



## SOCIAL DEVELOPMENT PAPERS

## CONFLICT PREVENTION &amp; RECONSTRUCTION

Paper No. 16 / August 2004

# The Private Sector's Role in the Provision of Infrastructure in Post-Conflict Countries: Patterns and Policy Options

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CPR

## Summary Findings

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Countries emerging from a conflict urgently need to provide access to basic infrastructure services for their populations, but they lack adequate public revenues, government capacity and investor interest to re-establish these services quickly. Although donors often support the early phases of post-conflict reconstruction with generous aid packages, post-conflict public sectors are often constrained by extremely weak absorptive capacity. At the same time, a large number of urgent policy priorities in the immediate post-conflict period means that governments rarely focus on establishing a welcoming investment climate that can spark the interest of potential private investors in infrastructure. Thus, for the first few years they confront a bitter paradox—they can neither absorb fully reconstruction aid nor can they attract much private investment to infrastructure sectors that could offset the state's low absorptive capacity.

This paper examines private investment patterns in post-conflict countries based on the Bank's Private Participation in Infrastructure database, and looks at some success stories that may offer useful policy lessons for other post-conflict countries. The investment patterns show that telecoms investments, particularly mobile telephony, materialize immediately after (sometimes even before) the end of the conflict. Electricity generation and distribution projects start to emerge about three years after the conflict and increase in frequency after year five. Private investment in transport and water tend to come much later. Within the transport sector, seaports receive the majority of private investment. The experiences of a number of conflict-affected countries, such as the Philippines, Mozambique, El Salvador and Guatemala, however, suggest that there is much in the policy front that conflict countries can do to speed up private investment in infrastructure, and thus the contribution of the private sector to reconstruction processes and the resumption of growth.

Policy recommendations suggest that the timing of reforms is important. Stepped arrangements may also be considered, including a planned progression from modest forms of private participation in infrastructure (e.g., service or management contracts) to deeper forms such as leases or long-term concessions. Government can also encourage (and especially refrain from constraining or regulating out of existence) the development of small-scale private service providers. Although they are generally not well captured in the data, a number of case studies and user surveys suggest that these entrepreneurs often play a key role in the absence of fully-functioning states, established public utilities and major private investments.

The paper also examines the positive correlation between risk ratings and the ability of post-conflict countries to attract private investment in infrastructure. Given the influence of the perceptions of risk on long-term investment, donors and governments may benefit from addressing those elements of political and economic risks that are within their control or influence. Specifically, there is a role to play for donors that can assist with the re-establishment or deepening of short-term finance, banking and insurance, as well as consider mechanisms to provide political risk insurance for foreign investors interested in infrastructure sectors. A key feature that affects country risk ratings is the government's track record in the payment for publicly-contracted goods and services, respecting contracts, and allowing foreign investors to repatriate capital. Since telecoms operators are the first to arrive, the ability of the government to demonstrate good contractual faith and establish an appropriate regulatory framework can have a powerful demonstration effect on other investors.

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# Acronyms

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GDP	Gross Domestic Product
ITU	International Telecommunications Union
LICUS	Low-Income Countries Under Stress
MIGA	Multilateral Investment Guarantee Agency
PPI	Private Participation in Infrastructure
PPIAF	Public-Private Infrastructure Advisory Facility
UN	United Nations

## Foreword

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This paper is a collaboration between the Public-Private Infrastructure Advisory Facility—a multi-donor technical assistance facility—and the World Bank’s Conflict Prevention and Reconstruction Unit.

The paper looks at a rarely researched topic, namely the prospects and potential for countries emerging from conflict to attract significant amounts of private investment into their infrastructure sectors. While there is little disagreement that most countries devastated by internal conflict face an enormous challenge re-establishing infrastructure services to their war-battered citizens, there is often an implicit tendency to assume that this will necessarily take time, as investor perceptions of risk in conflict-affected countries can be expected to change only slowly, and in the interim that most post-conflict countries will have to make do with aid-funded investments in public infrastructure or with struggling public utilities. While not minimizing the challenge, this paper argues that most post-conflict countries are not entirely helpless and do not always need to wait for the first 5-7 years before they can expect to attract significant investor interest in their infrastructure sectors.

The paper is a first look at this generally neglected subject. The authors believe that additional work would be justified in exploring in greater detail the investment patterns identified here, complemented by more detailed case studies than was possible to analyze for this paper. With additional analysis and case work, new approaches to build regulatory, contractual and investment strategies could be piloted in emerging post-conflict countries. This would be of particular importance for non-functioning conflict-affected countries which have the greatest need for basic services and infrastructure networks.

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# THE PRIVATE SECTOR'S ROLE IN THE PROVISION OF INFRASTRUCTURE IN POST-CONFLICT COUNTRIES: PATTERNS AND POLICY OPTIONS

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## 1. BACKGROUND: THE NEED TO REBUILD

Countries emerging from war or prolonged periods of civil conflict face a bitter paradox: They urgently need basic infrastructure services, but they lack the adequate public revenues, government capacity and investor interest to provide those services. Although donors often provide significant amounts of aid for reconstruction and rehabilitation, countries struggle in the early years after a conflict to absorb this aid due to a wide range of capacity constraints. The result is often:

- donor-driven contracts for rehabilitation and emergency operations that are not linked to long-term arrangements for service provision;
- reliance on institutional and legal arrangements for infrastructure provision that were present before the conflict, regardless of their current applicability;
- postponement of regulatory and structural reform of infrastructure sectors in the face of so many urgent policy initiatives; and
- the emergence of small-scale, local and diaspora-funded investor-operators offering basic services without the benefits of debt financing, scale economies, official recognition or quality-of-service regulation.

As new governments in conflict-affected countries begin to prioritize policies and interventions during the process of reconstruction, they may have a vague or a detailed knowledge of the potential role of the private sector in the provision of infrastructure services. In either case, the extent to which these governments pursue public-private arrangements for infrastructure services is often clouded by preconceived notions on the difficulty of engaging in such contracts and crowded out by other more immediate concerns. However, this paper argues that there are benefits to developing strategies for attracting investment in infrastructure in the immediate post-conflict period, and that governments who enact policies to support reform and private sector involvement may overcome some of the access and service quality deficits that define post-conflict living conditions in the short to medium term.<sup>1</sup>

### 1.1 The Role of the Private Sector in Infrastructure Service Provision

Over the last 15 years, countries faced with fiscal and capacity constraints throughout the developing world have turned to the private sector as a partner in the provision of infrastructure services. Since 1990, over 130 developing countries have transferred the operating risk of power, water, telecommunications and transport projects to the private sector through a wide range of public-private partnerships. These 2,500 infrastructure projects have resulted in the mobilization of about US\$750 billion in investment commitments.<sup>2</sup>

Despite the emergence of the private sector in the provision of basic services, conflict-affected countries—particularly those that can be characterized as weak or non-functioning states—have been markedly less successful than other developing countries in attracting private investment for the rehabilitation or expansion of basic infrastructure. The reasons seem intuitive and insurmountable:

- higher political and economic risks;
- lack of counterpart agents;

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<sup>1</sup> Conflict countries are defined as countries where internal conflict causes at least 1,000 combat-related deaths per year. In order to distinguish wars from massacres, both government forces and an identifiable rebel organization must suffer at least 5% of these casualties. This definition has become generally accepted following the seminal data collection of Singer and Small.

<sup>2</sup> Estimates taken from the World Bank PPI Database.

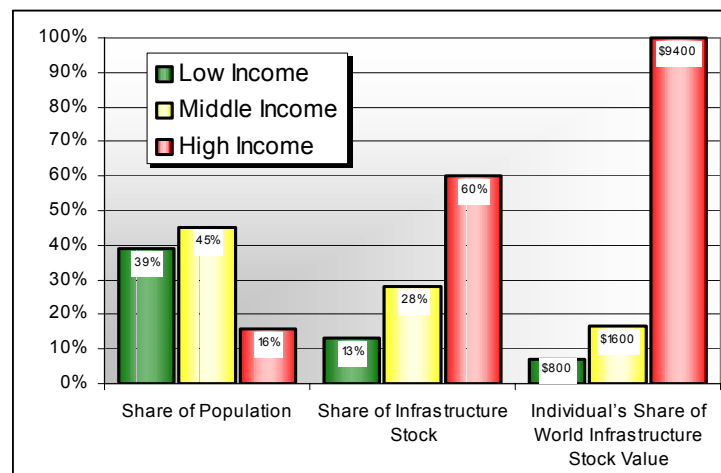
- greater investment needs; and
- lower payment capacities on the part of consumers.

Despite the challenges and frequent failures of these high-risk countries to attract significant levels of private participation in long-term investments, an analysis of investment data in these countries reveals patterns of private activity that could lead to policy approaches that can better leverage private sector involvement. Within the data are also exceptional cases of post-conflict countries that have benefited from significant amounts of investment or strikingly high levels of local entrepreneurial activity. These cases are also worthy of review for the lessons they may impart to countries now facing the struggles of reconstruction.

## 1.2 Income, Conflict and the Need for Infrastructure

Of the US\$15 trillion estimated in the world's infrastructure stock, the poorest countries have the lowest share and, conversely, the greatest needs. Figure 1 illustrates the dramatic difference between the distribution of the world's population and the distribution of the world's infrastructure stock according to income levels. While low-income countries represent about 39% of the world's population, they only possess about 13% of the estimated value of the world's infrastructure stock. More strikingly, the average citizen of a low-income country has access to infrastructure worth barely over US\$800. That figure is an order-of-magnitude less than the infrastructure apportioned to the average citizen of a wealthy country.

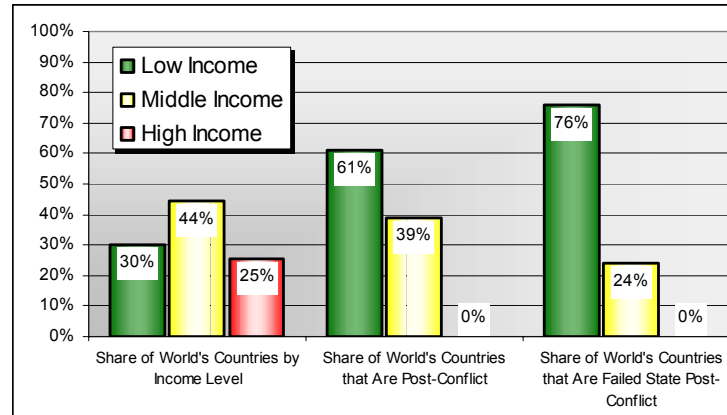
**Figure 1: Distribution of World Infrastructure Stock by Income Level**



Source: Fay and Yepes (2003), World Development Indicators (2003).

As Figure 2 illustrates, the relationship between income level and degree of conflict is indirectly proportional. While low income countries represent only 30% of the countries in the world, they represent 61% of recent post-conflict countries and three-fourths of those which can be described as having had non-functioning national structures over the last decade as a result of conflict.<sup>3</sup>

<sup>3</sup> Of the weak-state conflict countries analyzed in this paper, 19 are classified by the World Bank as Low Income, and 6 are Middle Income based on per capita income levels. Of the 6 middle-income countries, 5 are lower middle income and one is upper middle income.

**Figure 2:** Distribution of Conflict Countries by Income Level

Source: World Development Indicators (2003).

These sets of numbers suggest two fundamental truths: (i) the poorest countries have little in the way of infrastructure; and (ii) conflict-affected countries are disproportionately poor.

