

# **Financing Options and a Regional Strategy to Promote Pro-Poor Growth in Africa**



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Gregory R. Gajewski, Ph.D.  
Vice President, Economic Development  
The Louis Berger Group, Inc.

[ggajewski@louisberger.com](mailto:ggajewski@louisberger.com)

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1.	Abstract.....	3
2.	Summary and Introduction .....	3
3.	Spatial Development Initiative (SDI) and Institutions Supporting Corridors.....	6
4.	Approach to Distribution/Poverty Impact Analysis .....	10
5.	Using Process Monitoring to Improve Results.....	18
6.	Lessons Learned.....	19
7.	A New Framework for Regional Economic Development.....	19
8.	Financial Requirements.....	22
9.	Conclusion .....	27





## 1. Abstract

Combining existing financial tools, the Spatial Development Initiative (SDI) with some modifications, and a distribution and poverty impact analysis (DPA) tool, policymakers can implement a new regional economic development strategy that should lead to pro-poor economic development. There has been a rapid increase in the number of multinational transport corridors in Sub-Saharan Africa in the past decade. Simultaneously, there has been a marked increase in continental and international institutions that support transport corridors and their development with increased private investments, technical assistance, targeted donor support to finance these corridors, as well as political support. Among the many corridors operational in Sub-Saharan Africa, two of the oldest and one from Asia are used to draw some implications that support the new regional development approach. Some of the institutions that finance and support the corridors are also discussed. Financing alternatives are presented for the new infrastructure, the new institutions to manage the regional initiative, and the new enterprises to be developed along the corridor to create jobs and pro-poor growth. The DPA tool is explained, as is a new monitoring and evaluation tool. Then the elements are put together for the new regional strategy. Finally the financing mechanisms and the institutions that could support implementing the strategy are discussed.<sup>1</sup>

## 2. Summary and Introduction

The recent increase in commodity prices has increased the value and volume of exports from Sub-Saharan Africa, improving real GNP growth rates in many countries. But rising commodity prices also mean higher food prices. These are causing riots in some nations in the region, and increasing the number of hungry people. So the benefits from the growth are not distributed evenly; poverty is likely now rising in many of the Sub-Saharan nations. The World Bank has recently forecast that the increase in commodity prices may continue indefinitely. And the World Bank and IMF are forecasting that Africa will not meet the Millennium Development Goals by 2015, the target date.

Though Sub-Saharan Africa is rich in natural and human resources, the region continues to experience endemic poverty, uneven economic development and depends on sparse, low-quality road networks. Sub-Saharan Africa's diverse geography, numerous agro-ecological zones, distinct cultures, political instability, weak financial institutions, and armed conflicts contribute to the challenges of regional economic development using export-led growth. Paradoxically, the rich natural resource base often proves to be yet another trap for Sub-Saharan nations. The amount of aid that has been poured into Sub-Saharan Africa is staggering for the small gains realized; and it is clear that new approaches to development are required. And the new paradigm developed by Collier (2007) needs to be taken into account in all development activities in Sub-Saharan Africa. Moreover, according to "Doing Business in 2008: Comparing Regulations in 178 Economies." (The World Bank, 2007), Sub-Saharan Africa continues to stagnate regarding the business environment compared to the world's other major regions, and is the worst overall for private sector development.

Based on reviews of other corridor development plans, knowledge of existing financing mechanisms, research on poverty alleviation, and some new work on process monitoring, I recommend a new regional planning approach named the *Infrastructure-Led Economic Corridor Development Program*. Alternative financing mechanisms that rely on the private sector are used to the extent possible so that the inefficiencies of financial aid are minimized. The program includes a distribution/poverty impact analysis (DPA)

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component at the project level for every project in the program<sup>2</sup> along with the use of process monitoring to keep the program on track. The new regional approach defines the roles of the public and private sectors in developing transport corridors into broad regional economic development programs. Using the DPA at the project level gives policymakers and private investors insights as to which stakeholder groups gain and which groups lose when a project is implemented. The analysis gives a measure of a project's risk that is independent of the estimated rate of return at the feasibility stage. Also, the analysis shows the expected share of economic benefits that are likely to accrue to the poor, and the policy actions that would increase that share. The use of "process monitoring" as projects are implemented and monitored over time increases the odds of the program's success. That is because process monitoring means that as a project is implemented, as problems arise, or new constraints blocking benefits to the poor are found by the monitors, then the monitors issue "requests for immediate action" to the corridor authority, who can then quickly remedy the situation and put the project back on track, and address the new constraints found that block a larger share of the benefits from going to the poor. I also explain how the relatively new concept of process monitoring works and is different from existing monitoring and evaluation programs.

The spatial development initiative (SDI) is a program designed by the public sector, often with private sector input, where the public sector commonly identifies specific and usually large "anchor projects" along a transport corridor, that with private investment will act as catalysts to economic growth in the corridor's region. In addition, the public sector must attempt to remove constraints to private sector investment, business development, and promote public-private partnerships. The goal is to unlock the economic development potential of a particular region surrounding a transport corridor. These corridors most often span several nations. Creating an enabling environment for business and investment not only enhances the region's overall economic growth, but provides opportunities for many different stakeholder groups in the region. Two of the oldest programs that have used the SDI approach are reviewed here:

- Maputo Development Corridor (MDC) (Mozambique and South Africa)
- Trans-Kalahari Corridor (TKC) (Botswana and South Africa)

I show the lessons learned and the benefits of SDI through these two projects, and also review another project that takes a transport-corridor approach to regional development that does not use the SDI method. The Asian Development Bank (ADB) supports this and other corridors in its relatively new emphasis on regional integration through multinational corridors. The project is:

- The East-West Economic Corridor (EWEC) (Asia, Greater Mekong Subregion)

The distribution/poverty impact analysis component I propose including in all proposed project analysis is a context-specific method to distribute a proposed project's economic benefits and costs between different stakeholder groups, with special attention to the share of net benefits that are expected to go to the poor. This method applies to all types of projects where the benefits and costs can be reasonably quantified. As examples, I present a précis of two applications of the method to roads projects in Tajikistan and Timor Leste. The need for a Transport Corridor Coordinating Authority is made clear, and its role is defined in the corridor development process. I then include process monitoring as a method to increase the odds of the program's success.

