so entrenched in the roads sector that they may involve not only firms and roads agencies, but also firms, roads agency personnel, and even senior officials. In these later cases, the system feeds on itself, the bigger the collusion, the more it can pay in bribes and kickbacks. The more they pay, the more they can pay in bribes and kickbacks. The more they can pay in bribes and kickbacks, the more they can pay in bribes and kickbacks. This cycle of corruption, fraud, and collusion is strengthened by the fact that the engineers are often paid from the same pool of money that is intended to fund the project.

When collusion or corruption is systemic, change requires breaking the cycle of abuse by bringing in someone from the outside—a prosecution service, anti-corruption agency, competition law authority, or, in the case of a local government, the national government. If senior officials are involved, introducing an outsider can be particularly challenging. When corruption is deeply ingrained, short-term palliatives, such as an independent procurement evaluator or technical auditor, may be the answer. More drastic measures may be needed, such as turning procurement over to an independent agent.

Not all corruption is systemic, and thus not all reforms require such significant steps. In the World Bank-supported Bali Urban Infrastructure Project, the circulation of tender notices to firms in other provinces defeated a local bidding ring. In the Philippines, civil society monitors uncovered corrupt schemes in a variety of government contracts, and in the second phase of the project, the government awarded contracts to firms that were not even in the pre-qualified list. The project was declared fraudulent, and the engineer was removed. The engineer is thus the guardian of project integrity. If the engineer is not credible, the project is likely to fail.

None of the steps recommended are costless, but the losses from collusion, corruption, and fraud can be substantial. This report seeks to open a dialogue on how to produce better development outcomes by curbing fraud, corruption, and collusion in the roads sector.
Introduction

The World Bank's Integrity Vice-Presidency investigates misconduct in Bank-funded projects and advises World Bank staff and borrowing country personnel on corruption prevention measures. When INT finds misconduct in a World Bank-funded project, the Bank can bar the firms or individuals involved from bidding on future World Bank-financed contracts. It can also provide information to national law enforcement authorities in the country or countries where the misconduct occurred or where the companies or individuals reside for possible criminal prosecution. Its preventive unit distills investigative findings into thematic reports like this and other documents that it shares with World Bank staff and borrowing country personnel to help them reduce misconduct in future projects.

While documenting cases of misconduct, INT often learns of corrupt schemes prevalent in a country or across an entire industry. For example, INT's investigation into the Philippine First National Road Improvement and Management Project revealed practices that inflated highway construction costs throughout the nation. INT also found evidence of schemes involving bribery and siphoning of funds during contract execution in roads projects in Bangladesh, Cambodia, India, Indonesia, the Philippines, and Senegal.

Development Impact of Roads

In the period 2000–2010, the World Bank lent close to $56 billion for road construction and maintenance—significantly less than 20 percent of the Bank's total lending. In the period 2000–2010, the World Bank lent close to $56 billion for road construction and maintenance—significantly less than 20 percent of the Bank's total lending. Since 1997, the World Bank has ensured that eight of 10 roads projects it finances are completed on time and within budget. The Bank has also lent close to $56 billion to this sector. In addition, the Bank has lent close to $56 billion to the road sector since 1997. The Bank's road lending portfolio has grown significantly since 1997.
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The Evaluation Group has observed, the poor are often their prime beneficiary (World Bank 2007, 4). In Ethiopia, access to all-weather roads reduced poverty by almost seven percent and increased consumption growth by 16.3 percent (Dercon et al. 1998). Ahmed and Hossain (1990) found that better road access by the rural poor in Bangladesh increased household income from both wages and micro-business earnings. In rural Vietnam, the poor reported that the greatest benefit they realized from improved access to roads was educational; children were able to attend school year-round (Songco 2002). An assessment of a World Bank-funded road project in Morocco found that it not only boosted GDP by increasing school attendance levels (Khandker, Lavy, and Filmer 1994).

Because roads projects are especially important for poverty reduction, the impact of fraud, corruption, and collusion in such projects is of special significance to the World Bank. Evidence gathered by INT shows that this impact can be quite substantial. In the Cambodia Provincial Rural Infrastructure Project, collusion sharply inflated construction costs. In Indonesia, the use of substandard construction materials reduced the useful life of a road and damaged the vehicles using it. According to trucking association representatives in Bangladesh, poorly maintained roads, if not repaired, halved the useful life of a road and damaged the vehicles using it. Improper construction methods reduced the useful life of a road, and damage to the vehicles using it impaired construction of better roads, thereby reducing the impact of the project on poverty. The useful life of a road, and damage to the vehicles using it impaired construction of better roads, thereby reducing the impact of the project on poverty.

Copright practice: offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence any party or the property of the party to improperly influence the actions of another party.

Collusive practice: an agreement between two or more parties, designated to achieve an improper purpose.

Fraudulent practice: any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempt to do so, to obtain a financial or other benefit or to avoid an obligation.

Obstructive practice: deliberately destroying, falsifying, altering or concealing evidence material to the investigation or the property of the party to influence the actions of another party.

Corrupt practice: of a corrupt, fraudulent, coercive or collusive practice.


BOX 1

World Bank Definitions of Misconduct

The World Bank defines misconduct as

1. Corruption: offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence any party or the property of the party to improperly influence the actions of another party.

2. Collusion: an agreement between two or more parties, designated to achieve an improper purpose.

3. Fraudulent practice: any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempt to do so, to obtain a financial or other benefit or to avoid an obligation.

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Road Maintenance Project identified 36 areas at risk of corruption in the design, planning, award, and management of a roads contract and recommended monitoring 59 different indicators (World Bank 2006b, 146–154). While in an ideal world borrowing country personnel overseeing roads projects would watch and monitor every aspect of roads projects, that cause significant harm and suggest measures to reduce or prevent forms of misconduct in roads projects. The aim of this report is to help policymakers identify the most significant forms of misconduct that cause significant harm and recommend measures to reduce or eliminate them.

The report aims to help policymakers prioritize oversight resources by identifying recurring forms of misconduct in roads projects that cause significant harm and suggesting measures to reduce or eliminate them. This approach is based on the premise that while in an ideal world borrowing country personnel would monitor every aspect of roads projects, that cause significant harm and recommend measures to reduce or eliminate them.

By focusing on the most significant forms of misconduct and suggesting measures to reduce or eliminate them, policymakers can more effectively allocate their resources to the most critical areas. This approach is based on the premise that while in an ideal world borrowing country personnel would monitor every aspect of roads projects, that cause significant harm and recommend measures to reduce or eliminate them.
A review of INT cases in the last ten years provides critical insights into the nature of the problems that may arise in roads projects in terms of the various forms of fraud, corruption and collusion, and the World Bank’s ability to detect, investigate, and sanction such misconduct. This data can inform and guide the reforms underway in the Bank’s business model and the related policies and processes. However, given its limitations, this data cannot be used to extrapolate the scale of the problem. Moreover, many of the preventive measures being introduced in projects are relatively recent and their impact and cost effectiveness require close observation and adaptation.