Behind these aggregated figures lie the stark realities faced by the citizens of conflict-affected countries due to lack of access to infrastructure. The lack of power means less light for study and work, and less heat in cold weather. Broken telecommunications linkages keep individuals from connecting with families, markets, and the broader society. Roads that are not traversable mean less access to jobs, markets, health facilities and schools. Unsafe water fundamentally and directly equates with worse health. While poor communities in all developing countries suffer from lack of access to infrastructure services, populations in post-conflict countries suffer disproportionately. To illustrate this point, Table 1 benchmarks four broad indicators of quality, access and use of infrastructure in Africa's conflict-affected countries against the same indicators for the rest of Sub-Saharan Africa as well as high-income countries worldwide.

This paper analyzes data extrapolated from the World Bank's Private Participation in Infrastructure (PPI) and World Development Indicators Databases, Euromoney's Country Risk Ratings and other sources of information on Foreign Direct Investment (FDI), growth and income in order to seek out patterns in investment and PPI in post-conflict countries.<sup>4</sup> For the qualitative treatment of the challenges and options surrounding the infrastructure policies of post-conflict countries, this paper has benefited from a portfolio of project documents from the Public-Private Infrastructure Advisory Facility<sup>5</sup> (PPIAF) as well as a broad literature of papers and books related to conflict, aid, growth, risk assessment and reconstruction.

<sup>4</sup> There are 31 countries that meet the Singer and Small definition of post-conflict or still under conflict and fall within the study period. See Appendix 1 for the list of countries. In order to utilize the data set available through the World Bank PPI Database, we exclude conflict countries that have emerged from war before 1990.

<sup>5</sup> The Public-Private Infrastructure Advisory Facility (PPIAF) has funded over 50 sector policy, regulatory and legal design, capacity building and transaction design activities in 23 post-conflict countries since its inception in 1991. For more information about PPIAF, see Appendix 3 or visit its website at [www.ppiaf.org](http://www.ppiaf.org).

**Table 1:** Indicators of Access, Use and Quality of Infrastructure

Type of Infrastructure	Sub-Saharan Africa Conflict-Affected	Sub-Saharan Africa Non-Conflict-Affected	Republic of South Africa	High-Income Countries
Electricity: kWh used per capita	96	384	3,793	8,421
Telecoms: fixed & mobile lines per 1000 pop.	19	67	410	1,283
Roads: % paved	13	27	20	93
Water: % of pop. with access to improved water	52	67	86	96

Notes:

A: Averages weight each country equally.

B: Sub-Saharan Africa Non-Conflict excludes Republic of South Africa which is presented separately.

C: The Electricity figure for Sub-Saharan Africa Non-Conflict derived from only 9 countries given data availability.

D: The Water figure for High Income countries is derived from Australia, Korea, Spain and UK.

Source: World Development Indicators (2003), most recent years available for each figure.

By understanding the unique conditions faced by conflict-affected countries and the way in which the private sector has responded to investment needs in the past, it may be possible to address the question: *How might post-conflict governments taking the reigns of these fractured countries better leverage the private sector to rehabilitate and expand their infrastructure?*

## 2. INTERIM SOLUTIONS: ADDRESSING DECLINING GROWTH AND AID IN A LOW-INVESTMENT PERIOD

As a result of peace and the inflow of humanitarian and reconstruction aid, countries generally experience a spurt in economic growth during the immediate post-conflict period. Aid inflows, the stimulus to the construction sector and pent up demand tend to boost economic activity, although in most cases the effects remain urban based.

Aid too tends to peak immediately after conflict. As the country emerges from conflict and captures the attention of the international community, donors generally increase aid to support peace and begin the reconstruction process. However, using aid effectively during the early post-conflict years is extremely difficult. Research by Collier and Hoeffler (2002) shows that within the first post-conflict decade, the aid profile is an initial burst followed by a gradual decline. Most post-conflict countries, however, face serious difficulties in absorbing this increased aid. A combination of political and administrative constraints limit absorptive capacity during the initial post-conflict years. Collier and Hoeffler find that it is during the middle phase of the first post-conflict period—the middle four to five years of the decade—that the amount of aid that a country can absorb productively is at its peak.<sup>6</sup> And yet, it is often at this time that aid begins to decline, as donor interest wanes, new post-conflict situations emerge, or donors become disillusioned with the slow reconstruction process.

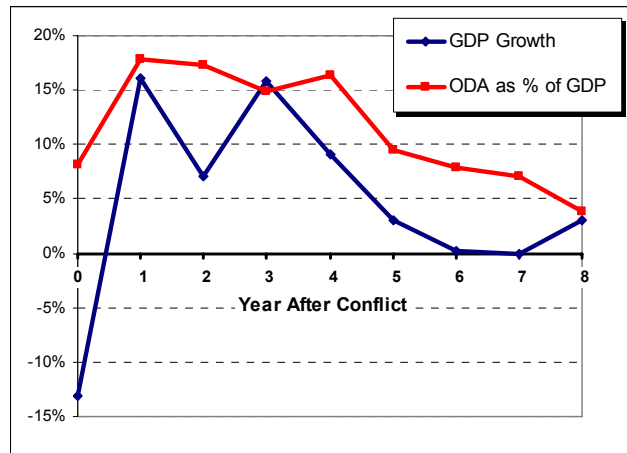
The constraints on the absorptive capacity of post-conflict countries is especially severe for project aid. Setting up administrative, accounting, financial management, fiduciary and procurement systems takes time, especially in post-conflict countries that have weakened institutions and little human capacity. Countries can better absorb immediate post-conflict aid when it is provided as budgetary support, but many donors either face restrictions on their ability to provide direct budget support or have concerns over governance in still weak budgetary systems and processes. For a post-conflict country facing the need for substantial infrastructure investments, aid-funded projects offer limited relief during the initial

<sup>6</sup> See: Collier (2002) and Collier et al. (2003).

post-conflict phase and yet the country must face the paradox that when its absorptive capacity is improving aid begins to fall. This is precisely when infrastructure investments are badly needed to sustain the initial growth spurt and also a time when the post-conflict country is still vulnerable to a relapse into conflict.<sup>7</sup> Collier et al. (2003) point out that faster growth tends to reduce the risk of further conflict directly and cumulatively by raising the level of income.<sup>8</sup>

Figure 3 shows average GDP growth for 10 post-conflict countries that emerged from conflict after 1990 as well as the initial burst of aid which declines as a ratio of GDP in the initial post-conflict years.<sup>9</sup>

**Figure 3: GDP Growth and ODA per GDP after Conflict**



For dataset, see Footnote 9.

During the period of high growth and large aid inflows, countries emerging from conflict have a parallel period of inactivity in private infrastructure investment that typically lasts about five or six years from the time that aid begins. Since sustainable investment in infrastructure will be required to maintain growth levels, the objectives of policies related to infrastructure during this period should be two-fold: (i) to provide interim services that help ameliorate the hardships caused by the conflict; and (ii) to put in place policies which will shorten the non-investment gap as much as possible and which will lead to sustainable service provision and growth.<sup>10</sup> The challenge is to ensure that actions taken in support of one objective do not render the other objective unachievable.

## 2.1 Rehabilitation and Reconstruction

While the immediate rehabilitation of infrastructure is one component of the short-term growth cycle, sustained growth will require longer-term policies. Countries such as Bosnia-Herzegovina and Afghanistan, that have captured the attention of the international community for political, security and humanitarian reasons, often receive a significant aid package to support reconstruction. The approach to infrastructure rehabilitation in these cases seems to have followed a similar pattern:

- Phase 1: The letting of construction and rehabilitation contracts to restart services as quickly as possible.

<sup>7</sup> Collier et al. (2003) estimate that the typical country reaching the end of a civil war faces around a 44% chance of returning to conflict within the first five years.

<sup>8</sup> See also: Bigombe, Collier and Sambanis (2000).

<sup>9</sup> This figure is based on data from 10 countries that have emerged from war since 1990 and for which 8 years of consistent data were available. They are Azerbaijan, Cambodia, El Salvador, Georgia, Lebanon, Mozambique, Nicaragua, Rwanda, Tajikistan and Yemen.

<sup>10</sup> For a treatment of the causal relationship between infrastructure investment and economic growth, see Severn and Calderon (2004).

- Phase 2: A return of the operational responsibility to the government agencies, state-owned utilities and transport authorities that controlled the assets prior to the conflict.
- Phase 3: A push for reform of those agencies and the introduction of public-private partnerships only after the effects of fiscal constraints, weak incentives and low management capacity are felt on the public services.

**Box 1: Bosnia-Herzegovina: Donor Expediency and Returning Assets to Government Agencies**

Bosnia's experiences stand out as lessons for future conflict-affected countries. According to US State Department officials directly involved with the governance of Bosnia after the Dayton Peace Accords, the donor community's primary concern coming out of the settlement was to facilitate the mass relocation of ethnic groups. The availability of basic services—power, water, transport and housing—was recognized as the key success factor for attracting populations back to their ethnic enclaves. As a result of this focus on short-term resettlement issues, infrastructure services were turned over to the newly reinstated federal, state and municipal agencies once the assets had been minimally rehabilitated by foreign contractors.

In the interests of equity, layers of government were created throughout the region so as to allow the different ethnic groups to retain control of their respective dominant territories. Since the infrastructure followed this approach to political layering according to ethnic group, the public management of infrastructure services became redundant in many cases. That is, a municipality with Muslim and Bosnian Serb population centers would be left with two water companies, even if both were drawing from the same sources of water, serving abutting or overlapping communities and discharging wastewater into the same river basin. Now, seven years after the Accords, the donor community is attempting to help Bosnia rationalize, reform and introduce private sector efficiencies into key infrastructure sectors, often against the interests of entrenched bureaucracies and in the face of legal and administrative structures that are blind to the need for sustainable services.

**Source:** Interviews with US State Department and donor officials.

In the case of Bosnia, it is clear that the original planning for asset management and service provision did not take a medium- to long-term view and the donor community is left trying to encourage the adoption of a reform agenda that is divorced from the first round of post-conflict arrangements.<sup>11</sup> It is of course possible for public agencies to be converted into efficient and reliable providers of infrastructure or to be divested effectively of their interests after they have established managerial and operational jurisdiction. Nonetheless, the labor dislocations this may cause as well as the political price of change and the cost in time and resources of re-doing a hasty decision only delay the establishment of an effective management, operational and investment model.

The ability of a government to absorb project aid effectively while putting in place medium to long-term plans for infrastructure provision will depend in large part on the capacity of the state as it emerges from conflict. Post-conflict countries differ tremendously in terms of the impact of the conflict and the extent of national capabilities. They can be thought of as laying somewhere along a continuum between two extremes or types—as functioning states or weak and non-functioning states. The ability of a country to leverage the private sector in rehabilitating and reconstructing its infrastructure depends to a large degree on where it falls in this spectrum.

*Functioning States.* On this end of the spectrum, the government remains in full control and retains a reasonable institutional capacity during and after the conflict. Except for specific regions where conflict may have raged or security is still uncertain, the government is able to maintain security and territorial control in the country. These conflict countries are usually those where the conflict has regional dimensions and only affects parts of the country (e.g., Colombia, Indonesia, Philippines, Russia, Sri Lanka) in a systematic way.

<sup>11</sup> A recent review of MIGA's experience in Bosnia suggests that the main lesson is the need to press for investment-related policy reform as early as possible (Bray 2004).