Reducing trade barriers is critical to this new approach and all multinational corridor development programs. The South African Development Community (SADC) and the Common Market for East and Central Africa (COMESA) have made great strides in reducing these barriers, and this is briefly noted in the paper. The New Partnership for Africa's Development (NEPAD) is also committed to reducing poverty, improving the enabling environment for the private sector, and improving political stability.

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<sup>2</sup> The DPA was initially developed by the Asian Development Bank and then improved upon through its applications by the Louis Berger Group, Inc. See De Guzman, Franklin D. *Assessing the Use of Project Distribution and Poverty Impact Analyses at the Asian Development Bank: Technical Note 13 ERD Technical Note Series*, October 2005.





All large transport infrastructure programs require substantial financial capital. I review potential sources for this capital, and methods for host countries to repay the loans needed to acquire the capital, or other ways of using the infrastructure to meet its financing needs. Public-Private Partnerships (PPPs) are a popular mechanism both to raise capital and to bring in the efficiency of the private sector to infrastructure programs. The roles, costs, and benefits of PPPs are reviewed here, as are the roles of different road user fees in the Sub-Saharan context. Road tolls are a popular tool to raise money from road users, and they are discussed along with another key type of road user fee, the fuel tax. Road user fees are a standard technique to finance infrastructure, but many introduce inequities so that the poor pay a high proportion of the fees relative to their incomes. Care must be taken so that the fees do not exacerbate income inequalities that can lead to social tensions and political unrest. In financing the new regional development approach, I cover the proper roles for the public and private sectors.

The objective of the new regional approach is to promote economic development and alleviate poverty by implementing programs that are economically efficient, but at the same time, attempt to maximize benefits to the poor. For the regional program, the public sector is tasked with: creating an enabling environment in which the private sector can prosper; and providing an environment that supports pro-poor growth. The public sector is also expected to provide needed roads and other infrastructure that, in many regions, the private sector is not able to efficiently provide, or provide at all, as a catalyst for development. The public sector must be very cautious about subsidizing private investments in what the public sector believes to be the key anchor projects. While the public sector may identify possible opportunities for private-sector investment, it is the job of the private sector to choose the projects most likely to succeed. Within this context, pro-poor development must be carefully managed so as not to cause the non-poor or other stakeholder groups to oppose and block the program. It is also important to monitor and evaluate the outcome of projects as they are implemented using process monitoring. Process monitoring means that the experts who are doing the monitoring identify unforeseen problems or policy constraints and recommend to the implementers ways to fix these problems as they arise. All these functions call for the participating nations to establish a Transport Corridor Coordinating Authority (TCCA) to manage the corridor's development.

The paper is organized as follows. In Section 3, the Spatial Development Initiative is explained, and the rapid growth in the application of the concept to Sub-Saharan Africa is discussed. There are many institutions now involved in developing these transport corridors, and the major ones along with their new activities are briefly reviewed. The case studies of the three corridors are presented, along with some new material on the costs and time savings from Sub-Saharan Africa's transport corridors. I explain the Distribution and Poverty Impact Analysis method and how to use it in Section 4. Section 5 develops the monitoring and evaluation component of the regional development approach: process monitoring, and why it is superior to other M & E systems. Section 6 draws on the best elements of the corridor approach to lay out the fundamentals needed for transport corridors to be transformed by the new regional development approach, including the financing aspects of developing the corridors and developing the regions that the corridors pass through. The Infrastructure-Led Economic Corridor Development Program is detailed in Section 7, including the importance of the Transport Corridor Coordinating Authority (TCCA).

Without financing none of the infrastructure-led regional development program can be applied to promote growth and reduce poverty. Essential financing components are discussed in Section 8. Section 8 discusses the different mechanisms and institutions needed to finance the key components of the new development program. These components are the actual transport infrastructure, the TCCA, and the new businesses that will spring up along the corridor's length and hinterland. It also discusses the roles of the private and public sectors in financing and managing the different aspects of the development program. Here are also some details on Public-Private Partnerships (PPP's) and the risks and benefits of these arrangements. Also discussed are the use of road user fees and other sources of funding and the institutions needed to operate and maintain the new development program. Section 9 lays out the main conclusions of the paper.





### 3. Spatial Development Initiative (SDI) and Institutions Supporting Corridors

The Spatial Development Initiative (SDI) is an approach to economic development conceived and launched in South Africa by the country's Transport and Trade and Industry Departments. The public sector is to remove or alleviate constraints to private-sector growth. Going a step further, the public sector should develop legal, regulatory, and institutional conditions that are favorable to private-sector investment and promote the development of public-private partnerships (PPPs). The ultimate goal is to unlock the economic development potential of carefully chosen spatial locations in a given multi-country-region along a transport corridor. The concept has evolved to include the use of large "anchor projects" that are the catalysts to growth along the chosen transport corridor. The main objectives of SDIs are to:

- 1) Create sustainable economic growth and development in underdeveloped areas. The areas selected must have some potential for economic growth.
- 2) Create long term and sustainable employment for the inhabitants of the chosen area/region.
- 3) Facilitate private sector investment and financing into the SDI area which will take some of the costs and risks from the public sector through PPPs.
- 4) Take advantage of the development spin-off opportunities that come out of the new private and public sector investments.
- 5) Exploit under-used potential of the region around the corridor to develop export-led growth.