Table 1 lists the INT cases in the public domain, with summaries posted on INT’s website (www.worldbank.org/integrity). Table 2 provides a general description of each of the 29 cases arising from the 25 World Bank-funded roads projects. The data must be interpreted with care:

- **Inclusion and Exclusion**: The data includes only INT cases where the World Bank was a lender, and projects approved for funding by the Bank’s Board of Directors. The data does not include cases where the World Bank was not involved or where there was insufficient evidence to draw a conviction.
- **Severity and Scope**: Cases vary significantly in scope and severity, and conclusions about the incidence or degree of fraud, corruption, or collusion in the Bank’s roads sector cannot be drawn from the data alone.
- **Risk Levels and National Capacity**: Depending on the risk levels and national procurement capacity, a certain percentage of contracts in every road project is reviewed by the Bank’s procurement specialists. Because roads projects are considered high risk, more contracts in these projects are reviewed in detail.

Table 1: World Bank Investigative Findings

<table>
<thead>
<tr>
<th>Country</th>
<th>Project Description</th>
<th>Dates of Operation</th>
<th>Principal Forms of Misconduct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>Project X</td>
<td>2000-2005</td>
<td>Corruption, Collusion</td>
</tr>
<tr>
<td>Country B</td>
<td>Project Y</td>
<td>2005-2009</td>
<td>Bribery, Fraud</td>
</tr>
<tr>
<td>Country C</td>
<td>Project Z</td>
<td>2000-2004</td>
<td>Corruption, Collusion</td>
</tr>
</tbody>
</table>

In the 10-year period from July 1, 1999, to June 30, 2009, INT conducted a total of 25 investigations in 29 cases arising from the 25 projects, with a focus on roads projects. The data indicates that while there are instances where misconduct was detected, the overall incidence and degree of fraud, corruption, or collusion in the Bank’s roads portfolio cannot be drawn from these data alone.

The data must be interpreted with care. The results of investigations cannot be used to extrapolate the scale of the problem. Moreover, many of the preventive measures being introduced in projects are relatively recent, and their impact and cost effectiveness require close observation and adaptation.
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Despite the cases, these 29 cases do provide important insights on misconduct in World Bank-funded projects or cases applied to address the.

Investigation. INT data does not capture all misconduct in the pipeline. The different ways in which misconduct in World Bank-funded projects or cases applied to address the

TABLE 1

<table>
<thead>
<tr>
<th>Country</th>
<th>Project Description</th>
<th>Project Dates</th>
<th>Sanctions Imposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>Third Road Rehabilitation and Maintenance: One contract for supervision of road reconstruction.</td>
<td>1997–2005</td>
<td>False documents</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Provincial Rural Infrastructure: Feeder Roads. Two contracts for road rehabilitation and supervision of feeder roads.</td>
<td>2003–2010</td>
<td>False documents</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Sumatra Region Roads: Twenty-two road rehabilitation contracts, ranging from $56,025 to $614,415.</td>
<td>1997–2005</td>
<td>False documents</td>
</tr>
<tr>
<td>India</td>
<td>Andhra Pradesh State Highway: Two contracts for road widening and strengthening of highways.</td>
<td>1997–2004</td>
<td>False documents</td>
</tr>
<tr>
<td>Korea</td>
<td>Urban Mobility Improvement: Three contracts for road construction works.</td>
<td>2000–2008</td>
<td>False documents</td>
</tr>
<tr>
<td>Philippines</td>
<td>First National Road Improvement: Two contracts for road rehabilitation and maintenance.</td>
<td>1997–2007</td>
<td>False documents</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Sri Lanka Road Rehabilitation: Two contracts for road rehabilitation and maintenance.</td>
<td>1997–2002</td>
<td>False documents</td>
</tr>
<tr>
<td>Thailand</td>
<td>Third Road Rehabilitation and Maintenance: Two contracts for road rehabilitation and supervision of feeder roads.</td>
<td>1997–2005</td>
<td>False documents</td>
</tr>
<tr>
<td>Region</td>
<td>Project description</td>
<td>Project dates</td>
<td>Fraudulent Implementation</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Africa, Eastern Europe, Central Asia</td>
<td>Works and Employment: One contract to rehabilitate roads in villages, $13,700.</td>
<td>2002–2007</td>
<td>False documentation</td>
</tr>
<tr>
<td>East &amp; South Asia</td>
<td>Urban Development: One contract to refurbish roads in villages, $16,000.</td>
<td>2000–2008</td>
<td>False documentation</td>
</tr>
<tr>
<td></td>
<td>Urban Development: One contract to rehabilitate roads in villages, $13,700.</td>
<td>2000–2008</td>
<td>False documentation</td>
</tr>
<tr>
<td></td>
<td>Regional Roads: Three maintenance contracts, ranging from $83,853 to $267,005.</td>
<td>2000–2008</td>
<td>False documentation</td>
</tr>
<tr>
<td></td>
<td>Roads Improvement: Six contracts for widening and strengthening highways,</td>
<td>2000–2008</td>
<td>False documentation</td>
</tr>
<tr>
<td></td>
<td>$400,000 million total.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Development: Two contracts for regional transport rehabilitation programs.</td>
<td>2000–2008</td>
<td>False documentation</td>
</tr>
<tr>
<td></td>
<td>Regional Transport: Two contracts for regional transport rehabilitation programs.</td>
<td>2000–2008</td>
<td>False documentation</td>
</tr>
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Misconduct in World Bank Roads Projects: Sanctions Pending or Not Sought (continued)

<table>
<thead>
<tr>
<th>Region</th>
<th>Project description</th>
<th>Fraudulent documentation</th>
<th>Collusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America</td>
<td>Highway Management: Eight road and one bridge rehabilitation contact, ranging from $30,000 to $300,000.</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>from 1998–2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>from 1998–2005</td>
<td></td>
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</tr>
</tbody>
</table>

**Box 2**

**Collusion and Cartels**

Collusion refers to any combination of sellers, to raise or fix prices or rig bids or to reduce output in order to increase profits. Although the term cartel is often used when the collusive arrangement is formal, the economic effects of collusion and cartels are the same. In many countries, the economic effects of collusion and cartels are the same. In the United States, the government has made it illegal to collude, or work together, in any way to fix prices or to divide markets. Collusion is illegal in the United States, and is considered a serious violation.


**Table 2**

<table>
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<td></td>
<td>from 1998–2005</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. Violation substantiated. 2. Violation reasonably suspected.
funds from a project in Africa and were subsequently dismissed and then prosecuted by national authorities.

As the sections below demonstrate, INT’s findings are consistent with the most common integrity risks affecting roads projects in developing and developed countries.

Better understanding of these risks should enable the World Bank and its borrowers to detect and address them more effectively.
Collusion in Road Tenders

The World Bank’s mandate requires that it give “due attention to considerations of economy and efficiency” when funding a project; its Procurement Guidelines therefore require that, in all but a few narrowly circumscribed instances, the contracts it finances be let competitively (World Bank 2010a, 7). In roads projects, competition most commonly takes the form of a one-stage sealed-bid auction. The agency responsible for the project prepares a description of the work required and solicits bids from eligible firms. Bids are kept confidential until a specified day, when they are opened in public and the bidder offering the lowest price is declared the winner. When bidders have equal access to information about the proposed work and compete with one another to win the tender, this method of awarding contracts produces economy and efficiency (Milgrom 2004; McAfee and McMillan 1987).