*Weak or Non-functioning States.* Here the government can barely exercise control independently and has very weak institutional capacity. It cannot exercise territorial control on most of the country and cannot guarantee security except for the capital area. These countries tend to have suffered prolonged and devastating civil wars, which in some cases may have led to the almost complete collapse of the state (e.g., Afghanistan, Liberia, Sierra Leone, Timor-Leste).<sup>12</sup>

## 2.2 Small-Scale Private Providers

In non-functioning states and in those countries where the rehabilitation of major assets fails to bring services to poorer, rural and peri-urban communities, a market for services surfaces driven by pent-up demand and unmet needs. As a result, a common occurrence in conflict and post-conflict countries is the emergence of unregulated, small-scale private providers of infrastructure, particularly in electricity and water supply. A literature review in 2004 of all material available related to small-scale private service providers in water and electricity found that of the 16 countries in which small private electricity providers were identified, 9 were in post-conflict countries and of the 46 countries with known small private water providers, about half were in post-conflict countries.

While private water vendors are common in the fringes of cities throughout the developing world, the role they play in post-conflict countries can be crucial to the subsistence of large numbers of consumers—both in urban and in rural settings. Because small scale private service providers evolve as a response to the *lack* of government, however, they are generally unlicensed, unregulated, and eventually targeted as nuisances by the public utilities that are trying to reinstate their exclusivity rights.

The relative value of the service provision offered by these small companies depends on the benchmark chosen. Although quality of service may not match that of world class utility operators it may be better than nearby public utilities.<sup>13</sup> Still, small-scale water providers are unlikely to follow World Health Organization standards for pollutants, dissolved solids and other measurements of quality, and are unlikely to maintain the pressure levels and hours of service that a consumer from a high-income country would expect. Likewise, small electricity providers are unlikely to regulate voltage levels, or offer 24-hour power.

Perhaps most noticeably, however, services tend to be expensive and the range of prices, even within one country, can be very high. This is driven by factors such as the delivery mechanism, the availability of alternative sources (in the case of water), the number of competitive service providers and, to a lesser degree, the existence of a licensing, regulatory or contractual framework. Figure 4 below is based on a global survey of licensed and “informal” small-scale service providers and shows that private water providers offer services that can cost between US\$0.50 and US\$5.00 per cubic meter.

Even given the wide range of prices and the quality shortcomings, these private providers should be seen as having a vital role in the access to basic services available to post-conflict societies. The real alternative available to the rural and peri-urban communities of many conflict-affected countries is not a world-class investor or even a struggling state-owned utility—it is no service whatsoever. An ILO household travel survey conducted in rural Cambodia found that a typical household in a community with nearby water sources spent nearly an hour per day collecting water. This daily exertion involved over 10 trips and required the bearer to transport a total weight of 160 kilograms per day, excluding the weight of containers used for transporting the water. The productivity benefits, not to mention improvements in the quality of life, that would come from water service provision in such communities can hardly be

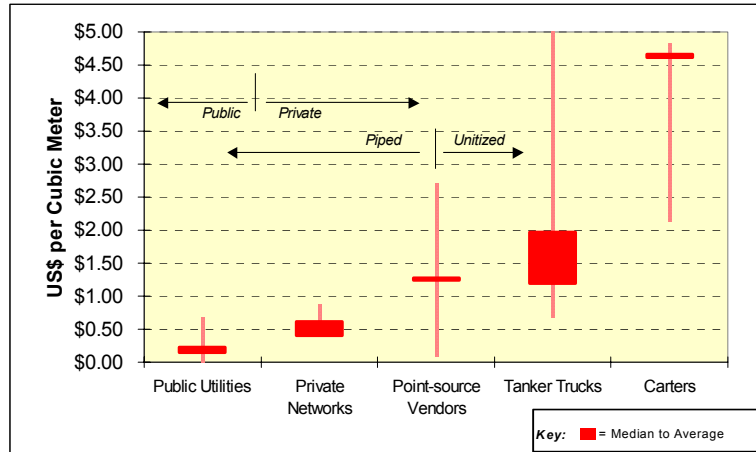
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<sup>12</sup> Development agencies refer to these weak or non-functioning states by different term—each lending itself to a slightly different sub-set of countries. In the World Bank they come under the term Low-Income Countries Under Stress (LICUS). OECD/DAC refers to them as “difficult partnerships,” while some bilateral donors employ the term “failed state”.

<sup>13</sup> For a comparative analysis of four small-scale private providers of piped water to four small public utilities, see Garn, Isham and Kahkonen (2000).

overstated. In communities that are not near water sources, the benefits would be greater. In recognition of this need, post-conflict countries as varied as Mozambique, Sri Lanka, El Salvador and Cambodia are now introducing regulatory arrangements that recognize private providers; encourage efficiencies through associations, mergers and convergence; and introduce minimal levels of oversight to alleviate extreme cases of rent-seeking and quality of service deficiencies.

**Figure 4:** Per Unit Cost of Water as Charged by Small-scale Private Service Providers



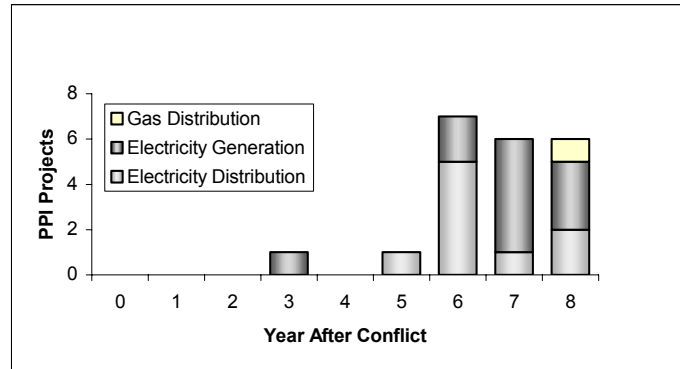
Source: Kariuki and Schwartz (2004).

Attempts to quantify investment in infrastructure generally fail to capture the activities of small-scale, local entrepreneurs due to the low levels of investment involved, the lack of media coverage related to individual transactions and the informality of the activity. For example, this type of PPI is not covered by the World Bank PPI Database which bases its information on media reports and other public disclosures of transactions, nationally, regionally and internationally. The Database thus captures nearly all newsworthy national or international transactions and shows that there is basically little or no medium to large-scale investment in the energy sector in the first 6 years after a conflict ends.<sup>14</sup> Figure 5 below illustrates that the private sector rarely undertakes large-scale energy investments or other public-private partnerships in transmission grids or gas pipelines, distribution companies, or in large power generating assets in the years immediately following a crisis.

<sup>14</sup> PPIAF, the Bank Netherlands Water Partnership and the World Bank are currently funding an effort to quantify the role of small-scale private water and electricity service providers throughout the developing world. A database which provides a synopsis of all available project and academic analysis of small-scale private providers will be available through the World Bank in 2004.



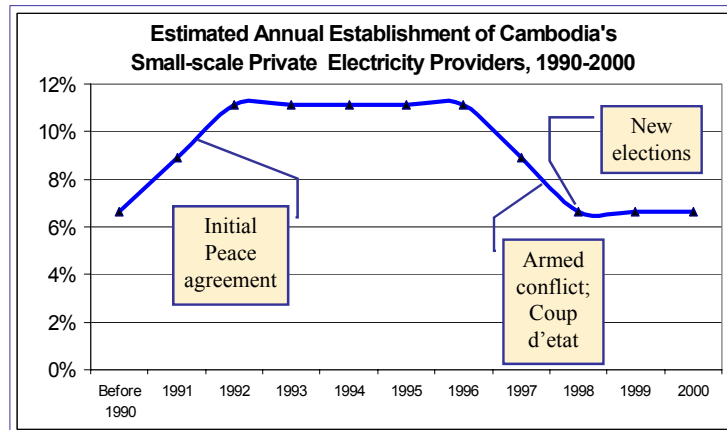
**Figure 5:** Large-scale Investment in Energy Projects in Post-Conflict Countries



Source: PPI Database. For dataset, see Footnote 9.

By comparison, small-scale providers tend to mobilize resources quickly, taking advantage of pent-up demand and the lack of regulations and licensing requirements that might otherwise stymie entrepreneurial activity. Figure 6 below thus shows a strikingly different story than the figure above. Based upon a sample survey of small energy enterprises in Cambodia, nearly 15% of those service providers in existence 8 years after the end of Cambodia's conflict had established themselves and begun distributing electricity *prior* to the signing of the initial peace agreement. More than half of the firms being surveyed had set up shop in the first four years of stability. Even after a second round of armed conflict in 1997, private providers—almost oblivious to the perceptions of risk associated with the coup d'état—continued to establish themselves throughout the countryside.<sup>15</sup>

**Figure 6:** Estimated Annual Establishment of Small-scale Electricity Providers in Cambodia, 1990-00



Source: Enterprise Development Cambodia (2001).

<sup>15</sup> Euromoney's political risk rating for Cambodia dropped from 7 to 3 on a scale of 1 to 25 between 1996 and 1997, giving it one of the worst ratings in the world (higher number = lower risk rating). By comparison, Vietnam had a rating of 10 in 1997 and Lao PDR of 5.

### **Box 2: Cambodia: Small-Scale Provision as an Interim Solution to Service Delivery**

It is estimated that between 600 and 1,000 small private power systems are operating in Cambodia, serving about half a million customers or nearly as many households as the national power company. Most of these entrepreneurs set up their businesses prior to the formation of the interim government in the mid-1990s and continue to provide service to communities who otherwise would have no network connections whatsoever. In their totality, these small independent companies have about half of the country's generating capacity. The majority meter their customers and charge either a flat rate or a single block decreasing tariff. They average 200 households per business. In recognition of their importance, the country's Rural Electrification Strategy—supported by the donor community—envisions the convergence of these small power providers into local distribution companies as transmission is rolled out across the country. A breakdown of their financial structure reveals the lack of available credit or medium-term financing available in Cambodia:

#### Equity:

49% owner equity

#### Debt:

22% family borrowing

23% informal debt

6% micro-finance

Loan tenors: 85% are 12 months or less

Range of interest rates: 1% to 2% per month

Private companies that treat and deliver water through piped and metered systems can also be found throughout the Cambodian countryside albeit with much less frequency than the mini-power companies. These water companies were built almost entirely with local equity and offer a service desperately needed by villages and peri-urban communities. Recognizing the importance of these providers, recent donor activity in Cambodia has attempted to encourage their spread throughout the provinces through targeted subsidy incentives and Design Build Lease contracts that reduce investment risk.

**Source:** Garn et al. (2000), Enterprise Development Cambodia (2001), PPIAF and World Bank staff

## **3. LONGER-TERM SOLUTIONS: LEARNING FROM INVESTMENT TRENDS**

While small-scale providers of electricity and water fill an important gap in service delivery, local entrepreneurs alone are unlikely to be able to finance the complete reconstruction of a country's infrastructure. Ports, airports, railways and roads generally require international financing as do large-scale energy investments, municipal water systems and national telecommunication networks. For this reason, it is important to review the infrastructure investment data that has been collected to date.

There are several notable patterns that emerge from the PPI data as they relate to conflict-affected countries. Each of these has implications for policy formulation related to increasing or deepening the role of the private sector in the provision of infrastructure. The patterns from the data relate to:

- Levels of investment;
- Timing of investment; and
- Sectoral trends in investment.

In addition, the juxtaposition of country risk ratings and levels of investment in private infrastructure projects reveals a strong correlation, as well as statistical outliers that may provide insight into successful policy initiatives.