The SDI approach is a long-term strategy based on geographic linkages, improved private-sector investor intelligence through linking the right projects to the right investors, reaching a critical mass in investment, and working with local agencies and stakeholders to ensure follow-through. National and regional governments must first agree on a region surrounding a transport corridor that has the potential for development, achieve "buy-in" from the top levels of the National governments, establish a regional coordinating institution, develop pre-feasibility studies on the potential private-sector projects in the region, identify and conduct pre-feasibility studies of the public-sector financed infrastructure to be supplied/improved, and then hold an "investors conference" to advertise the private-sector opportunities in the region. The most successful SDI is built around a key anchor project, as the case studies demonstrate.

Many projects under SDIs have a PPP component. The SDI program in South Africa, for example, is led by the Departments of Trade and Industry, and Transport, and the focus is on international competitiveness, regional cooperation, and a diversified ownership base by including the private sector through PPPs. Potential impacts of SDIs are the creation of investor "comfort zones," new investment, easier access to private, public, and donor finance, increased employment, local economic growth, and regional economic integration of infrastructure, policy, strategy, and regulations. One of the key requirements is that the public sector must improve the policy and business environment in the corridor's region. This includes resolving legal and regulatory issues that attract or impede business and investment. In many developing countries, there still exist many structural constraints to starting a new business. In Uganda, for example, 17 procedures are required to start a new business - one of the highest in the world.<sup>3</sup> Other countries require excessive amounts of time, capital, and administrative barriers to start a new business. The lack of fair contract enforcement (complex, time-consuming, and costly court proceedings) is another constraint that many countries must address in order to better foster a business and investment-friendly environment. Cross-border differences in these constraints and requirements will make some business ventures more challenging than necessary. Trade barriers in the form of complex border crossing procedures, tariffs and quotas block private-sector exports. The presence of numerous constraints to starting and operating a business will sharply reduce the potential economic opportunities of the whole corridor. Rigid labor laws, unfavorable tax regimes, and the lack of clear property titles are additional structural constraints that weaken the business and investment climate.

<sup>3</sup> World Bank. *Doing Business 2005: Removing Obstacles to Growth*, P. 18.





SDIs cannot be properly developed without the buy-in of the public sector at both the international, national, and regional levels. Political will to make the SDI work at the highest levels of government is crucial: the heads of states within the corridors' host countries must personally push for the corridor to develop if the SDI is to be a success. Institutional weaknesses, however, often can dampen the resolve of the top leadership and this reduces the effectiveness of SDIs. Such weaknesses arise from political instability or a lack of capacity. The lack of coordination between city-level municipalities and district governments can result in ad hoc project implementation which causes misunderstandings and confusion among both the public and private sector parties involved. This is where the role of the regional coordinating authority becomes clear, as in the case studies presented here. But again, political commitment at all levels to the needed reforms is essential for the success of the initiative. Political commitments are necessary because many of the activities to develop the economic corridor require reforms at the international- national- and sub-national-levels. In the Maputo case study, for example, the Maputo Framework Agreement was signed by the Ministers of Transport from South Africa and Mozambique in July 1996, following the bilateral discussions held in 1995. Moreover, the Presidents of both countries were strongly behind the initiative. Below are two examples of the SDI approach that have been successfully applied in Sub-Saharan Africa, and a corridor approach used in South East Asia that did not use the SDI.

### **Maputo Development Corridor (MDC)**

The Maputo Development Corridor (MDC) is a joint effort by the governments of South Africa and Mozambique, started in 1995, and is the shortest transit route from the northern provinces of South Africa to Maputo. The SDI method is being used to develop the MDC and its objective is to reestablish this corridor which once carried 40 percent of all exports from the Johannesburg and Transvaal areas to the port at Maputo. Road and rail links are being upgraded and constructed between Witbank and Maputo, and a modern, integrated border post is being developed to accelerate movement between South Africa and Mozambique. Most of these projects have already been completed.

The MDC area is one of the most highly industrialized and productive regions of South Africa and Mozambique. There is a high concentration of manufacturing, processing, mining and smelting industries in the west, and steel mills, petrochemical plants, quarries, mines, smelters and agricultural plantations in the east. The key anchor project for this SDI is the Mozambique Aluminum Smelter (MOZAL) which spearheaded the efforts to improve the road and rail links, and the development of the Maputo harbor described below. Without the great potential for an aluminum smelter presenting a need for better access to export markets, it is questionable if the big institutional changes that were needed to allow the private sector to operate and improve the related infrastructure would have occurred.

The Public Private Partnership concept using the Build-Operate-Transfer (BOT) mechanism was applied to three key infrastructure projects. A 30-year concession of the Witbank-Maputo road was awarded to a French-led team and was initiated in 1997. A 15-year concession for the development of the rail links was awarded to an international consortium along with the South African national rail operator and the national rail operator of Mozambique. For the Maputo harbor concession, a unique 15-year BOT arrangement was made under which the entire port authority was concessioned to a company controlled entirely by the private sector. As a result of these actions, private investors were willing to build MOZAL, and using the very inexpensive hydropower in Mozambique, import bauxite from Australia to smelt the aluminum, and export it through Maputo harbor and along the corridor to South Africa.