Evidence gathered by INT, however, suggests that road contract awards are not always the result of competition. For example, Bank-funded roads contracts require a bidder to submit a bill of quantities, a document showing the materials, equipment, and labor it expects to use to build the road along with their costs. In a competitive market, a bidder calculates unit prices for each item on the basis of its cost structure, estimates the amounts required, and arrives at a price. But in a series of contracts in an Asian country INT found anomalies and inconsistencies in unit costs and totals for line items that showed that bidders had worked backwards from a predetermined price.

In an investigation in Bangladesh, evidence showed that companies paid project officials up to 15 percent of the contract value in exchange for contract awards. A Kenyan informant said that “collusion was rife” in the nation’s roads sector, an allegation later confirmed by the Kenyan Roads Authority and the Kenyan Anti-corruption Commission (Government of Kenya 2007, 2004). After interviewing several firms and government officials in Cambodia, INT investigators concluded that “a well-established cartel, “ aided and abetted by government officials, controlled the award of roads contracts. In the Philippines, “Numerous witnesses independently informed INT investigators that a well-organized cartel managed by contractors and supported by government officials controlled the award of road contracts. In Indonesia, “the Indonesian collusive system had been operating for 32 years, and evidence gathered by INT showed that the courts, the procurement agency, and the inspectorate were largely ineffective in preventing or discouraging collusive behavior.” (World Bank, 2012).

Besides these examples, some INT cases labeled “false documentation” in the tables may be the result of collusion as well. For example, a World Bank procurement specialist alerted INT to a pattern in the bids on a street rehabilitation contract that suggested bid rigging. The cost figures in the bids submitted by the only two firms competing were virtually identical—down to the same typos in both. The only difference was that one bid was 1 percent above the engineering cost estimate, and the other was 1 percent below. The difference between the lowest and the highest bid was the same price, one 1 percent above and one 1 percent below.

The World Bank’s mandate requires that it give “due attention to considerations of economy and efficiency.” However, evidence suggests that road contracts are not always the result of competition.
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percent higher. While INT could not substantiate collusion in this case, it did find that the high bidder had provided a false bid security. When firms have agreed in advance which one will “win” a contract, the designated losers frequently submit higher “cover bids” to camouflage the agreement (Khumalo, Nqojela, and Njsane 2009). Further, because banks charge for issuing a bid security, cover bidders often falsify the security to save money. Collusion was also likely in a case in Latin America in which three firms that submitted low bids on a contract were disqualified for reasons that INT suspected were aimed at keeping new entrants out, a common strategy for preserving a bid-rigging scheme (Lambert-Mogiliansky forthcoming).

How common is collusion in roads projects? Neither the data in INT files nor information from any other source can provide a definitive answer. But the INT findings, considered with the results of other case studies of the roads sector in developing countries, the experience in developed countries, and cartel theory, suggest that collusion in roads projects in developed and developing countries is significant.

A. Evidence from Non-Bank Projects

Staff of the Overseas Development Institute reported evidence of an industry-wide cartel to fix prices on roads contracts in Uganda (Booth and Golooba-Muteb 2009). In Tanzania, a review by a former Prime Minister disclosed an industry-wide cartel in the roads sector (Government of Tanzania 1996). In 2005 Indian Deputy Government Secretary Sanjeet Singh told participants at an international conference that cartels in the roads sector operated in various Indian states (Singh 2005). A joint study by the Government of Nepal, the Asian Development Bank, the United Kingdom’s Department for International Development, and the World Bank concluded that in recent years no tender in the Nepalese road sector was free of collusion (Government of Nepal 2009). A statistical analysis of bids in road tenders by the Lithuanian competition agency strongly suggested collusion among firms there (Government of Lithuania 2008); a 2009 World Bank study of public procurement in Armenia found evidence of collusion in roads projects (Government of Armenia 2009).

B. Cartel Theory

It is not surprising that cartels are common in the road construction industry in developing countries. Road construction is often an industry with high barriers to entry, as seen in the case of cartels in developed countries. In areas where there are few suppliers or a small number of firms that dominate the market, firms may be tempted to collude to fix prices or allocate contracts. Cartel theory suggests that firms will engage in collusion when the benefits of doing so outweigh the costs.

Ten Indicators of Collusive Bidding

1. Number of firms that requested bid packages versus the number actually submitting a bid
2. Proportion of time that requested bid packages versus the number actually submitting a bid
3. Proportion of firms that requested bid packages versus the number actually submitting a bid
4. Proportion of firms that requested bid packages versus the number actually submitting a bid
5. Proportion of firms that requested bid packages versus the number actually submitting a bid
6. Proportion of firms that requested bid packages versus the number actually submitting a bid
7. Proportion of firms that requested bid packages versus the number actually submitting a bid
8. Proportion of firms that requested bid packages versus the number actually submitting a bid
9. Proportion of firms that requested bid packages versus the number actually submitting a bid
10. Proportion of firms that requested bid packages versus the number actually submitting a bid

Collusion in Road Tenders

The construction and repair markets tend to be dominated by the same few firms; the "product," a road, is standardized; prices are relatively insensitive to demand; entry is often difficult, and market conditions are predictable. In addition, would-be competitors often exchange information about past and future opportunities and develop ties through subcontracting, joint ventures, and membership in trade associations. The presence of any one of these factors increases the likelihood of collusion. When all are present, the probability of collusive behavior is very high (Grout and Sonderegger 2005).

The awarding of contracts through public tenders aggravates the tendency toward cartelization in the sector. To ensure that contracts are fairly awarded and corruption risks minimized, both borrowing country governments and Bank procurement rules require that tenders be conducted transparently. Yet, as explained below, disclosure of some kinds of information facilitates collusion.

C. Developed Country Experience

Collusion in the bidding for road contracts is a problem for developed countries as well. The U.S. Department of Justice launched a vigorous effort in the late 1970s to stamp out bid rigging in auctions for state highway contracts, bringing cases in 20 states that resulted in 400 criminal convictions, fines of $50 million, and 141 jail sentences between 1979 and 1983 (Flax 1983). Despite these efforts, one-third of all Justice Department cartel prosecutions in the following four years were for bid rigging on state highway construction contracts (Joyce 1989). Only in the 1990s did cartel prosecutions begin to decline, a trend officials attribute to both the imposition of stiff penalties for collusion and changes in state procurement laws to abolish publication of contract es- timates, public opening of bids, and convening of meetings where all bidders can attend (Government of the United States 2008).