### **3.1 Levels of Investment**

A review of the PPI Database illustrates that post-conflict countries can attract private sector operators, managers and investors into the provision of infrastructure services. That said, involvement of private investors and operators in post-conflict reconstruction has been less than in non-conflict developing

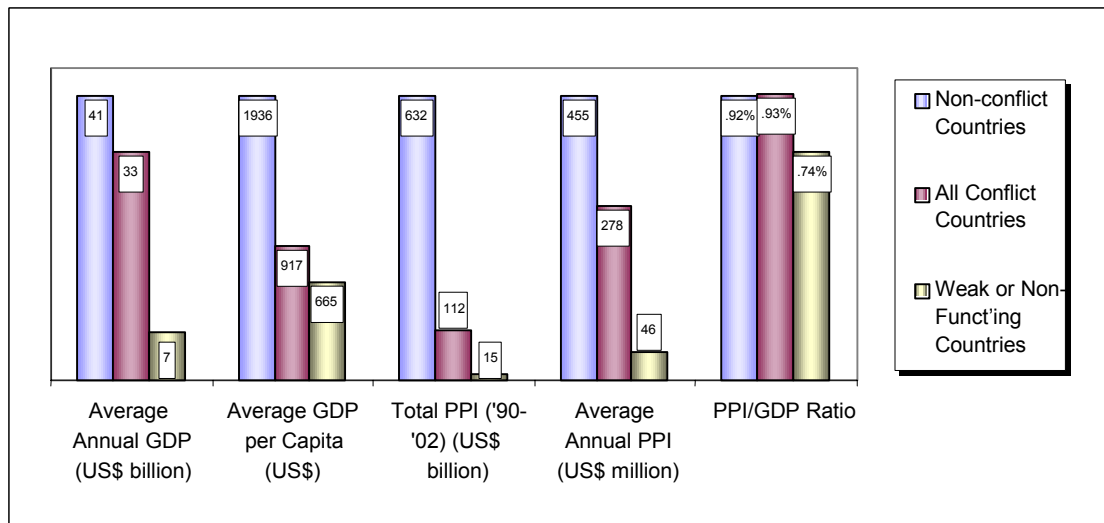
countries. When the countries with non-functioning national structures are further broken out from the Conflict set of countries, the investment figures are even lower as demonstrated in Table 2 below.

**Table 2: PPI in Non-Conflict and Non-functioning Conflict Countries, 1990-2002**

Data from 1990 to 2002	Non-Conflict Countries (107)	All Conflict Countries (31)	Non-functioning Conflict Countries (25)
Average annual GDP	\$41 bill.	\$33 bill.	\$7 bill.
Average GDP per capita	\$1,936	\$917	\$665
Total PPI	\$632 bill.	\$112 bill.	\$15 bill.
Average annual PPI	\$455 mill.	\$278 mill.	\$46 mill.
Ratio of PPI to GDP	0.92	0.93	0.74
% countries with no PPI	3%	13%	16%

For dataset, see Footnote 4 and Appendix 1.

**Figure 7: Income (GDP) and Levels of PPI in Conflict Countries**

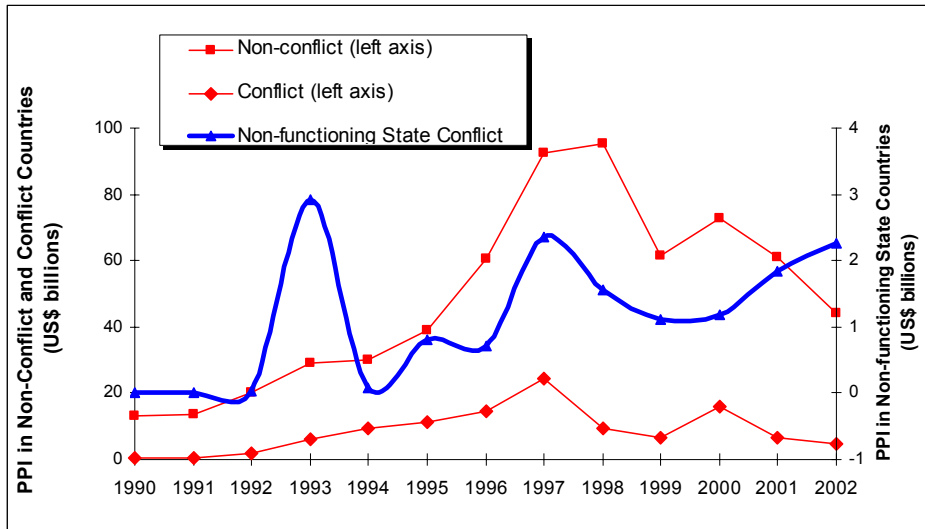


For dataset, see Footnote 4 and Appendix 1.

While the data above suggest that conflict countries are somewhat less attractive markets than non-conflict countries, the PPI investment curve over time suggests that conflict countries are subjected to the same market forces as other developing countries: market capitalizations of investors, stock market crashes, regional currency crises and other factors that may be beyond the control of individual governments. However, when the subset of Weak or Non-functioning Conflict countries is taken separately, the investment curve does not follow the over-all trend for other developing countries, particularly after 2000. This is likely due to two factors:

- The risk factors associated with infrastructure investments in non-functioning post-conflict economies are so great, that the profile of investors in that subset of countries do not reflect the infrastructure investor community as a whole; and
- The levels of investment are sufficiently low that a few large investments may affect the trend line.

**Figure 8: PPI Investment in Non-conflict, All Conflict and Non-functioning State Countries, 1990-02**

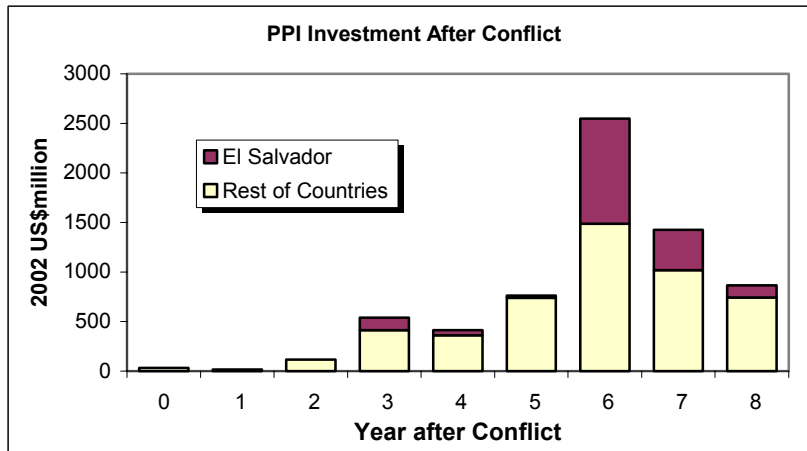


For dataset, see Footnote 4 and Appendix 1.

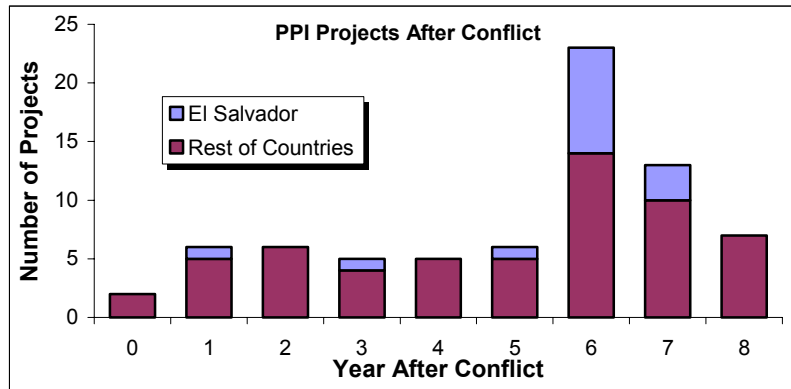
### 3.2 Timing of Investments

While there are very few private infrastructure projects during conflict, both cumulative investment and number of projects start rising after conflict and reach their peak six years or so after the end of the conflict. Both the number of projects and investment levels begin to fall from year seven and by year eight they decline to half of the level seen at their peak, albeit still significantly higher than the level seen in the first few years after war.

**Figure 9: Levels of PPI Investment in Post-Conflict Countries**



For dataset, see Footnote 9.

**Figure 10: Number of PPI Projects in Post-Conflict Countries**

For dataset, see Footnote 9.

What is important about this trend is that it is virtually the opposite of the aid and growth trends. That is, infrastructure investments tend to materialize after post-conflict countries demonstrate sufficient periods of stability—about the time that aid slows and growth declines. The window of inactivity prior to investments in infrastructure is thus very long. However, it may be possible to shorten this period if policies are put in place that define rational market structures (including the roles of the public and private sector in service provision), protect investor rights (such as tax, property and contract laws), and establish viable regulatory arrangements.

### 3.3 Sectoral Trends in Investment

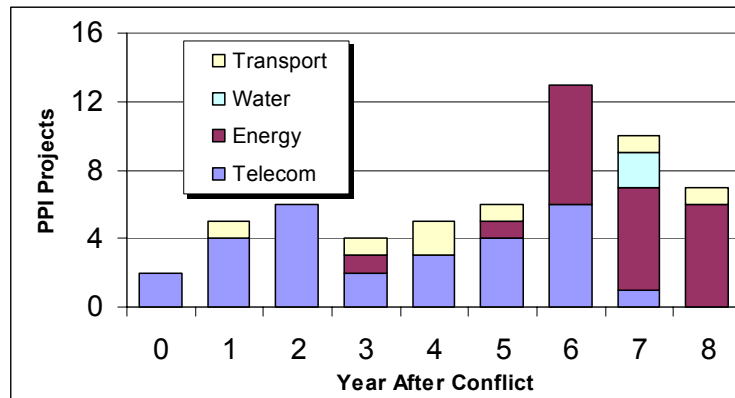
An analysis of the sectoral trends of PPI in post-conflict countries shows telecom investments materialize immediately after peace, particularly mobile telephony. All of the countries analyzed had at least one private mobile operator investing in the country after emerging from war.<sup>16</sup> Electricity generation and distribution projects started to emerge three years after conflict and increased in frequency after five years. Transport and water projects were also seen in these countries but only sporadically.

The emergence of cellular phones is now one of the first indications that a country is emerging from conflict. In fact, the implementation of licensing and interconnection rules in post-conflict countries often requires the adjustment of existing arrangements since mobile operators are often established before governments are fully in place and recognized by the donor community.<sup>17</sup> It is clear that the mobile operators respond to investment opportunities without the regard for long-term stability that other infrastructure investors require. In Iraq, the open bidding for regional mobile licenses held in October 2003 attracted 200 consortia of firms all seeking two year licenses. The cost recovery period for these greenfield investments is a fraction of the other sectors.

<sup>16</sup> Even in Afghanistan today, with high uncertainty and a difficult security situation, two telecoms providers (AWCC and Roshan) are among only five large private companies (over 250 employees) established since the fall of the Taliban regime (World Bank 2004).

<sup>17</sup> Despite years of conflict and a complete collapse of the unitary state in Somalia, private telecoms companies are thriving. At present there are 12 independent telephone operators throughout Somalia. The companies also provide fax and internet services (at US\$6 per hour). For a description of the Somali private sector, see: Private Sector Department (2003).

**Figure 11:** Sectoral Dispersion of PPI Over Time in Post-Conflict Countries



For dataset, see Footnote 9.