The Mepanda-Unca hydro-electric project on the Zambezi River, the development of the multi-national Wild Frontier Tourism initiative, and a joint venture between the electric utilities of Mozambique, Swaziland, and South Africa are some of the spin-offs produced by the MDC SDI as a result of PPPs and private sector investments. Although it is difficult to quantify the exact impact of the SDI, it is clear that some of the activities and processes instituted by the SDI have spurred new investments and created jobs. While the estimates are rough, the early successes of the SDI appear to have been: 8,000 new permanent jobs, new investments totaling \$600 million, and 15,000 new temporary jobs for construction. In 2004, the Human Science Research Council of South Africa had counted more than \$3 billion in investment into the MDC SDI. Other measurements of the impact of the MDC SDI include an increased flow of people across borders and increased exports. The benefits continue to increase according to the latest data as of the time of writing





this paper. Yet there are many constraints to be overcome and several action plans have been developed (USAID, 2007) and the Maputo Corridor Logistics Initiative (MCLI) is active in involving stakeholders to move forward to improve the corridor.

The risks viewed by the private sector are high relative to the returns. In terms of financing, the Multilateral Investment Guarantee Agency (MIGA) has guaranteed the private equity in the port concession (MIGA, 2008). The aluminum plant was financed in part by the International Finance Corporation (IFC, of the World Bank Group) and loans were guaranteed by MIGA. Without these types of financing and guarantees by the World Bank Group or other international institutions, even the most promising corridors will lack the required private-sector financing and operational expertise.

### **The Trans-Kalahari Corridor (TKC)**

The Trans-Kalahari Corridor is made up of highways connecting the shortest route from the Walvis Bay Port in Namibia through Botswana and the Gauteng Province of South Africa. In 2000, the underutilization of this series of highways provided the impetus behind developing the Trans Kalahari Corridor Management Committee (TKCMC) which was set up to promote regional cooperation among the three countries and to address the constraints of the TKC in typical SDI fashion.

At the time that the TKCMC was formed, the traffic utilization of the TKC was only 15 percent of capacity. By 2003, the TKCMC had accomplished:

- An MOU between the Ministers of Transportation of all three countries and private sector agents so all agreed to work together for the development and management of the TKC.
- The border opening hours between Botswana and Namibia were extended.
- Customs documents were streamlined to allow a vehicle to pass through all TKC borders using only one piece of documentation.
- Truck stops, gas stations, and cell phone coverage were all improved through direct private sector involvement.
- As a result, there was an increase in usage from 15 percent to 60 percent.

Unlike the other SDI case study presented, this SDI initiative was less successful because of the lack of political will, and a lack of a clear regional strategy. Yet it shows the importance of having an institution like the TKCMC to promote developing the corridor.

### **East-West Economic Corridor (EWEC)**

The East-West Economic Corridor (EWEC) covers 1,450 kilometers from Myanmar through Thailand, Laos, and Vietnam with seaports on both ends. Soon, all-weather travel through Myanmar and Vietnam will be possible without major physical or institutional interruptions. There are ongoing initiatives for power provisions and telecommunications cooperation along the corridor. The development of the EWEC into an *economic corridor* was spurred by the Greater Mekong Sub-region (GMS) Cross-Border Transport Agreement (signed by all countries in 2003). Attempts to alleviate the nonphysical barriers that inhibited the movement of goods and people across the region are being addressed. The agreement covers the following:

- One-stop customs inspection
- Cross-border movement of people
- Transit traffic regimes (exemptions from physical customs inspections)
- Uniform vehicle requirements for crossing borders
- Exchange of commercial traffic rights
- Integrated infrastructure (road and bridge design standards, signs, and signals)

Industrial estates and special economic zones at border crossing points have been proposed in order to promote private sector investment in EWEC. In addition, feeder roads are being considered in EWEC schemes. This is a successful case in which a comprehensive regional development strategy was used rather than an SDI.





The Asian Development Bank is heavily supporting this initiative. As part of its new strategy to reduce poverty, the ADB is helping to develop multinational transport corridors throughout South and Central Asia. Building such transport corridors is recognized to be a major tool for poverty reduction in nations facing the trap of being landlocked and surrounded by unstable and underdeveloped countries (Collier, pg. 197, 2007).

### **Some of the Institutions Supporting Corridors in Sub-Saharan Africa**

There are a plethora of organizations supporting the development of corridors in Sub-Saharan Africa. And there are more than 20 such corridors operating or in the planning stages. In terms of African institutions, one of the newest is the New Partnership for Africa's Development (NEPAD) that is under the aegis of the OAU. NEPAD's goals are poverty reduction and ending Africa's marginalization in the global economy. It has developed a self-monitoring peer-review mechanism that is critical to tracking reform in member nations. It has specific goals of promoting democracy, good political governance, economic governance and management, corporate governance, and socio-economic development. Infrastructure development is a key pillar of the institution and it supports transport corridor development.

The SADC, the Common Market for East and Central Africa (COMESA), the Economic Community of West African States (ECOWAS) all are working to reduce trade and transit barriers among their members. COMESA has made much progress towards establishing a free trade area, and is reducing transit barriers along the corridors between member countries. There are numerous regional development banks that are discussed in Section 8.

Specifically, SADC is implementing a Free Trade Area in August 2008 and a SADC Customs Union in 2010, and has recognized that transport corridors must become more efficient. To help achieve this goal, SADC has launched a study to identify "best practices" for corridors. SADC is addressing challenges in the corridors through: packaging of corridor infrastructure development projects into projects that are easier to attract private finance, facilitating corridor infrastructure development as well as transport and trade facilitation along the corridor borders, and harmonization of customs procedures and standardization of customs.