The United States is not the only industrialized nation where cartels are active in the roads sector. Representatives of Denmark, France, Germany, Japan, Sweden, and the United Kingdom told a 2008 OECD conference that collusion was a problem in their road contracts. Various countries have also taken action against cartel activity in the roads sector. In 1992, the Dutch parliament concluded that the entire construction industry in the Netherlands was cartelized (Van den Huevel 2006); in 2000 the Swiss Competition Commission concluded that the market for road surfacing in Switzerland was controlled by a cartel (Hüschelrath, Leheyda, and Beschorner 2009); and in 2010 the Norwegian Competition Authority fined two companies for colluding on highway bridge maintenance tenders (Government of Norway 2011). Another indication that collusion continues to be a problem in developed countries is the work of the OECD. Over the past decade, the OECD has hosted five conferences and issued half-dozen papers on how to combat bid rigging and cartelization in the construction sector.

D. Effect of Collusion on Tender Prices

The effect of a cartel is to raise prices above what they would be in a competitive market. A study of bids from the American state of Florida showed that collusion on highway contracts increased prices by 8 percent (Gupta 2001), and a similar study found in another American state that prices increased by 15 percent (Van den Huevel 2006). The Dutch parliament estimated that cartelization added as much as 20 percent to the prices the government of the Netherlands paid on construction contracts (Van den Huevel 2006), and collusion on construction contracts in Japan is thought to have increased the cost of road construction by 12 percent (Van den Huevel 2002). The Dutch parliament estimated that cartelization added as much as 20 percent to the cost of road construction in Japan. These estimates are consistent with similar findings in the United States, where estimates of cartel overcharges range from 30 to 50 percent (Woodward 1996). A study of 1,040 estimates of cartel overcharges found that the median cartel overcharge was 25 percent.

The effect of collusion on tender prices is considerable. Studies of some kinds of information disclosures have shown that contracts in the road and bridge sectors can be conducted transparently. For example,我が国の道路および橋梁建設業界における規制の緩和は、競争の向上をもたらし、消費者の利益を果たすことができる。
Curbing Fraud, Corruption, and Collusion in the Roads Sector

...bids on donor-financed roads projects in the Philippines against engineering costs estimates and found a 30 percent variance; earlier estimates range from 20–60 percent (Batalla 2000). Prices in Tanzania in the 1990s were found to be 15–60 percent above competitive prices (Government of Tanzania 1996); a 2003 investigation in Romania revealed that contractors conspired to mark up the price of concrete used in road construction by 30 percent (Oxford Business Group 2004); and a Turkish government study showed that, thanks in part to cartelization, road construction costs in Turkey were 2.5 times higher than in the United States (Gönenç, Leibfritz, and Yilmaz 2005).

Cartel-set prices in developing countries are higher than those fixed by cartels in developed countries for two reasons. First, fear of prosecution moderates cartel overcharges in developed countries. Members of a New York State highway bid-rigging ring counseled each other to limit excess profits on tenders to 20–25 percent rather than 40–50 percent. As one conspirator explained during a trial, “getting too greedy” might trigger an investigation (State of New York v. Hendrickson Brothers Inc., 840 F.2d 1065 (2nd Cir. 1988)). By contrast, cartels in many developing countries often have little reason to fear law enforcement authorities. Bangladesh, Cambodia, and the Philippines, three countries where roads sector cartels have operated, have no comprehensive anti-cartel legislation (Dabbah 2010). Even where an effective law is on the books, as in Turkey, there are few incentives to deter cartels, and governments are often involved. In Bangladesh and Cambodia, for example, the government has a strong incentive to turn a blind eye to cartelization. In the Philippines, the government has a strong incentive to turn a blind eye to cartelization because it can use it to extract rents from the roads sector.

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For a cartel to “succeed,” its members must (a) agree on who will win the tender and at what price (b) curb cheating or undercutting the agreed price by individual members, and (c) prevent nonmembers from disrupting the agreement by submitting a lower bid. Cartels rarely find permanent fixes to these problems. Some members cheat to boost short-term profits, and new entrants succeed in submitting a winning bid even when the cartel is able to operate.

Reasons why cartels in developing countries are higher than cartels in developed countries

<table>
<thead>
<tr>
<th>Roads contracts</th>
<th>All construction contracts</th>
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<tbody>
<tr>
<td>State of Florida</td>
<td>8%</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>15%</td>
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<tr>
<td>Tanzania</td>
<td>15–60%</td>
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<td>Philippines</td>
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<td>Bangladesh</td>
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<td>Cameroon</td>
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*Note: See text for sources.*
Collusion in Road Tenders

To bid, Cammell and Reuter (1995) reported that or-

ganized crime families perform the same functions for
cartels in Sicily and New York where family members
police cartel compliance with the cartel agreement through
infliction and violence and take a share of the cartel’s
profits in return. The effect is the same as when govern-

ment officials enforce a cartel agreement: the long-term
stability of the cartel.

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Gambetta and Reuter (1995) reported that or-

ganized crime families perform the same functions for
Fraud and Corruption in Contract Implementation

The risk of misconduct in roads projects does not end with contract award. A winning bidder may fraudulently bill for work not done, materials not supplied, or both. Evidence gathered in a project in Africa shows fraudulent claims amounting to 15–20 percent of the bid price. An analysis of two contracts let under a road project in Asia found that fraud may have inflated the final price on each contract by as much as 25 percent. Substantiated misconduct during contract performance in nine of the 29 cases shown in Tables 1 and 2 and suspected but not substantiated in several more.

Reports from Zambia suggest the scope of one form of fraud—furnishing substandard materials during contract implementation. Zambian contractors, engineers, and government officials surveyed in 2008 reported that providing materials of lower quality than the contract called for was the single most "unethical" practice in the industry (Sichombo et al. 2009) and a 2010 audit of 18 Zambian roads projects jointly financed by the government and donors, shown in Table 4, confirmed their view (Government of Zambia 2010). As the data there reveals, substandard cement was supplied in all projects while in half the projects the concrete was weaker than required. Of a contract for construction of cement roads in Indonesia, the road was 40 percent thinner than the contract specified and the contractor used 13 percent less asphalt than required.

For the construction of roads and other civil works, the World Bank requires borrowers to use a variation of a form contract for construction developed by the International Federation of Consulting Engineers, (known by its French acronym "FIDIC") (Jaeger and Hök 2010). The FIDIC contract provides that the government agency issuing the contract will hire an engineer—to oversee and approve inspections the contractor will hire in behalf of the government—known as the engineer—"FIDIC" (Aeffer and HOK International Federation of Consulting Engineers, 2010). The contract specifies that the engineer will ensure that materials and work meet the specifications and be certified by the engineer. The FIDIC contract requires that he observe the work as it progresses, testing completed sections to ensure they meet specifications, certifying the contractor’s invoices, evaluating and passing on its requests to pay.
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Combating Collusion, Fraud, and Corruption

This section describes a range of measures policymakers should consider to mitigate the risks of collusion, corruption, and fraud in road contract procurement and project execution. “One size does not fit all” is a staple of the development literature and one that holds for both procurement rules and mitigation measures (Mariel 2003). Accordingly, in discussing the various recommendations, the report identifies the risk profiles and country contexts where they are most likely to be appropriate.