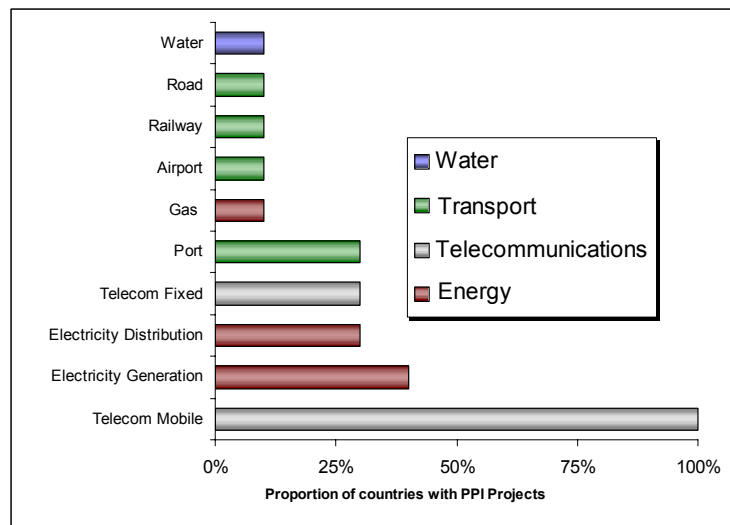
Beyond the telecommunications sector, the attractiveness of PPI in post-conflict countries drops precipitously. Power projects remain somewhat attractive particularly for generation or, at least, when supply and distribution are bundled. Yet retail risks make distribution privatization difficult, particularly in the early years of post-conflict. For example, attempts to privatize the distribution companies of Albania in the early 1990s went awry over fears of collection. Investors felt that the severing of illegal connections and the collection of cost recovery tariffs would be nearly impossible after civil disturbances led to the raiding of armories and the subsequent arming of households throughout the country.

Within transport, seaports received the majority of PPI investment, probably due to the hard currency earning potential of container terminals and the ability of bulk facilities—such as coal or iron ore—to be incorporated into vertically integrated logistics systems. By comparison, lingering security concerns (including de-mining), massive reconstruction costs, and the slow rebounding of traffic levels combine to make rail and road investments difficult. A port, as a single location investment, can be secured more easily than investments in network assets such as railways and roads which remain vulnerable to sabotage and interruptions in isolated corridors. In order to overcome these risks, the government may pursue arrangements which do not require immediate and large-scale mobilization of investment capital and which do not depend on steep increases in user fees. While such arrangements do not allow for the mobilization of large-scale financing, they may help to bring private sector efficiencies and management back to key transport systems in the early years of post-conflict reconstruction. Political risk insurance may be considered as a risk mitigant as well.<sup>18</sup>

Figure 12 below illustrates the frequency with which post-conflict countries attract investment in one sector versus another over the first 8 years of stability.

<sup>18</sup> Bray (2004) points out in the case of Bosnia-Herzegovina that political risk insurance is of most value to investors when they can identify a turning point in a country's fortunes. The opportunities and the turning points will come to different sectors at different stages in the post-conflict recovery process. In Bosnia, the turning point for commercial banks came early. For infrastructure, however, delays in market structure and regulatory design mean that the turning point has yet to arrive. If there are no viable investment projects, there is nothing to insure.

**Figure 12:** Proportion of Post-Conflict Countries with Private Infrastructure Projects, by Sector



For dataset, see Footnote 4.

Water and sanitation receives the least investment in dollar terms and is the last of the sectors to receive outside investment funds, although it may be the sector with the greatest needs. All of the investment, collection, tariff and regulatory risks found in the other sectors are exacerbated by the uncertainties of local political, administrative and contractual arrangements. The health concerns associated with water, the uncertainty of investment needs given the importance of underground assets and the intensely emotional manner in which many people view their right to water, further raise the risk profile of water investments in post-conflict countries. As with rail and roads, incremental approaches to the involvement of the private sector in this area may be necessary in order to speed the process of rehabilitation and service expansion.

### 3.4 Country Risk and the Attractiveness of Infrastructure Investment

Country risk ratings are a synthesis form of assessing a country's political and economic stability. As such, they can be used to determine where a country stands in terms of its attractiveness for investors compared to other countries or to gauge a country's progression in market attractiveness over time.

The country risk figures utilized in this paper are taken from Euromoney's Country Risk Rating for the period 1990-2002. The country risk figure is a composite index which includes:

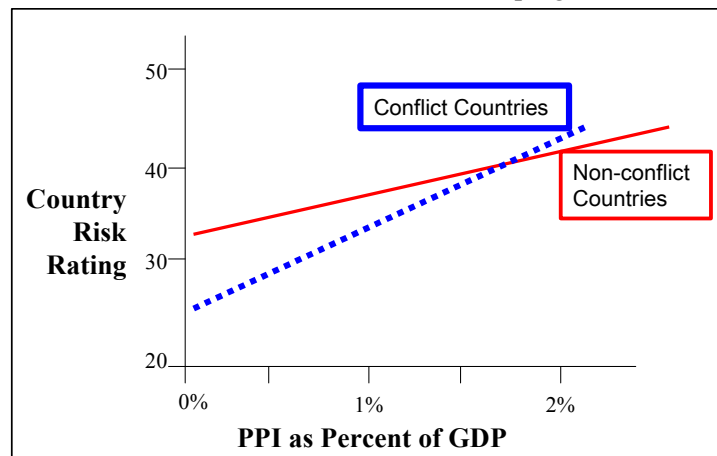
- Political risk (25%—non-payment or non-servicing of payment for goods or services, loans, trade-related finance and dividends; and non-repatriation of capital)
- Economic performance (25%—GNP per capita, and average from poll of economic projections)
- Debt indicators (10%)
- Debt in default or rescheduled (10%)
- Credit ratings (10%—average of Moody's, S&P and Fitch IBCA)
- Access to bank finance (5%)
- Access to short-term finance (5%)
- Access to capital markets (5%)
- Discount on forfeiting (5%) (average maximum tenor for forfeiting and average spread over riskless countries)

Not surprisingly, Euromoney’s average country risk ratings for the conflict-affected countries analyzed in this paper is 24, whereas the average for all developing countries is 35. OECD countries typically score in the 80s and 90s. A perfect score is 100.

An analysis on the correlation between developing countries’ PPI investment and their country risk—as diagramed in Figure 13 below—illustrate two observations:

- There is a significant correlation between the risk rating of developing countries and their success in attracting investment in private infrastructure projects (as weighted by GDP); and
- Correlation is even stronger for conflict-affected countries than for non-conflict developing countries.

**Figure 13:** Correlation Between Country Risk and PPI for Conflict-Affected vs. Other Developing Countries



For dataset, see Appendix 1 and Appendix 3 for regression results.  
 Note: Conflict Countries excludes Philippines and Mozambique, discussed below, as statistical outliers.  
 Source: Euromoney Country Risk Ratings, PPI Database, authors’ analysis.

Put another way, the investment community is extremely cautious in considering investments in post-conflict countries when those investments are in long-term assets such as power, water and transport networks. However, as the underlying factors which drive country risk ratings improve, the elasticity of investment is relatively high for post-conflict countries.

While some of these factors can only correct themselves slowly as part of the transition to stability and growth, others are within the realm of a government’s ability to affect change. The strengthening of others may be expedited with support from the donor community. Those factors which are influenced by government actions include the payment for contracted goods and services, as well as the ability of investors to repatriate capital. Donors in the meantime may assist with the re-establishment or deepening of short-term finance, banking, insurance and other capital markets.

These initiatives will have a disproportionately high impact on infrastructure investment. By contrast, a regression analysis that puts Foreign Direct Investment dollars per GDP against Country Risk Ratings suggests that there is no significant correlation between investment generally and country risk—even for post-conflict countries.<sup>19</sup> That is, investors in extractive or “footloose” industries are likely to ignore country risk criteria when choosing sites for investment. The reasons for this may vary according to the type of industry but the lessons for governments are clear. Even if they have successfully attracted a

<sup>19</sup> See Appendix 3, Regression 3 for details.



major energy company exploring for oil, signed an agreement for a forestry concession; or watched garment factories spring up alongside their port, investors in infrastructure will likely wait for clearer signs of economic and political stability before committing to a long-term relationship.

To the degree that risk cannot be eliminated, it may be mitigated through financial mechanisms such as political risk insurance or project finance guarantees which are available through donor and bilateral organizations such as the World Bank's Multilateral Investment Guarantee Agency (MIGA) or its Guarantee Facility. Both have helped to finance infrastructure in post-conflict countries. The World Bank's Guarantee Facility has provided guarantees to investors in the following conflict-affected countries:

- Lebanon: 1997, US\$100 million guarantee to support the country's bond issue for power sector restructuring;
- Colombia: 2001, US\$120 million guarantee for bond issue for structural adjustment purpose;
- Philippines: 1994, US\$100 million guarantee for bond issue for Leyte-Luzon Power Project;
- Russia: 2002, US\$200 million guarantee for Coal and Forestry Sector Project;
- Mozambique: 2004, US\$30 million guarantee for Sasol Natural Gas Project.

MIGA provides political risk insurance for private investors. This product is particularly important for infrastructure projects that involve commercial debt financing, because financial institutions will usually not provide loans without some form of risk mitigation against political risks such as the threat of resumed violence. In addition, the absence of adequate business laws and regulations, lack of enforcement of the rule of law, unclear ownership rights, and the lack of functioning courts can be insured against. In all of these aspects, MIGA can help to mitigate risks for foreign investors, including help to encourage the return of flight capital by providing risk against:

- Transfer Restriction and Inconvertibility;
- Expropriation;
- War and Civil Disturbance; and
- Breach of Contract.

The most prevalent sub-sectors where MIGA's products are found in post-conflict settings are mobile telephony and, to a lesser extent, power generation projects. MIGA has also supported fixed wire telecommunication investments in Indonesia, a few power distribution companies and a toll road in the Philippines.<sup>20</sup>

In addition to these facilities, a donor group consisting of several European countries (United Kingdom, Sweden, Switzerland, Netherlands, Norway) has financed the creation of a sub-sovereign-focused guarantee facility, called Guarantco. Guarantco will offer a mechanism that is designed to support investment in the infrastructure of municipalities and other sub-sovereign areas through local currency guarantees issued by local banks and backed by the facility.

### **3.5 Lessons of Success: High Levels of Investment in Post-Conflict Countries**

The post-conflict PPI investment data reveal three statistical outliers. Two of those outliers—the Philippines and Mozambique—are countries that have attracted investment in several sectors of infrastructure disproportionate to their country risk ratings. The third country, El Salvador, stands out for having mobilized large amounts of private investment, particularly in telecommunications, relative to the size of its economy. This section looks briefly at these cases to see what lessons may be learned from their relative successes.

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<sup>20</sup> A fuller description of MIGA's products is provided in Appendix 4 and the MIGA list of activities in conflict-affected countries is attached in Appendix 5.

*Philippines:* The most remarkable feature of the Philippines experience in attracting private investment in infrastructure is that investors, both domestic and international, do not demonstrate the behavior of those who are concerned by conflict. A closer look at the data that distinguishes between types of conflict countries suggests that this willingness to accept risk is driven by the nature of conflict. As Table 2 and Figures 7 and 8 demonstrate, countries which have geographically isolated conflicts—e.g., Colombia, Sri Lanka, Russia, Indonesia, Philippines—have had greater success in attracting investment than those experiencing full-blown civil wars or where conflicts have resulted in the failure of the state to retain sovereign control. And while the conflict-affected regions of these countries are probably not receiving much private investment in infrastructure, the trend lines of that set of countries as a whole, as well as their infrastructure investment levels, are similar to those of non-conflict developing countries. Consistent with this trend, the Philippines attracted over US\$13 billion in private infrastructure projects between 1990 and 2002, all while the violent separatist movement waxed and waned on the Island of Mindanao.