The SADC corridors that are being developed include: the Dar es Salaam Corridor, Mtwara Development Corridor, Nacala Development Corridor, Shire-Zambezi Waterway, Beira Corridor, Limpopo Corridor, Maputo Corridor, Libombo Development Corridor, Lesotho Railway, Trans-Kalahari Corridor, Walvis Bay Corridor, Trans-Capri Corridor, North-South Corridor, Trans-Kunene Corridor, Lobito Corridor, and the Malanje Corridor. The proposed Kazungula Bridge, which will link Botswana, Zambia and Zimbabwe, is one project that is important to stimulate trade within the context of the SADC Free Trade Area and Customs Union (The Namibian, 2008).

There are other institutions that are supported by donors, and the SSATP is very prominent. The Sub-Saharan Africa Transport Policy Program (SSATP) is a partnership of 35 African countries, 8 regional economic communities, 3 African institutions, national and regional organizations and international development partners. The goal is to ensure that transport achieves the developmental objectives of Sub-Saharan Africa: poverty reduction, pro-poor growth, and regional integration. The Program is funded by the European Commission, Denmark, France, Ireland, Norway, Sweden, United Kingdom, the Islamic Development Bank, and The World Bank. SSATP is implementing its Long-Term Development Plan, has a Responsive Transport Strategies theme, with supporting pillars including: Road Management and Financing, Transport Services, and Regional Integration.<sup>4</sup>

<sup>4</sup> See [www.worldbank.org/afr/ssatp](http://www.worldbank.org/afr/ssatp) for more information.





#### 4. Approach to Distribution/Poverty Impact Analysis

During the feasibility study phase of a project, the corridor authority can take the opportunity to implement and foster a pro-poor long term plan. The plan will ensure that policy reforms are put in place to increase the share of each project's benefits that are forecast to accrue to the poor or other disadvantaged stakeholder groups. These are done only, so far, for publicly or donor financed projects, and only by some IFI's. The objective of a distribution/poverty impact analysis is to estimate the share of net economic benefits of the project which will reach the poor and extremely poor and/or other stakeholder groups.<sup>5</sup> For education and health projects, this method is not applicable because it is virtually impossible to estimate an ENPV for these projects, even though their value is very high to society.

It is critical to note that the DPA is a key component of the overall regional planning that needs to occur throughout Africa. The DPA enables the public sector to identify structural constraints<sup>6</sup> and to develop complementary actions<sup>7</sup> promoting poverty alleviation. Estimating the Poverty Impact Ratio (PIR) shows potential investors the risks of the project independent of the rate of return. The PIR is the percentage of economic net present value of the project that is projected to go to the poor. As a money measure, it must be compared to the poor's share in national or regional GDP. However, the key estimate of the project's impact on the poor is the total value of the ENPV expected to accrue to the poor.<sup>8</sup>

We have applied this method in four conflict and post-conflict regions: in south-southwest Tajikistan in 1999-2000; in the State of Chhattisgarh, India in 2003; and in the south-eastern region of Luzon and in Mindanao, Philippines in early 2004 and Timor Leste in 2005.<sup>9</sup> We have also completed these analyses in about 10 other nations/projects.

The material below provides a description of how to apply this approach to infrastructure projects. The example used throughout this section refers to a roads project, but the same approach can be applied to other projects with an estimated ENPV. Its applicability is relevant to other projects and the approach can easily be customized to reflect the project's objectives.

For each project in a near-finalized program in a strategy, it is important to go through this prospective approach on a project level to help select the final program, and to set more targeted benchmarks to measure the impact of the projects over time. This will enable better design and targeting of projects in the future and improve the Government's ability to select projects for programs with the greatest potential to reduce poverty.

##### Estimating the Economic Net Present Value of a Project

For a project, we develop, from survey data, streams of benefits and costs per year over a twenty-year period. We then discount the stream of benefits and costs over time to translate them into current dollars. Standard practice is to use a discount rate of 12 percent, but this puts the heaviest weight on costs and benefits realized in the early years of the project. We recommend a lower discount rate because the projects we are considering are usually a public good in poorer countries, and as such, society places more weight on

<sup>5</sup> For the Distribution/Poverty Analysis, the choice of which currency to use is immaterial and thus any currency used will give the same results.

<sup>6</sup> Structural constraints are the market and institutional imperfections that often exist and are unique to the project's geographic, political and social context. They will block or impede the flow of benefits to the expected beneficiaries, including poor beneficiaries.

<sup>7</sup> By conducting a distribution analysis, analysts gain insights into the structural constraints and are able to recommend policy actions (**complementary actions**). The complementary actions can remove or ameliorate these constraints so that more of the benefits flow to the expected recipients.

<sup>8</sup> De Guzman, Franklin D. Assessing the Use of Project Distribution and Poverty Impact Analyses at the Asian Development Bank: Technical Note 13 ERD Technical Note Series, October 2005.

<sup>9</sup> In this paper, "we" refers to Louis Berger Group, Inc.'s Economists and Analysts. For additional information on these case studies and others see: <http://www.louisberger.com/berger/macro-iqc/ocstl.html> and go to the papers under the "Technical Leadership and Occasional Papers" link.





the longer term. We then are able to agree with the host government and funding agency on a reasonable Economic Net Present Value (ENPV) for each project.