The recommendations advanced range from modest changes in procurement procedures to more fundamental, experimental measures that may be required where corruption is particularly entrenched. Some country-level reforms, such as laws severely penalizing bid rigging or changes to public procurement rules, can be put in place relatively quickly. Some project-level preventive measures, such as retention of independent watchdogs or strict scrutiny of procurement officials’ finances, may take more time. Over the longer term, the goal should be to build effective institutions to enforce anti-cartel laws and manage the nation’s road network. But again, none of the measures described are meant to be adopted without close analysis of market conditions, the strength of national institutions, the degree of political commitment to reform, and other country-level factors.

**A. Measures to Reduce Collusion**

Punish cartelization severely

To combat collusion and cartelization, countries should enact laws that make bid rigging, market division, and other cartel-related behavior illegal. These laws need to contain “effective sanctions of a kind and at a level adequate to deter firms and individuals from participating in cartels.” (OECD 1998) Deterring collusion can require more than criminal penalties; a European Commission White Paper argues that to effectively deter cartels, sanctions must give those harmed by cartel pricing the right to sue for damages (European Commission 2008).

To enable effective enforcement, the anti-cartel laws may need to be supplemented with reforms to the laws of evidence. Until recently, most developed country courts required direct evidence of an agreement to prove the existence of a cartel; most developed country courts required direct, clear evidence of an agreement to prove cartel existence. Today, courts around the world adopt a more flexible approach to evidentiary standards, which has led to more successful cartel investigations and convictions. Some developing country courts, and the laws they are interpreting, are now moving in this direction. 

The recommendations advanced range from modest and country-specific reforms, such as laws severely penalizing collusion and cartelization, to more fundamental changes in procurement procedures. Some where collusion is particularly entrenched. Some require significant institutional reforms that may be expensive and complex. The recommendations are intended to provide policymakers with a range of options to reduce the risks of collusion and corruption in road contract procurement and road network management.
Curbing Fraud, Corruption, and Collusion in the Roads Sector

To ensure that they do not make it too difficult for their enforcement agencies to prove the existence of a cartel.

Create incentives for the exposure of cartels

Even if courts accept circumstantial evidence, nothing provides surer proof of a cartel than the testimony of a participant or witness to a bid-rigging scheme. Those with information about a bid-rigging ring should be encouraged to come forward. To do so, governments should consider granting immunity to witnesses willing to provide credible evidence of a cartel. Consideration also may be given to offering whistleblowers rewards commensurate with the savings realized from the breakup of a cartel. Allowing whistleblowers to share in the recovery can provide a powerful incentive for coming forward (Depoorter and De Mot 2005).

Members of cartels should also be given an incentive to disclose the names of other participants. The OECD (2003) recommends granting immunity to the first firm or individual to reveal the cartel’s existence and the World Bank itself encourages contractors to reveal previous misconduct on World Bank-financed contracts. Recent research shows that such leniency programs not only are effective in revealing the existence of cartels but can also discourage their formation (Miller 2009).

Revise tendering rules

To ensure fairness and reduce corruption in the procurement process, open, transparent procedures for the award of public contracts are recommended (Transparency International 2006). The more transparent, the more likely the contractor is fairly chosen and the less likely corruption will seep into the process. But disclosure of certain kinds of information may also increase the risk that firms will fix prices (Anderson, Kovacic, and Müller 2010; OECD 2008b; Government of the United Kingdom 2004). The data in Box 4 provides an illustration; cost estimates on 46 separate contracts were publicly disclosed prior to tendering, and in every case the winning bid was virtually identical to the estimate—an almost certain sign of collusion.

Because transparency in public procurement can provide valuable evidence of cartel conduct, governments should consider making it easier to disclose and enforce information about cartels. Consideration should be given to aligning contracting law with other anti–cartel measures (OECD 2007).

In 2009, the United Kingdom’s Competition Commission concluded that the contract that was awarded to a French company for its “science and technology” connection with a Dutch company was a cartel. The court allowed the cartel to keep their profits due to the lack of transparency in the tendering process.

In 2013, the European Court of Justice ruled that the European Investment Bank (EIB) had violated EU law by allowing contracts to be awarded without the contract being made public. This decision could have serious implications for the way the EIB and other European Union institutions award contracts.

Governments have a responsibility to ensure that the procurement process is transparent and fair. This requires not only the disclosure of information about the tendering process, but also the enforcement of anti–cartel laws. By making it easier to disclose and enforce information about cartels, governments can help to prevent future instances of collusive behavior.
Combating Collusion, Fraud, and Corruption

At the same time, prequalification requirements can discourage some firms from bidding, and the fewer firms that bid, the higher the winning bid (Estache and Iimi 2008; Froeb and Shor 2005; Brannman and Klein 1992). The OECD (2008a) thus recommends that prequalification conditions be carefully drawn to ensure that qualified firms are not excluded from the competition.

Policymakers may want to consider in at least some cases eliminating prequalification altogether in favor of a post-qualification review of the winner’s qualifications. The World Bank recommended that Indonesian officials consider scrapping prequalification requirements, and that all bidders are on an equal footing and that the process is transparent in its 2001 report on Indonesia’s procurement policies (World Bank 2001, 20). A more recent review of World Bank-funded roads projects in Africa recommended expanding post-qualification to larger contracts (Alexeeva, Padam, and Queiroz 2008, 41). Post-qualification was introduced into the Bali Urban Infrastructure Project in Indonesia and is being used in the second phase of the National Roads Improvement Project in the Philippines and the Northern Corridor Transport Improvement Project in Kenya. Post-qualification increased the number of bidders on contracts in the Bali project, and the early results from Kenya are promising. On all three Kenya tenders for which post-qualification was used, the tenders attracted three or four qualified firms.

...
Curbing Fraud, Corruption, and Collusion in the Roads Sector

Besides allowing firms to bid on one or more projects, the prequalification process also allows them to bid on a package, a practice that encourages firms to combine segments in their bids and can reduce competition. Even when factors like labor and materials are widely publicized, prices submitted by all three are within 0.02 percent of the engineer’s estimate. When additional investigation confirmed the existence of a bid-rigging cartel, the Bank made a number of changes to the procurement process to increase competition:

- Bids were widely published in both national and international newspapers.
- Procurement notices were widely published in both national and international newspapers.
- Mandatory pre-bid meetings were introduced that allowed contractors and community members to attend.
- A complaint handling mechanism was introduced that allowed contractors and community members to report fraud, collusion, corruption, and intimidation.
- Bidders were required to submit eligibility bids to local firms if the bids were submitted by firms not prequalified.
- Mandatory pre-bid meetings were introduced that allowed contractors and community members to participate.
- Mandatory pre-bid meetings were introduced that allowed contractors and community members to participate.

The impact of the changes was dramatic. As the table below shows, bids dropped from amounts virtually identical to the engineer’s estimates to amounts 35–40 percent less. Overall, the project team estimated that the changes saved 35–40 percent on contracts let post-changes.