In contrast to the Philippines, Mozambique and El Salvador stand out as countries which underwent violent civil wars which left much of the nations' infrastructure devastated. Through a combination of economic stabilization measures and sectoral reform policies, both countries have had a high degree of success in leveraging private capital and expertise in the rehabilitation and expansion of their infrastructure.

*Mozambique: Development corridors and the leveraging of anchor projects* As Mozambique's peace agreement was being signed in 1993, the Government had already begun to liberalize the economy (trade policies, exchange rates, tariffs, banking sector) so as to establish credibility among private investors. While strategic investors were aggressively being sought in the mid-1990s to anchor regional development plans that could generate growth, sectoral reforms were initiated in all infrastructure sectors. In contrast to many other countries, the water sector was the first one to be restructured, followed by railways and ports, then telecommunications, air transport, and power.

The most successful of these growth initiatives has been the Maputo Corridor in which a substantial share of private involvement in Mozambique's infrastructure has taken place. It encompasses the area of highest population density in the country, but is also the center of economic, financial and political activities, and is located only about 500 km from South Africa's capital and economic heartland. The anchor project of the Maputo Corridor is a US\$1.3 billion aluminum plant, MOZAL, which started construction in mid-1998 and was completed within two years. Part of the project was a dedicated port terminal for import of raw materials and export of aluminum which started operating even before the port master concession was in place. A second phase of MOZAL was implemented at a cost of about US\$0.9 billion during 2002-03. Aside from the dedicated terminal, this anchor project has directly led to or has supplemented the economic and financial viability of the following projects:

- Power Transmission: Two power transmission lines were constructed during 1999-00 by South African investors for US\$120 million to supply MOZAL with reliable electricity. They also serve as a back-up system to improve the service quality of the local network in the metropolitan area of Maputo, and could eventually be the basis for inter-connection to Mozambique's center and north. Total capacity is about 850 MW.
- Roads: A US\$180 million cross-border toll road linking Maputo with South Africa's industrial heartland Gauteng was constructed over three years from mid-1998. Truck traffic on the toll road is supplemented by imports and output from the MOZAL plant.
- Ports: A master concession for Maputo port, including dredging and other port services, commenced in 2003 after about five years of a bidding process and negotiations. Investments of US\$70 million are projected. Four smaller terminal concessions, concluded in the mid-1990s, were absorbed into this master concession.

The MOZAL plant has had less direct impact on other PPI projects. However, the impetus of the Maputo Corridor initiative, the precedent of successful industrial-scale transactions and the complementarity of efficient services and infrastructure links has helped to create the necessary momentum and make the following projects viable:

- Rail: The main rail line to South Africa was concessioned in 2003 after about five years of a bidding process and negotiation. Investments of about US\$10 million are projected.
- Water Supply: Water supply in five major cities was entrusted to a private operator in late 1999, for greater Maputo under a lease contract with estimated investments of US\$24 million, and for the other cities under a management contract with estimated investments of about US\$41 million.
- Power Generation: A few small independent power supply schemes with private participation are operational or under preparation outside Maputo.
- Gas: A private investor has recently completed the construction of a US\$1.3 billion new gas pipeline to transport natural gas from the Beira area (Pande/Temane gas fields) to South Africa, with some outlets in Mozambique for domestic gas supplies.
- Telecommunications: Following a tender in 2001, at the end of 2003 the Government issued a license for a second mobile phone network to a private operator which has started service provision in the capital and other selected areas of the country. The company is planning to invest about US\$250 million over the first few years.

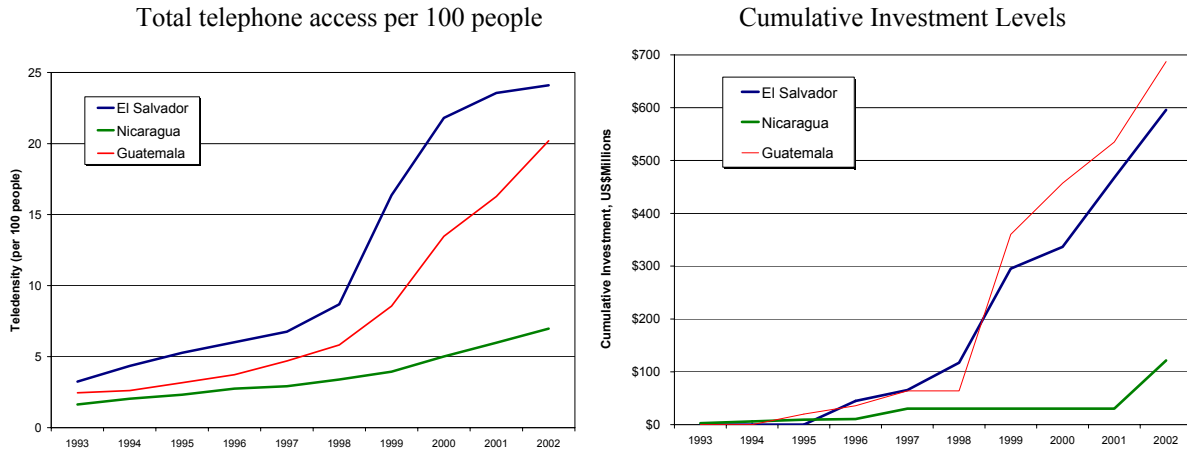
In addition, based on a competitive bidding process, offers from private operators for a concession of the Maputo airport (US\$24 million investment) and on rehabilitation of the Sena rail line from Beira to Moatize (US\$70-90 million investment) have been selected and the respective contracts are scheduled to be signed shortly.

*El Salvador and the Reform of Telecommunications in Central America:* A comparative analysis of the telecommunications sector reforms of El Salvador, Guatemala and Nicaragua provides lessons as to the impact of regulatory risk and the cost of delay when reforming infrastructure sectors. All three countries ended their conflict period in the early 1990s and introduced their sector reform legislation by 1996. El Salvador and Guatemala opted for rapid deregulation whereas Nicaragua chose the slower approach of staged liberalization. The results in terms of private investment and infrastructure are very different.

Up to 2002, private investors in the telecommunications sectors of El Salvador and Guatemala mobilized investments in new facilities (excluding acquisition of government assets) totaling about US\$690 and US\$600 million, the equivalent of \$98 and \$52 per capita, respectively. In contrast, Nicaragua only received US\$121.5 million, the equivalent of \$24 per capita<sup>21</sup>. Despite the fact that the three countries had a similar number of telephone lines (between 1.5 and 2 per 100 inhabitants) at the end of the conflict period, Nicaragua had significantly less subscribers per 100 in 2002. El Salvador and Guatemala had more than 24.1 and 20.2 telephone lines per 100 inhabitants (including cellular), whereas Nicaragua had about 6.9 lines per 100 inhabitants. The insufficient investment created a supply constraint that resulted in about 39% of unsatisfied telephone demand at the end of 2002.

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<sup>21</sup> World Bank PPI Database.

**Figure 14:** Investment in Telecommunications in Post-Conflict Central America, 1993-02

Source: ITU (2003), World Bank PPI Database.

Many factors contributed to the higher private investment in El Salvador and Guatemala as compared to Nicaragua, such as their stronger economic condition and different post-conflict circumstances. However, policy choices exacerbated differences in the development of the sector and the level of private investment.

- **Regulatory Independence:** While risk of regulatory intervention is always a key contributor to the cost of capital, operators in post-conflict environments will be particularly conservative about investing in projects where the regulatory framework eases government intervention. The regulatory entities in El Salvador (SIGET) and Guatemala (SIT) have more autonomy from the Government and operate under the principal of minimal regulation. Their functions are limited to licensing, dispute resolution and radio spectrum regulation. In Nicaragua, the regulator (TELCOR) has a stronger intervening role, as it regulated Enitel's monopoly until 2004. TELCOR is also the policymaking body for the sector and thus remains more dependent on the executive branch.
- **Market Entry:** El Salvador and Guatemala immediately eliminated all barriers to entry into the telecommunications market once their reform programs were underway. Private parties interested in providing telecommunications services needed only to apply for an authorization. Guatemala went further and completely deregulated and privatized its radio spectrum market following a property rights approach.<sup>22</sup> Guatemala demonstrated that if carefully done, this approach can be a viable option for spectrum management. Ibarguen (2003) concludes that liberalization of the radio spectrum in Guatemala has contributed to the high growth in cellular teledensity.

In contrast, Nicaragua established several market entry restrictions such as exclusivity in fixed line (expected to expire in December 2004) and foreign ownership restriction of 49%. Wallsten (2000) finds that exclusivity periods can double the firm's sale price, but at the cost of substantially reducing investment—exclusivity periods are associated with up to a 40% reduction in growth in the number of telephone mainlines. Additionally, despite the fact that most of the investment in new facilities is taking place in developing cellular networks, Nicaragua took until late-2002 to issue additional licenses to competing cellular operators. El Salvador and Guatemala have had competition in cellular services since 1998 and 1999, respectively.

<sup>22</sup> Any individual may request title to any spectrum band not currently in use. Owners of radio spectrum are allowed to lease, sell, or subdivide their titles (Ibarguen, 2003)

- Expediency: All three countries experienced delays in completing their privatization processes, but Nicaragua took the longest. El Salvador and Guatemala privatized their incumbent operators, CTE-ANTEL and TELGUA, in 1998.<sup>23</sup> The latter was delayed due to political and legal disputes. However, in neither of these cases did the incumbent receive an exclusivity period. By contrast, ENITEL from Nicaragua was only partially privatized (40% with management control) until 2001 as part of a two-step process. The delay in completing the process created uncertainty for investors, and left Nicaragua behind the telecom investment boom. Partially as a result of these factors, the price per line valued for Nicaragua was much lower than in the other two countries.<sup>24</sup> While the rationale behind granting an exclusivity period to the buyer was to increase the value of the transaction,<sup>25</sup> the net effect was lower investment, fewer lines and less transfers to the Government.

From the experience of these countries, two main lessons emerge that should be considered for post-conflict countries. The first is the need to eliminate as many regulatory risk factors and barriers to entry as possible. This is particularly true for cellular operators, for which the investment recovery period is very short. The second is to move quickly and avoid complex bidding arrangements meant to maximize the revenues from licenses or asset acquisitions. In the long-run, these upfront costs are generally “funded” out of investments. Although governments in post-conflict situations should be in great need of resources, their priority should be to move quickly to create an enabling regulatory environment that promotes competition, private investment, and consumer benefits.

#### 4. SUMMARY CONCLUSIONS

Governments emerging from conflict will have to move quickly to mobilize resources to ensure basic services provision. In order to do so in a manner that offers the greatest hope for sustainable, reliable and affordable services, they will have to address questions such as:

- How should our policies, regulations and institutional development initiatives be prioritized and structured to maximize the possibility of sustained investment in infrastructure?
- Should we attempt to enter into long-term agreements with infrastructure service providers immediately following a conflict period? If so, will the private sector come? If not, can interim solutions for basic services be provided that meet the needs of our citizens?
- Should local entrepreneurs be encouraged to fill the service vacuum in the interim period?

An analysis of the available data provides some basis for thinking about how governments of post conflict countries could formulate appropriate policies that address these questions.

**Levels of investment in private infrastructure projects.** Private investment in infrastructure does take place in conflict-affected countries, although countries which can be characterized as Weak or Non-functioning States suffer from significantly lower levels of investment than other post-conflict countries given GDP levels. The standard deviation from those means is sufficiently high to suggest that, given the right macroeconomic policies, properly formulated incentives and, perhaps, sovereign or multilateral support, individual conflict-affected countries can succeed in attracting private partners for the rehabilitation and provision of infrastructure. As the points below discuss, the timing, sector and form of that investment are likely to differ between conflict and non-conflict countries.