### Approach to a Distribution Analysis

Distribution analysis looks at how a proposed project will affect different stakeholders – i.e., those groups who will benefit from the project and those who will lose. This form of analysis is very flexible because stakeholders may be defined and examined by a number of different attributes, such as income status, social (including economic, political, religious, and ethnic) characteristics, gender, and geospatial characteristics. It is a particularly useful tool for policymakers because it allows them to:

1. Assess whether the likely distribution of project net benefits corresponds with the stated objectives of the project;
2. Evaluate the likelihood of success or failure of the project independent of traditional measures such as the internal rate of return; and,
3. Examine the likely impact of policy changes on the distribution of project economic impacts.

Policymakers benefit from understanding the socio-economic and socio-political implications of proposed projects in order to better assess the likelihood of their successful implementation and sustainability. Project sustainability is heavily affected by how stakeholders expect to gain or lose over the near and long term. If an influential group is expected to bear the burden of economic costs resulting from the project, they likely will attempt to hinder its implementation. Project implementers need to be aware of, and be prepared to tackle, the risk that the losing stakeholders will mobilize to oppose the project.

It is often the case that the impact of project costs falls on the Government budget, and debt burden is a major factor determining an investment's sustainability. Because of this, policymakers must determine if a project's fiscal impact is consistent with the ability of the public sector to finance such activities. Therefore, a distribution analysis can serve as a step in re-evaluating project affordability by clearly showing the extent to which the net cost of the project is borne by the Government.

Distribution/Poverty Impact Analysis can also address toll roads. An additional stakeholder, the concessionaire, needs to be added. Since tolls will sharply limit the share of benefits going to the poor, complementary actions that may be included are: lanes for non-motorized transport on the trunk roads, that are not subject to tolls, building networks of secondary gravel or earth roads to feed into the trunk road that is tolled, so that farmers can at least get their products to the main link in the region, with lower transport costs, and other imaginative solutions.

The process of conducting a distribution analysis begins by identifying a set of tasks to: identify the stakeholder groups, and to identify the structural constraints and how they influence the final distribution on ENPV among stakeholders and then poor stakeholders. Identifying stakeholder groups, a critical step, we define by learning about each project's social, economic, political, and geographic context.

Distribution analyses requires that analysts develop an in-depth understanding of the project's effects through understanding how relevant market and institutional forces function and how the institutions that will be involved in the project affect the flow of the project's benefits and costs to its stakeholders (structural constraints). Structural constraints are the market and institutional imperfections that often exist and are unique to the project's geographic, political and social context. They will block or impede the flow of benefits to the expected beneficiaries, including the poor beneficiaries. A distribution analyses can also show if the distribution of a proposed project's benefits and costs meet the stated objectives of the project.

**Figure 1** presents a diagram that illustrates the method we follow to distribute a road rehabilitation project's economic net present value (ENPV) among stakeholders and the approach to the distribution and poverty impact analyses. All costs and benefits are in economic values, and all financial values must be converted to economic values. Note how the analysis of structural constraints that prevent more benefits from accruing to

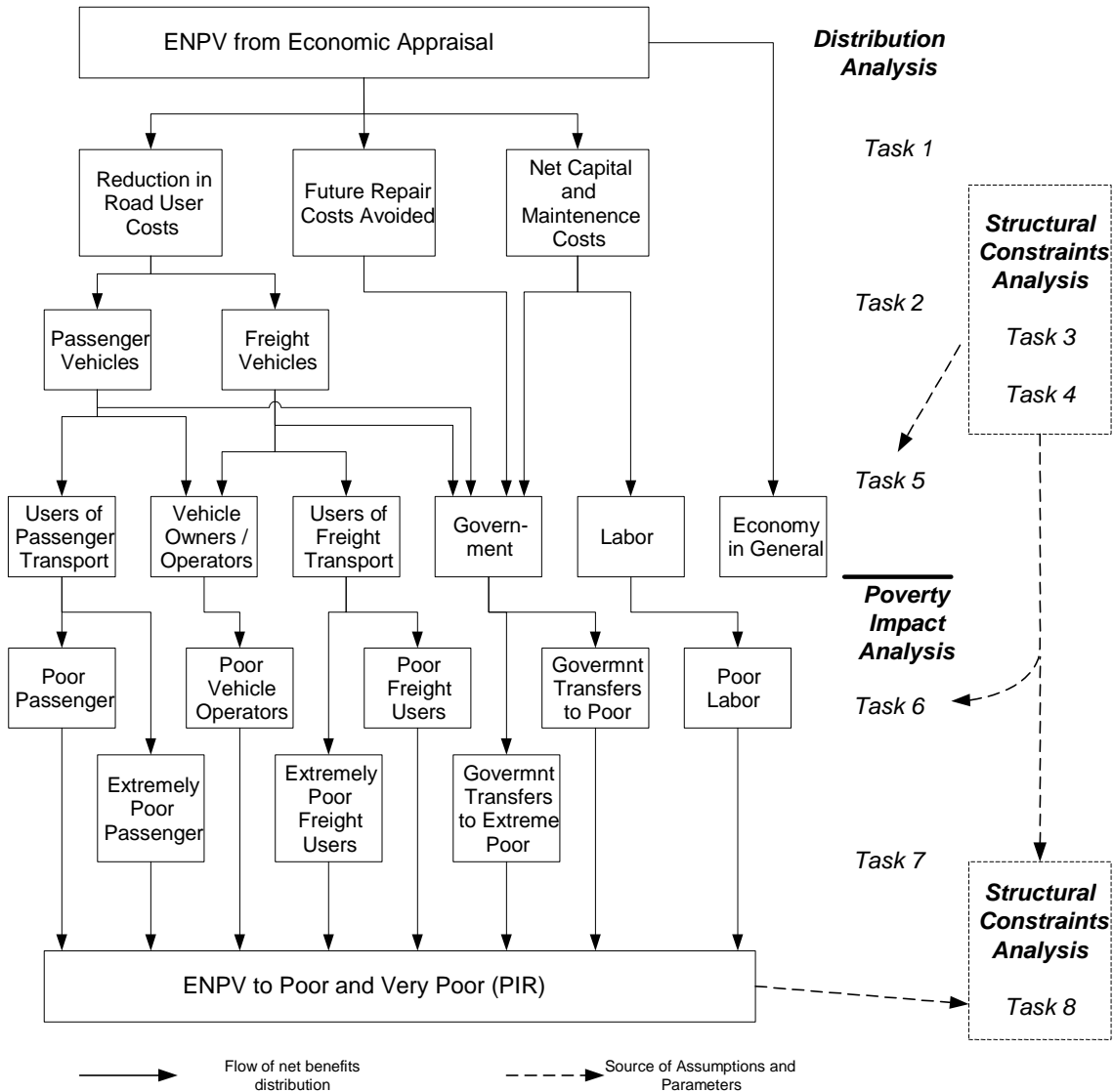
the poor starts with the first task and is continued throughout the process of estimating the distribution analysis and the PIR.