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Original Bids as Percentage of Engineer’s Estimate</th>
<th>Post-Changes Bids as Percentage of Engineer’s Estimate</th>
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<tbody>
<tr>
<td>Original</td>
<td>98.9%</td>
<td>58.0%</td>
</tr>
<tr>
<td>Post-Changes</td>
<td>97%</td>
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The table above shows the bids for a $50,000 contract, where the changes took effect. The table below shows the savings on contracts let post-changes.
Combating Collusion, Fraud, and Corruption

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to offer to build segments of their choosing. As is sometimes done in World Bank-funded projects, bidders could submit a bid on the condition that the total award will not exceed a specified amount. The bids on the various components of the project would be opened sequentially. Once a firm's specified limit is reached, its bids would not be considered on the remaining components. Sequential bidding provides incentives for firms to bid on more projects without worrying about taking on more work than they can handle (Allen, Culkins, and Mills 1988). Mixing up the “menu” of contract offers in these ways makes it harder for firms to agree beforehand on who will win what.

c. Pre-bid meetings and subcontracting

Pre-tender meetings should, whenever practical, be limited to one firm at a time. As the author of the first economics textbook warned, “People of the same trade seldom meet together, even for merriment and diversions, but the conversation ends in a conspiracy against the public or in some contrivance to raise prices” (Smith 1937 [1776], 128). While one-on-one meetings increase the risk that a procurement official will provide a favored firm with confidential information or otherwise tilt the procurement process, safeguards can be introduced to minimize this risk. An outsider can attend, or video recordings or transcripts can be made and circulated. Subcontracting can also facilitate collusion, for it can be a way of dividing the profits realized from bid rigging. Testimony in a criminal prosecution of collusion in roads contracting in Oklahoma revealed such a scheme. Competitors of the Boce Company allowed it to win a tender “without having to fight,” and in exchange Boce agreed to subcontract all the work in one region to a competitor (United States v. Metropolitan Enterprises, Inc., 728 F.2d 444 [10th Cir. 1984]). Countries with a large number of capable firms should consider banning subcontracting among competitors altogether or, as the January 2011 European Commission Green Paper on procurement reform suggests, barring subcontracting by firms which participated in tenders (EC 2011). If subcontracting is permitted, data should be kept and analyzed periodically for any signs that suggest collusive arrangements.

Require independent bid certificates

Successful prosecution of a road construction cartel requires showing that members actually agreed to fix bids. Although many courts now accept circumstantial evidence of collusion, proving collusion can still be difficult and time-consuming. By contrast, it is relatively easy to show that firms traded price lists, shared cost data, or exchanged information about the bids they intended to submit, practices that the U.S. Supreme Court has held are anticompetitive (United States v. Container Corporation, 393 U.S. 333, 337 [1969]) and that the European Commission has recently said should be considered a restriction of competition (European Commission 2010). Thus, one approach to easing a prosecutor’s burden is to (a) require firms to submit a certificate that they did not communicate with one another and (b) make falsification of the certificate a serious crime. To prove a violation, all the prosecution would then have to do is show that firms communicated. Box 6 describes the elements of such a certificate; model certificates are available in English (Government of the United States 2007), French (Government of Canada 2010), and Spanish (Government of El Salvador 2010).

Retain an independent procurement evaluator

INT has found evidence in some cases that members of the personnel tasked with overseeing the procurement process may have engaged in collusive behavior. Where this risk is present, the introduction of an outsider into the tender evaluation process can reduce that risk. For example, in the second phase of the Philippine National Roads Improvement and Management Project, an independent procurement evaluator was hired to work alongside the Department of Public Works and Highways procurement officials. The terms of reference provide that the evaluator must develop “specific systems to identify or detect indicators of corrupt practices in the bids, including collusion, price-rigging, fraud, obstruction or coercion.” (Government of the Philippines 2007a) Although the evaluator cannot veto the highway department’s decisions, he must regularly report his findings to the World Bank.

Pre-tender meetings should never be held in the presence of potential colluders.
Curbing Fraud, Corruption, and Collusion in the Roads Sector

B. Measures to Reduce Fraud and Corruption

Strengthen the Engineer

As the discussion above showed, the engineer in a FIDIC works contract is the first line of defense against fraud and corruption. Whenever a roads agency uses this or any contract that grants similar powers to the engineer, the engineer’s role in combating corruption should be made explicit and measures taken to help him discharge his responsibility. Thus, for example, the common practice of hiring the engineer after the contractor has begun work, which immediately puts the engineer in a “catch-up” mode, should be discouraged.

Road construction contracts should expressly require the engineer to immediately report any activity that suggests fraud or corruption. Because line managers in roads authorities are sometimes participants in corrupt schemes, the engineer should send the report to others besides those located on other participants’ campuses. For example, the engineer in a FIDIC works contract is the first line of defense against fraud and corruption. Whenever a roads agency uses this or any contract that grants similar powers to the engineer, the engineer’s role in combating corruption should be made explicit and measures taken to help him discharge his responsibility.

Policymakers should also examine the utility of (a) creating incentives for the engineer to expose fraud and corruption, (b) penalizing engineers that fail to detect either, and (c) severely sanctioning those who participate in fraudulent or corrupt schemes. Sanctions could range from repayment of fees to fines and stiff prison terms. Because the engineer enters into a relationship of trust with the borrower, which he betrays if he participates in corruption, harsher penalties than those levied on other participants may be warranted.

How engineering services are procured may also merit review. Should price be the only factor as it is often so now? Or should selection follow a two-step process that focuses on quality first (including past performance on similar contracts) and price second?

Certificate of Independent Price Determination

A Certificate of Independent Price Determination requires the bidder to warrant that:

- The prices in the bid have not been altered in any way that might impede pricing for judging the proposal
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A Certificate of Independent Price Determination is significant less than the need to prove an illegal agreement.

For information on the purpose of requiring a Certificate of Independent Price Determination, please refer to the government of the United States (2007).
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Those who have met the quality requirements. Would it make sense to adopt a point system that factors in quality and price? What criteria could help ensure an objective evaluation of the engineer's quality?

Different ways of determining the engineer's fees should also be explored to ensure that all incentives, including the fee structure, are consistent with the engineer's quasi-fiduciary role. For example, where the risk of corruption during contract performance is particularly high, would it make sense to agree to a combination of a fixed fee for basic work and an hourly rate for certain kinds of tests and inspections relating to integrity risks? What safeguards could be introduced into such arrangements to avoid unnecessary testing and verification procedures to simply increase the fee?

These and similar issues should be examined with a view of strengthening the engineer's role in helping detect and address fraud and corruption during contract implementation.

Hire a technical auditor

Where there is a risk that the engineer will be drawn into a circle of corrupt actors, it can be minimized or eliminated by retaining another overseer to “guard the guardian” (Hurwicz 2007). The classic guardian of the guardian in a roads project is a technical auditor. Unlike a financial auditor, whose review is confined to the financial statements and supporting documentation, a technical auditor periodically inspects the project to ascertain that the materials and labor provided “were appropriate to their intended purpose and were delivered in the quantity, quality, and location or disposition specified” (Patterson and Chaudhuri 2007, 181).