<sup>23</sup> CTE-ANTEL was acquired (51%) by Estel Consortium (France Telecom), and TELGUA (95%) by Grupo Luca (Telmex)

<sup>24</sup> While the companies in El Salvador and Guatemala were valued at US\$1,100 and US\$1,900 per line, in Nicaragua it was valued at about US\$600 per line (Raventos, 2001).

<sup>25</sup> The Government had decided to use most of the transaction funds as a guarantee to its compensation bonds program, established for owners whose property was expropriated under the Sandinista rule.

**Trends of investment in private infrastructure projects.** Overall trends in PPI are reflected in the PPI levels of all conflict countries, suggesting that conflict-affected countries, when taken as a whole, are subjected to the same supply-side constraints as other developing countries. The 1997 peak in PPI levels, the subsequent decline and the modest rebound in 2000 corresponded with the increases and decreases in PPI in post-conflict countries. The subsequent declines are also common to both groups of developing countries. This suggests that expanding capital markets and upswings in overseas infrastructure investment are as important for most post-conflict countries as for non-conflict countries.

The limited success of Weak or Non-Functioning State conflict countries in completing public-private infrastructure transactions, however, follows a different pattern. Here, large projects may require an “anchor” investment which is not in infrastructure. The lack of correlation between country risk ratings and foreign direct investment supports this argument. That is, oil and gas companies have been quick to return to war-torn countries in West Africa, the Middle East and Central Asia just as mining interests and large smelters have faced difficult environments in the Andes and Central and East Africa. Similarly, forestry concessionaires have shown resilience to political instability concerns in Southeast Asia. Tying sectoral reform initiatives to development corridors which are anchored around direct investment provides economies of scope and scale in the development of infrastructure. Large industrial plants provide a base load for power generation, reliable payment for energy distributors, traffic for road and rail projects, sustained cargo for port terminals, and some demand for treated water and telecommunications services. Just as importantly, they can demonstrate good contractual faith and serve as impetus to reform banking, property and corporate laws and regulations that also benefit infrastructure operators and investors.

**Sequencing of private infrastructure projects.** There is a clear sequencing of sectoral involvement in PPI in conflict countries, with mobile telephony being the only sector likely to attract significant levels of investment in the immediate post-conflict period. The willingness of mobile operators to invest in high-risk environments more closely resembles non-infrastructure industries, reflecting the short cost recovery period of that sub-sector’s economics. Opportunities in power generation, fixed-line telecom services and, to a lesser degree, seaports may also attract PPI after conflict although even these sub-sectors generally take a few years. Rail, roads, power distribution and water projects are likely to appear too risky for several years after a conflict has ceased to attract significant levels of investment.

The long hiatus that is often experienced by conflict-affected countries in need of infrastructure investment may be the result of donor-driven, short-term arrangements playing themselves out followed by attempts to reintroduce state-owned enterprises and government agencies as operators. Once these options have been exhausted, countries often turn to private sector or public-private alternatives. The long lead time before reform is attempted may be shortened by considering stepped arrangements in the immediate post-conflict period in conjunction with quick movement in the establishment of sectoral regulatory and legal frameworks. Stepped arrangements may include a planned progression from modest forms of private participation in infrastructure—such as service or management contracts—to deeper forms—such as leases with investment contributions or long-term concessions. The first steps generally involve little investment risk assumption by private operators and may be of particular attraction to national or regional companies.

The arrangements that define the rehabilitation program, however, should reflect the long-term interests of the sector. If a government assumes a large loan from a donor—even at highly concessional levels—to rehabilitate a fuel terminal or build out general cargo facilities at a port, it may be wise to ensure that future private sector investment is not precluded by the loan agreements. The value of those assets to the future economic activity of the country will be much greater than the difference between repaying a loan at concessional versus non-concessional rates. In other words, the advantages of a private port developer and operator coming in after year 4 of peace may greatly outweigh the benefits of a concessional loan-

financed public port project that is initiated a year earlier. If water services are a major concern immediately following conflict, for example, a public rehabilitation program may be necessary, perhaps through a management contract with a private company or “investment overseer.”

**Importance of small-scale private service providers.** Although existing databases do not capture the entrepreneurial activities of local small-scale service providers in a comprehensive or consistent manner, case studies and user surveys suggest that these actors play a key role in the absence of governments and established utilities. The role that the government plays in welcoming and encouraging these providers may prove crucial to peri-urban, rural and other poor and isolated communities.

The first act of government in this area would be to refrain from shutting down small-scale private service providers, however exorbitant their tariffs seem at first. Other initiatives by the government or from non-governmental organizations and the donor community might include: financial and technical support to micro-finance and small banking institutions with outreach for private and community infrastructure provision; assistance in the development of basic licenses and other contractual arrangements that legitimize these businesses without regulating them into bankruptcy; training to providers or potential providers (i.e., construction firms) of basic infrastructure in business planning, public-private contracting, the identification of collateral, and association building; and support for the design and implementation of community-based users’ groups to provide a minimal level of regulation.

**Importance of Country Risk Ratings.** When it comes to attracting PPI, post-conflict countries are more sensitive to improvements in country risk ratings than other developing countries. Moreover, their country risk ratings are lower, on average than other countries. In contrast, general foreign direct investment cannot be correlated to country risk ratings for non-conflict countries or for conflict countries. This suggests that infrastructure investors and operators are more sensitive to perceptions of political and economic stability than investors in other businesses, such as extractive industries or final assembly industries. Moreover, improvements in the political and economic risk ratings of post-conflict countries may lead to faster increases in infrastructure investment than in other developing countries.

As discussed in Section 3.4, many of the elements of country risk can only correct themselves over time assuming a prolonged period of stability and economic growth. Other factors, however, may be affected by government policy and support from the donor community. Those factors which are influenced by government actions include the government’s track record in the payment for publicly contracted goods and services, as well as regulations that allow for investors to repatriate capital. Donors in the meantime may assist with the re-establishment or deepening of short-term finance, banking, insurance and other capital markets.

Establishing an early track record in attracting private investment and demonstrating good contractual faith can have a positive demonstration effect on other potential private investors. Since telecoms operators tend to be the first to arrive in post-conflict settings, it is important that government reforms and regulatory approaches facilitate these investments and thus begin to change country risk ratings and investor perceptions.

For those elements of risk that require further mitigation, guarantees and insurance products may be purchased which cover risks ranging from revenues and traffic levels on the commercial side, to expropriation, inconvertibility, war and civil disturbance and even breach of contract on the government side.

## Annex 1: List of Weak or Non-functioning and Functioning Conflict Countries<sup>26</sup>

<b>Conflict Countries: Weak or Non-Functioning State, Widespread Conflict</b>	<b>Conflict Countries: Functioning State, Regional Conflict</b>
Afghanistan ( <i>Low Income</i> )	Colombia ( <i>Lower Middle Income</i> )
Angola ( <i>Low Income</i> )	Peru ( <i>Lower Middle Income</i> )
Algeria ( <i>Lower Middle Income</i> )	Philippines ( <i>Lower Middle Income</i> )
Azerbaijan ( <i>Low Income</i> )	Russian Federation ( <i>Lower Middle Income</i> )
Bosnia and Herzegovina ( <i>Lower Middle Income</i> )	Sri Lanka ( <i>Lower Middle Income</i> )
Burundi ( <i>Low Income</i> )	Turkey ( <i>Upper Middle Income</i> )
Cambodia ( <i>Low Income</i> )	
Congo, Democratic Republic of ( <i>Low Income</i> )	
Congo, Republic of ( <i>Low Income</i> )	
El Salvador ( <i>Lower Middle Income</i> )	
Ethiopia ( <i>Low Income</i> )	
Georgia ( <i>Low Income</i> )	
Iraq ( <i>Lower Middle Income</i> )	
Lebanon ( <i>Upper Middle Income</i> )	
Liberia ( <i>Low Income</i> )	
Mozambique ( <i>Low Income</i> )	
Myanmar ( <i>Low Income</i> )	
Nicaragua ( <i>Low Income</i> )	
Rwanda ( <i>Low Income</i> )	
Sierra Leone ( <i>Low Income</i> )	
Somalia ( <i>Low Income</i> )	
Sudan ( <i>Low Income</i> )	
Tajikistan ( <i>Low Income</i> )	
Yemen, Republic ( <i>Low Income</i> )	
Yugoslavia, FR ( <i>Lower Middle Income</i> )	

<sup>26</sup> The combined list of conflict countries is taken from Collier and Hoeffler, 2001. The authors of this paper do not reinterpret the data or the application of the conflict definition to countries in this list. The authors have placed into the Functioning State category those nations where the conflict is both clearly recognized as having a geographically limited conflict and where the country is not categorized as LICUS (Low-Income Country Under Stress) by the World Bank.



## Annex 2: Role of PPIAF in Post-Conflict PPI

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The Public-Private Infrastructure Advisory Facility (PPIAF) is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. Launched in July 1999, PPIAF was developed at the joint initiative of the governments of Japan and the United Kingdom, working closely with the World Bank. The Facility now has a Program Council that includes 14 donors with annual contributions of approximately US\$18million. PPIAF pursues its mission by channeling technical assistance to governments in developing countries on strategies and measures to tap the full potential of private involvement in the power, water, transport and telecommunications sectors and identifying, disseminating, and promoting best practices on matters related to private involvement in infrastructure in developing countries.

PPIAF has played, and continues to play a significant role in the rehabilitation of infrastructure in post-conflict countries. Governments emerging from war and civil conflict face the paradox of having the greatest need for service provision at the very time that investor confidence is at its lowest. Too often this leads to short-term and ultimately unsustainable solutions for infrastructure rehabilitation or to the emergence of private service providers charging exorbitant premiums to cover the investment risks. PPIAF has provided support to post-conflict economies—such as Afghanistan, Angola, Bosnia-Herzegovina, Cambodia, Kosovo, Mozambique and Rwanda—so that they can attract private operators and investors under arrangements offering long-term solutions for service provision. Having already funded 54 activities amounting to over US\$14 million, PPIAF emphasizes the importance of an appropriate investment environment and sustainable infrastructure services in conflict-affected countries to sustain growth, stability and poverty alleviation. Activities to date have included sector reform strategies; legal and regulatory capacity building; strategies for small-scale infrastructure providers; and support to innovative transaction design.