The procedure is to first break down the ENPV of the project estimated in the economic appraisal into different stakeholder groups. Tasks one through five are required to carry out this process.

Once the net benefits for each of these stakeholder groups have been identified, the next task is to estimate the proportion of the benefits for each stakeholder group that will go to the poor and the extremely poor. Finally, the benefits for each of these socio-economic groups are summed up and are compared to the total ENPV to derive the poverty impact ratios (PIR). Though it is not shown in the figure, additional estimates can also be made of the number of poor and extremely poor who likely will benefit from the project.

The analyses of structural constraints in the transport sector in the project area provide the basis for the assumptions and estimated parameters upon which the benefits are distributed to each category of beneficiary. The beneficiaries are further divided between the non-poor, the poor and the extremely poor. We also perform a sensitivity analysis.

**Figure 1: Diagram of Method to Distribute ENPV for a Road Project**





The distribution analysis is implemented based on the net benefits identified in the project economic appraisal that was carried out as part of the feasibility study. These benefits are distributed among the following stakeholder groups: (i) users of freight transport, (ii) users of passenger transport, (iii) vehicle owners, (iv) direct labor, (v) the Government, and (vi) the economy in general.

**Table 1** presents a description of each task and sub-task for tasks one through five that make up this analysis, as well as the data required to carry out each task and the source of this data.

**Table 1: Approach to Distribution Analysis for a Roads Project**

Tasks	Sub-Tasks	Data and Sources
1. Disaggregation of Net Benefits	1.1 Sort net benefits into: <ul style="list-style-type: none"> <li>• Road User Cost (RUC) Reductions</li> <li>• Future Costs Avoided</li> <li>• Capital &amp; Maintenance Costs</li> </ul>	Results of Economic Appraisal in Feasibility Study Report
2. Divide RUC reductions between passenger and freight vehicles	2.1 Obtain stream of RUC reductions by class of vehicle for normal traffic for each road section.	Traffic projections from Feasibility Study Unit Road User Costs for with and without project scenarios for each road section from Economic Appraisal Results
	2.2 Obtain stream of RUC reductions by class of vehicle for generated traffic for each road section.	Derived from results of task 2.1, using estimated elasticity of demand
	2.3 Obtain stream of RUC benefits for bridge improvement by class of vehicle.	Apply distribution obtained from Task 2.1 to bridge RUC reductions estimated in Economic Appraisal
	2.4 Sum up estimates for each road section and bridge to obtain total project benefits by class of vehicle	Results of Tasks 2.1, 2.2 and 2.3
5. Distribute net benefits among categories of beneficiaries	5.1 .Distribute RUC reductions	Using results from the surveys and analysis of constraints (Tasks 3 and 4 below); specifically: <ul style="list-style-type: none"> <li>• % of cost savings to be passed on to users by class of vehicle</li> <li>• Distribution of vehicle ownership</li> </ul>
	5.2 Assign future repair costs avoided to Government	Estimate from Economic Appraisal
	5.3 Assign net capital and maintenance costs to Government and labour	Estimate of costs and direct labor impact from Feasibility Study

In order to assess the structure and performance of the transport market in the project area, our team completes the fieldwork, collects information from other surveys and meets with appropriate local Government officials. Key to the analysis are our surveys of drivers, passengers, and farmers in the **project's zone of influence (ZOI)**, defined in this case as 15 kilometers on either side of the road to be improved. The surveys, to a large extent, determine the degree to which owners pass on road user cost





savings to users. The surveys also largely determine the degree to which the poor and the extremely poor will benefit from the project.

We also use secondary data to help determine these critical parameters to the extent possible, including an estimate of the income elasticity of demand for transport services in the project area as well as the country. The analysts also collected agricultural price data from secondary and primary sources to shed light on how prices vary across the major markets served by the project road.

**Table 2** presents a description of each task and sub-task that focus on *structural constraints analysis*, as well as the data required to carry out each task and the source of this data.

**Table 2: Approach to Analysis of Structural Constraints for a Road Project**

Tasks	Sub-Tasks	Data and Sources
3 Analysts' Surveys	3. Design and test Pilot Surveys 1	Primary data collection from field.
	3. Implement surveys for drivers, passengers and farmers. 2	Surveys implemented in the project area's ZOI
4 Analysis of Constraints in Transportation Market and Development of estimates of how much of the RUC savings are passed through to different classes of owners and users	4. Process surveys 1	Primary data analysis
	4. Assess degree of competition in freight and passenger markets 2	Processed results of surveys
	4. Use expert judgement and results of surveys to estimate the extent to which cost savings are passed on to users. 3	Survey results, meetings with local Government officials.
	4. Identify constraints to greater competition in transport market. 4	Survey results, field observations.
8 Recommend complementary actions and complementary activities	8. Form recommendations to reduce institutional barriers. 1	All material used to develop this report.
	8. Form recommendations to enhance competition in the transport and agriculture sectors. 2	Analysts' survey results, results of other surveys, field observations.
	8. Form recommendations for improving access for the extremely poor in the project area. 3	Survey results, results of other surveys, field observations.