A technical auditor will be hired for the second phase of the Philippine National Roads Improvement and Management Project. The terms of reference provide, among other things, that the auditor will (a) investigate the quantity and quality of site surveys at completed works, (b) review the audit support provided to the engineer, (c) verify the engineer’s record of progress against the contract documents, (d) test on-site the quality of contractor’s materials, (e) audit all change orders that would increase the contract price by 15 percent or more, and (f) conduct a comprehensive completion review of all civil works and of the highway department’s supervision of each contract (Government of the Philippines 2007b).

Even the threat of a technical audit can reduce corruption. In a field experiment conducted as part of the Bank’s Kecamatan Development Program in Indonesia, one group of villages participating in a nationwide road construction program was told beforehand that their projects would be audited and all projects were subsequently audited. In a second group, audits were neither threatened nor conducted. The difference between amounts claimed on the contractors’ invoices and the amounts actually spent was on average 8 percent less in those villages that were subject to audit than in those that were not (Olken 2007).

The challenge when hiring a technical auditor is ensuring that this second guardian remains a faithful guardian, serving the interests of the borrower rather than being drawn into a scheme to cheat it. While professional norms and the auditor’s character provide one guarantee of faithfulness, creating a powerful economic incentive for the auditor to remain honest provides more assurance. This can be accomplished by fostering economic conditions that handsomely reward honesty and severely punish its absence. Auditors who perform a job well should be paid well and those who stumble to perform a job poorly should either lose their job or face severe penalties. The difference between an auditor who performs a job well and one who performs poorly in a market where the benefits of a good reputation and the costs of a bad one are high should be large enough to make the former a much more attractive option than the latter.

More important than changing the cost-benefit calculus for a single job is creating a market in which those who perform well will enjoy a steady stream of future work and those who don’t will not. In short, a market where the discounted present value of future revenues exceeds the immediate profit realized from the one-time acceptance of a bribe. In many markets, from the long-distance trade in commodities in the Middle Ages to the sale of consumer appliances in modern times, the benefits of a good reputation and the harm from a bad one have deterred bribery and other types of short-term, opportunistic behavior (Greif 2006; Klein 1997). The key in every instance is seeing that information about an auditor’s performance is available to all actors in the market and that this information significantly affects the auditor’s earnings.
Curbing Fraud, Corruption, and Collusion in the Roads Sector

In many countries, fraudulent, corrupt, or collusive behavior in the roads sector erodes public trust, undermines the efficient delivery of services, and diverts funds from their intended purposes. The costs of this behavior are borne by taxpayers, who lose public funds that could be invested in other important programs and projects. The behavior can be driven by a variety of factors, including the complexity of road projects, the need for specialized technical expertise, and the high value of the assets involved. Corruption and collusion in the roads sector can take many forms, from the awarding of contracts to the management of road projects.

Develop accurate cost estimates

Cost estimates are crucial to evaluating bids and ensuring that the lowest bidder is selected. Inaccurate cost estimates can lead to over- or under-estimation of the project cost, which can result in cost overruns or under-performance. To ensure accurate cost estimates, procurement agencies should use a detailed and transparent approach to estimating project costs. This should include a thorough understanding of the project scope, as well as an analysis of the project's materials, labor, and equipment needs. The cost estimates should be prepared by qualified professionals, and reviewed by independent experts.

Check the wealth of key procurement officials

The wealth of procurement officials can be a useful indicator of potential corruption. In many countries, procurement officials are required to submit financial statements that detail their income and assets. These statements can be used to identify officials who may be engaging in corrupt behavior, such as taking bribes or offering kickbacks. The wealth of procurement officials should be compared to their declared income, and any discrepancies should be investigated.

Engage civil society monitors

Civil society organizations can play a vital role in monitoring road projects and identifying potential instances of fraud, corruption, or collusion. These organizations can provide valuable insight into the behavior of procurement officials and the quality of road projects. They can also act as a check on the government, and help to ensure that road projects are delivered efficiently and effectively.

Conclusion

In conclusion, fraud, corruption, and collusion in the roads sector can have serious consequences for the delivery of public services. To address these issues, procurement agencies need to develop accurate cost estimates, check the wealth of key procurement officials, and engage civil society monitors. By taking these steps, procurement agencies can help to ensure that road projects are delivered efficiently and effectively, and that public funds are used for the intended purposes.
information and communications technologies will not
be enough. As noted in Part II, the risks of fraud, corruption and collusion are
particularly high in road projects, in which
participation by third parties is often
worthwhile. Thus, it is essential that the World
Bank and its partners support the countries
in which road networks are proposed to be
built and in which road construction and collusive
behavior is prevalent. Effective and accountable road
sector institutions are crucial to achieving these
goals.

D. Experimental Measures

Stronger competition law enforcement

The power to grant leniency to cartel participants who cooperate with law enforcement
authorities. Where appropriate, such leniency should be coupled with measures to prevent
future collusions.

The ability to compel oral testimony from cartel members. This testimonial evidence can
be used in criminal or civil proceedings. It can also be used as evidence against the
cartel's competitors.

The right to use electronic surveillance devices in cartel meetings. This can be used
to detect and prosecute cartel members.

The right to use listening devices and other special investigative measures to collect
evidence. These measures can be used to detect and prosecute cartel members.

The right to issue search warrants and seize evidence. This can be used to prevent
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The experience of independent agents in Southern Sudan and Cambodia shows two pitfalls to avoid when retaining an independent agent. In Southern Sudan, the agent did not field sufficient staff to provide the training required (Price Waterhouse Coopers 2008) while in Cambodia, the agent’s terms of reference omitted capacity building (Ali and Moss 2010). Bank experience with independent agents in customs in Angola and Mozambique, however, illustrate the advantages when these problems are avoided. In both countries, the customs function was contracted out with a deadline for turning responsibility back to the government. Corruption was sharply reduced in the short run and over the long term national capacity was built (Mitchener and Maurer 2010; Mwangi 2004). Common to both efforts was not only a clear understanding on the deadline for handing back responsibility, but also sufficient resources for the independent agent to run the customs agency and to train national staff.

E. Issues for Consideration by Bank Operations Staff

The four objectives underpinning the World Bank procurement policy—transparency, fair treatment, capacity building, and competition—are sometimes in tension. Policies that advance transparency, fair treatment, or capacity building can undermine competition; on the other hand, those that promote competition may undermine one or more of the other three.

As the World Bank reviews its procurement policy, it would be important to consider the following:

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Knowledge System, a database of historical information on roadwork costs per kilometer, the World Bank has taken the first step with cost estimating. An easy first step for identifying collusive bidding would be to begin analyzing bids submitted on projects. A number of tests have been developed to determine whether bids were arrived at independently and they can be programmed using standard statistical packages (Bajari and Ye 2003; Porter and Zona 1993). The World Bank should ensure that firms bidding on Bank-funded projects submit the data necessary to conduct these tests in machine-readable form. The investment required to build on these first steps would be minimal and the potential payoffs—with a projected lending program of $7–8 billion for FY11—enormous.