## Annex 3: Regression Results

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### Regression 1. Country Risk vs. PPI in Non-Conflict Countries

Dependent Variable: PPI per GDP

Method: Least Squares

Sample (adjusted): 2 136 IF DUM\_CONFLICT=0

Included observations: 90

Excluded observations: 16 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Country Risk	0.018097	0.006692	2.704304	0.0082
C	0.275425	0.264319	1.042018	0.3003
R-squared	0.076729	Mean dependent var		0.947566
Adjusted R-squared	0.066237	S.D. dependent var		0.883036
S.E. of regression	0.853290	Akaike info criterion		2.542537
Sum squared resid	64.07316	Schwarz criterion		2.598089
Log likelihood	-112.4142	F-statistic		7.313260
Durbin-Watson stat	2.210392	Prob(F-statistic)		0.008216

Sample: 1 136 IF DUM\_CONFLICT=0

	PPI per GDP	Country Risk
Mean	0.947566	37.14000
Median	0.712996	35.79500
Maximum	4.429942	69.75000
Minimum	0.000000	15.11000
Std. Dev.	0.883036	13.51571
Skewness	1.437252	0.691869
Kurtosis	4.989835	2.601355
Jarque-Bera	45.83330	7.776179
Probability	0.000000	0.020484
Observations	90	90

## Regression 2. Country Risk vs. PPI in Conflict Countries

Dependent Variable: PPI per GDP

Method: Least Squares

Sample (adjusted): 3 133 IF DUM\_CONFLICT=1

Included observations: 22

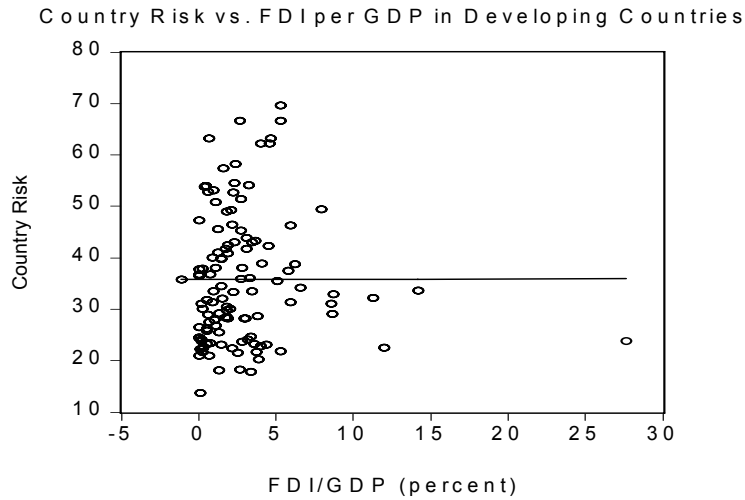
Excluded observations: 2 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COUNTRY_RISK	0.023753	0.017864	1.329670	0.1986
C	0.221470	0.561354	0.394527	0.6974
R-squared	0.081221	Mean dependent var		0.901769
Adjusted R-squared	0.035282	S.D. dependent var		1.103039
S.E. of regression	1.083406	Akaike info criterion		3.084604
Sum squared resid	23.47536	Schwarz criterion		3.183790
Log likelihood	-31.93065	F-statistic		1.768023
Durbin-Watson stat	0.273943	Prob (F-statistic)		0.198594

Sample: 1 136 IF DUM\_CONFLICT=1

	PPI_PER_GDP	COUNTRY_RISK
Mean	0.901769	28.64045
Median	0.575633	22.81500
Maximum	4.543699	52.83000
Minimum	0.000000	0.000000
Std. Dev.	1.103039	13.23444
Skewness	2.054548	0.247214
Kurtosis	6.975971	2.674426
Jarque-Bera	29.96860	0.321252
Probability	0.000000	0.851610
Observations	22	22

### Regression 3. Country Risk vs. FDI in Developing Countries



Dependent Variable: FDI per GDP

Method: Least Squares

Sample(adjusted): 2 137

Included observations: 118

Excluded observations: 18 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Country Risk	0.000180	0.025421	0.007100	0.9943
C	2.735164	0.966165	2.830948	0.0055

R-squared	0.000000	Mean dependent var	2.741635
Adjusted R-squared	-0.008620	S.D. dependent var	3.464293
S.E. of regression	3.479193	Akaike info criterion	5.348282
Sum squared resid	1404.155	Schwarz criterion	5.395242
Log likelihood	-313.5486	F-statistic	5.04E-05
Durbin-Watson stat	2.155675	Prob(F-statistic)	0.994348

	FDI Per GDP	Country Risk
Mean	2.741635	35.85678
Median	1.875359	33.46500
Maximum	27.62099	69.75000
Minimum	-1.148373	13.81000
Std. Dev.	3.464293	12.65274
Skewness	3.862187	0.720183
Kurtosis	25.09235	2.754593
Jarque-Bera	2693.045	10.49648
Probability	0.000000	0.005257
Sum	323.5129	4231.100
Sum Sq. Dev.	1404.155	18730.73
Observations	118	118

## Annex 4: The Role of MIGA in Mitigating Risks for Private Investors in Infrastructure in Conflict-Affected Countries

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MIGA provides political risk insurance for private investors in its member countries. Political risk insurance is particularly important for infrastructure projects that involve commercial debt financing, because financial institutions will usually not go forward with providing loans without some form of risk mitigation against political risks. In conflict-affected countries, key deterrents to investment include the threat of renewed violence, weak governments, the absence of adequate business laws and regulations, lack of enforcement of the rule of law, unclear ownership rights, and no functioning courts. MIGA can help to mitigate the risks of foreign investors in all these areas, including to help the return of flight capital.

MIGA provides guarantees against the following types of risks:

- **Transfer Restriction and Inconvertibility:** losses that the investor incurs as a result of inability to convert local currency into foreign exchange and/or transfer foreign exchange out of the host country.
- **Expropriation:** losses arising from host government actions that reduce or eliminate the ownership over, or rights to, the insured investment. In this regard, MIGA also protects against “creeping” expropriation, i.e., a series of acts that, over time, have an expropriatory effect.
- **War and Civil Disturbance:** losses arising from the physical damage to or disappearance of the investment project as well as prolonged business interruptions due to war and civil disturbance in a country, including terrorism and sabotage.
- **Breach of Contract:** losses resulting from a breach or repudiation by the government of its contractual obligations with the investor. The investor must invoke a dispute resolution mechanism and obtain an award for monetary damages. Only if the award is not enforced, will MIGA pay compensation.

MIGA’s Breach of Contract cover is a particularly powerful instrument for attracting private investment in infrastructure sectors, where the government often is a partner as supplier or off-taker. The following are examples of risks that can be covered by MIGA under Breach of Contract:

- Legal risk: the possibility of revocation of licenses or concessions;
- Tariff risk: non-enforcement of contractually agreed tariff adjustments (power, water, etc.);
- Regulatory risk: the risk of unilateral government actions to change the standards for quality, service coverage, environmental standards, etc. which may impair the financial viability of the project;
- Wrongful call of performance bonds posted by the private operator; and
- Sovereign (sub-sovereign) risk: the risk that a sovereign (sub-sovereign) guarantee to backstop the payments by the utility is not honored or the risk that, in a public sector project, the sovereign (or sub-sovereign) will fail to honor its payment obligations to creditors directly.

To date, MIGA has extended US\$715 million in guarantees for infrastructure projects in conflict-affected countries. MIGA has set up two Guarantee Trust Funds to leverage its own resources with that of donors in high risk environments. The first such Trust Fund was for Bosnia and Herzegovina, funded by the European Commission in the amount of EUR10 million. MIGA used the trust fund to leverage its own capital resources, and in total issued US\$70 million worth of guarantees for five projects (financial and

manufacturing services, and one health care project). The second Guarantee Trust Fund is for West Bank and Gaza, in the amount of US\$20million, funded by the Palestinian Authority, the European Investment Bank and bilateral donors. Unfortunately, due to the continuing difficult political situation in the region, this Trust Fund was used only once for a project in the services sector.

MIGA has also developed a special program to facilitate the provision of insurance for small investment projects (the Small Investment Program or SIP) that require guarantees of up to US\$5 million. SIP provides a streamlined underwriting process and a standardized insurance package. This program is available for conflict-affected countries.

## Annex 5: MIGA Guarantees in conflict Countries

Investor Name	Investor Country	Host Country	Sector	Contract Enterprise	FY Issued	Max Gross
The Chase Manhattan Bank	USA	Indonesia	Fixed Telecom	P.T.-ARIA WEST International	1997	11,951,289
US WEST International Holdings, Inc.	USA	Indonesia	Fixed Telecom	US West International BV or P.T.-ARIA WEST Int.	1997	1,991,881
Mauritius Telephone Networks International Ltd.	Mauritius	Burundi	Mobile Telecom	Africell S.A.	2003	910,622
Ericsson Credit AB	Sweden	Nigeria	Mobile Telecom	GSM and other wireless	2002	50,000,000
Econet Wireless Limited	United Kingdom	Nigeria	Mobile Telecom	Econet Wireless Nigeria Limited (EWN)	2002	40,000,000
Ericsson Credit AB	Sweden	Nigeria	Mobile Telecom	Econet Wireless Mobile	2002	10,000,000
Mobile Telephone Networks International Ltd.	Mauritius	Nigeria	Mobile Telecom	Mobile Telephone Networks Nigeria Communicati	2003	45,000,000
Azertel Telekomunikasyon Ve Dis Ticaret A.S.	Turkey	Nigeria	Mobile Telecom	Mobile Telephone Networks Nigeria Ltd.	2003	5,000,000
Pamukbank T.A.S	Turkey	Azerbaijan	Mobile Telecom	Azercell Telecom MMM	2000	30,023,247
Bank Kreiss A.G.	Germany	Azerbaijan	Mobile Telecom	Azercell Telecom MMM	2000	16,822,361
Motorola, Inc.	USA	Colombia	Mobile Telecom	Motorola Int. Development Corporation, in Moviflink, S.A.	1997	5,000,000
ABN AMRO Bank N.V.	Netherlands	Colombia	Mobile Telecom	Avantel S.A.	1997	30,000,000
Ewekoro Power Plant Sales Ltd.	United Kingdom	Nigeria	Power	Ewekoro Power Ltd	2003	19,000,000
Rolls-Royce Power Ventures	United Kingdom	Nigeria	Power	Ewekoro Power Limited	2003	540,000
Coastal Power Khulna Ltd	Cayman Islands	Bangladesh	Power	Khulna Power Company Ltd.	1999	29,340,000
Capital Indonesia Power I C.V.	Netherlands	Indonesia	Power	P.T. Paiton Energy Company	1996	50,000,000
Kvaerner Energy A.S.	Norway	Nepal	Power	Himal Power Limited	1996	1,800,000
ABB Kraft AS	Norway	Nepal	Power	Himal Power Limited	1996	1,800,000
Statkraft SF	Norway	Nepal	Power	Himal Power Limited	1996	29,227,063
Bergenshalvoens Kraftselskap AS	Norway	Nepal	Power	Himal Power Limited	2002	11,005,922
Magma Netherlands, B.V.	Netherlands	Philippines	Power	California Energy Corp., Inc./Visayas Geothermal Power Co.	1995	30,000,000
Enron Corp.	USA	Indonesia	Power	Enron Java Power Corp.	1997	15,000,000
Union Fenosa Int. S.A.	Spain	Guatemala	Power	Distribuidora Electrica del Caribe, S.A.	2001	96,570,000
Dunridding Compant N.V.	Netherlands	Colombia	Power	Termotasajero S.A. E.S.P.	1999	62,415,000
Ormat International, Inc.	USA	Guatemala	Power	Ormat Invest. Corp.& Ormat Holding Corp.to Orzumil Ide Elect.	1997	8,453,894
Ormat International, Inc.	USA	Guatemala	Power	Ormat Invest. Corp.& Ormat Holding Corp.in Orzumil Ide Elect.	1997	4,484,838
Ormat Holding Corp.	Cayman Islands	Guatemala	Power	Orzumil I de Electricidad Limitada	1999	1,575,000
ING Bank N.V.	Netherlands	Guatemala	Power	Orzumil I de Electricidad, Limitada	2000	11,800,000
Westdeutsche Landesbank Girozentrale	Germany	Philippines	Transportation	Manila North Tollways Corporation	2001	82,000,000
Egis Projects S.A.	France	Philippines	Transportation	Manila North Tollways Corporation	2001	5,000,000
<b>TOTAL</b>						<b>715,529,199</b>

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