Reevaluate current contract management

As developing countries gained experience and expertise, use with infrastructure construction, however, they developed frameworks and contracts to meet their needs and to keep the peace on project. This evolved into a World Bank contracting model, based on the FIDIC model, which made the engineer the central figure in contract administration. This form of contract management originated in 19th-century England and in the 1950s spread to developing countries where it seemed well suited to their needs (Lyon 1995). The uncertainties in building public works in the then largely unknown settings in developing countries created significant risks, ones that could not be specified, let alone allocated by detailed contract language. Much had to be left to work through on the ground as the project progressed, creating the possibility that the construction of roads and other infrastructure would be stalled as the contractor and the government squabbled over who was responsible for what unforeseeable event. Exacerbating the tension, the builder was inevitably from a developed country and possessed a high degree of technical knowledge, while the developing country client had little. A strong, technically competent engineer, independent of both (and, importantly, with the power to mediate their disputes and keep the project on track) provided a workable solution.

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1. Ensure accurate cost estimates (quantities and, more importantly, unit rates) to exclude the up-front inflated padding that serves as a reference cover to hide the high bid prices downstream.

2. Be sure the bill of quantities is correct to minimize variations in the downstream implementation of lump-sum contracts.

3. Encourage a lump-sum pricing approach for tendering and contract implementation of unit prices.

4. Include contract provisions that provide the possibility of downward adjustments during contract implementation. Provide encouragement for reducing the contract price if unforeseeable events occur to reduce the upfront price.

5. Closely supervise the implementation of key works contracts. This would involve random checks of the contractor’s records to ensure compliance with the Bank’s procurement guidelines, standard bidding documents, and standard forms of contract, which allow the Bank to monitor the contractor’s performance and address any deviations from the approved work plan.

6. Ensure that the contractor’s financial records are audited at regular intervals to verify compliance with the terms of the contract.

BOX 8

Reducing Fraud and Corruption in Civil Works

1. Ensure accurate cost estimates (quantities and, more importantly, unit rates) to exclude the up-front inflated padding that serves as a reference cover to hide the high bid prices downstream.

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3. Encourage a lump-sum pricing approach for tendering and contract implementation of unit prices.

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6. Ensure that the contractor’s financial records are audited at regular intervals to verify compliance with the terms of the contract.
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saw less need for a powerful engineer; in response, the World Bank and other international financial institutions have progressively modified the FIDIC contract to strengthen the government's control of the engineer. Whereas the engineer once independently determined whether a contractor's invoice was in order and therefore should be paid, that is no longer the case. Likewise, the current version of the FIDIC contract used by the World Bank gives the government the power to replace the engineer at any time with no real input from the contractor.

While the move away from a powerful, independent engineer was prompted by many factors, project integrity does not appear to have been one. With the growing recognition of the harm from fraud and corruption in road works, the development community should reevaluate the way roads contracts are managed. Is a weakened engineer overseen by a sometimes-corrupt government the best guarantor of project integrity? Are those forms of project management that assign the engineer's responsibilities to different entities more likely to reduce corruption? Should the engineer be more independent of government?

Advances in the economic study of construction contracts (Chakravarty and MacLeod 2006) and the accumulated experience from different forms of construction contract management (e.g., Kluenker 2001) provide a wealth of information for considering such issues.

Target enforcement on engineering firms

If the engineer's role in project integrity is to be strengthened, then corrupt engineers must be severely sanctioned. INT will do its part by targeting engineers in its investigations of misconduct in Bank-funded road and infrastructure projects. Whenever it is determined that an engineer has been involved in corruption, that engineer should be debarred for a lengthy period and borrower countries should be urged to cease hiring him on non-Bank-financed projects. Tanzania already does so. Its procurement law provides that any firm that has been debarred "by a foreign country, international organization or other foreign institutions on grounds of fraud or corruption" cannot compete for a government contract for the same length of time (Government of Tanzania 2004). These steps will help to create a market where only honest engineers prosper.

Increase contingent of professional experts

World Bank staff with road engineering expertise

World Bank projects and programs, the World Bank or other donor institutions on grounds of fraud or corruption. We have developed a powerful, independent, internal control function within the World Bank that, together with the audit and evaluation units, helps define the level of fraud and corruption, identifies the causes of the problem, and develops strategies to mitigate and control it. While the World Bank needs to work closely with its donors to ensure that the transition to a more independent, less interventionist government will actually happen, the World Bank has a unique opportunity to play a leading role in the development of a new model of road financing and procurement.
Bank should review its supervision strategy for the roads sector that looks at various factors, including budget and skills. In conducting such reviews, options to be considered may include: (a) reallocating resources towards implementation support; (b) establishing a trust fund to finance independent procurement oversight; and (c) grouping audits, review, and supervision work for multiple projects to achieve economies of scale.
Conclusion

As this report has shown, fraud, collusion, and corruption in roads projects wreak enormous damage on developing countries. Roads cost more to build than they should, do not last as long as they ought to, and the corruption proceeds can pollute a nation’s political system. The aim of this report has been to help reduce these losses by developing solutions to these problems. This dialogue should include the following elements:

- A robust assessment of the impact and cost-effectiveness of different mitigation measures applied in different countries (including under World Bank-funded projects in Kenya, Indonesia, the Philippines, and others that include robust mitigation measures).
- A review of procurement policies to address areas that may constrain borrower authorities, the World Bank, and its staff from taking appropriate action.
- An assessment of the relative roles of government authorities, the engineering profession, World Bank staff, and civil society representatives in the current model for preparation and supervision of roads projects and the efficacy of the current practice of engaging private sector partners to build roads.
- An evaluation of experience to date with building effective public works institutions in borrowing countries.

INT is ready to work with its operational colleagues in the Sustainable Development Network, the regions, and Operations Policy and Country Services and with government counterparts, the private sector and civil society to advance this dialogue.
All Web sites were visited between June 15, 2010, and April 15, 2011.


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It does not have to be made in writing; no formalities are necessary, and no contractual sanctions or enforcement measures are required. The fact of agreement may be express or implicit in the behavior of the parties.


As the European Court of First Instance observed in the above excerpt from the Vitamin Cartel case, collusive agreements come in many forms—written or oral, informal or formal, express or implied. Parties to such agreements generally go to great lengths to conceal their existence, and so, particularly when an agreement is informal or implied, establishing its presence in a legal proceeding can be a challenge. With courts and competition agencies hearing an ever larger number of allegations of collusive agreements, however, some common principles have emerged for proving collusion, a convergence furthered by a rich cross-national dialogue and an expanding body of comparative law scholarship.

All jurisdictions distinguish between direct and indirect evidence of collusion. Direct evidence is evidence of a collusive agreement itself, while indirect evidence consists of facts and circumstances that permit an inference of such an agreement. Direct evidence would include the testimony of one or more individuals who participated in the agreement, as well as copies of documents showing firms taking turns in tendering. Indirect evidence consists of facts and circumstances from which an administrative body or a court of law can infer the existence of a collusive agreement.

In cases of bid rigging, direct evidence would include the testimony of one or more individuals who participated in the agreement, as well as copies of documents showing firms taking turns in tendering. Indirect evidence consists of facts and circumstances from which an administrative body or a court of law can infer the existence of a collusive agreement.

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Reforms to Public Procurement in OECD Countries

Annex 2

Reforms to Public Procurement

OECD n.d.