We design surveys to specifically fill the data gaps needed to answer the critical questions required for this distribution and poverty impact analysis:

- To what extent will cost savings be passed from vehicle owners to users;
- To what extent do the poor and the very poor use the road;
- To what extent will the project's benefits be passed on to the poor and very poor;
- What institutional constraints bar the poor and the very poor from receiving a larger share of the benefits from the project; and
- What complementary actions would best help the poor and extremely poor to benefit from an improved transport system.





Answers to these questions allow us to estimate the distribution of benefits between stakeholder groups and to estimate the share of each stakeholder group that is poor or very poor, based on nationally defined poverty lines. Note that only income poverty is addressed in the poverty analysis done to estimate the PIRs. We complement these surveys by key informant interviews of Government officials at the national and local levels. We also often use focus group discussions to elicit more information from stakeholders. These provide qualitative data that can be very useful in developing the estimated distribution of net benefits.

**Approach to Conducting a Poverty Impact Analysis**

The objective of the poverty impact analysis is to estimate the US Dollar value and the percentage of the net economic benefits of the project which will reach the poor and extremely poor. **Table 3** presents a description of each task and sub-task that are part of this analysis, as well as the data required to carry out each task and the source of this data. Again, the example is for a roads project but can be applied to any project for which an ENPV can be estimated.

**Table 3: Approach to Poverty Impact Analysis for a Road Project**

Tasks	Sub-Tasks	Data and Sources
6. Estimate numbers and proportion of poor and extremely poor that will benefit.	6.1 Estimate number of poor and extremely poor in project area who use road transportation services on project roads	Results from the analysts' surveys (Task 3) Analysis of secondary data from national household surveys. Population estimates for project area (see Ch. 2)
	6.2 Estimate proportion of poor and extremely poor in each category of beneficiary used in distributional analysis.	Results from the analysts' surveys (Task 3) Analysis of data from national household survey.
	6.3 Estimate net benefits from each category of beneficiary that will go to poor and extremely poor	Results of Tasks 5 and 6.2
7. Estimate Poverty Impact Ratios (PIR)	7.1 Aggregate benefits to poor and extremely poor.	Results of Task 6.3
	7.2 Estimate Poverty Impact Ratios for poor and extremely poor.	Results of Task 7.1
	7.3 Summary of poverty reduction effects of the project.	Results of Tasks 6 and 7

We vary the severity of the structural constraints to conduct a sensitivity analysis for the estimated PIRs. This approach highlights the importance of the recommended complementary actions that the Government should adopt as part of the project. Our approach shows the importance of identifying the structural constraints early in the process of doing a distribution and poverty analysis, a point that sometimes gets overlooked in the process of forming estimates of the distribution analysis and the PIRs by others.

The PIR or the estimated percentage of a project's economic net present value (ENPV) that will accrue to the poor is a share of benefits measured in monetary terms. Therefore, the estimate should be compared to the poor's share in national or regional GDP. This raises a key feature of using the estimated PIR as one indicator of a project's risk of failure. If the PIR is near equal to the poor's share of GDP, then the project is "distribution neutral" in that it does not affect income inequality levels over time. If the PIR is greater than the poor's share of GDP, it indicates that over time, the project will increase the poor's income by more than the non-poor's income and will lead to a decline in income inequality. If at the extreme the PIR is greater than





one, it means that the non-poor are bearing the burden of paying for the project and receiving little or no net benefits, while almost all of the benefits are accruing to the poor. Such a project is redistributing a country's wealth in favor of the poor. In general, the higher the PIR is relative to the poor's share of GDP, the higher the risk of non-poor stakeholders mobilizing to block the project's successful implementation.

### The Tajikistan Case Study

The results of our primary field surveys suggest that 60 percent of the users of the project road are poor. But this is in a country and region where 80 percent of the population is poor. Our surveys also found that there was moderate to good competition among transport services providers, i.e., taxis, busses, and freight vehicles. At the time (in early 2000), we estimated that the benefits likely to go to the poor are about 60 percent of the project's ENPV. And for the very poor (a subset of the poor), we estimated that about 15 percent of the project's ENPV will accrue to this stakeholder group. We assumed there would be no induced growth effect because of the institutional and other barriers to regional growth we observed in 2000, immediately after the civil war. Application of a Keynesian-type regional multiplier to estimate induced growth is usually appropriate in the application of the DPA method.

To interpret the PIR, we need a comparator that is a money measure. For Tajikistan at the time, no data on the poor's share of the national GDP was available. However, household expenditures by quintiles of the population are available.<sup>10</sup> So, the estimated share for the lowest four quintiles, or 80 percent of the population, had an estimated 89-percent share of the total household expenditures in Khatlon Oblast (the Project Area). However, this is a figure for expenditures, so, since it excludes savings, it under-represents the share of GDP accruing to the non-poor. Therefore, we estimated that the poor's share of GDP is lower than this expenditure figure, and at about 70 percent. Using the same method to estimate the share of national income accruing to the very poor, we used the bottom two quintiles as an approximation of the very poor's expenditure share, which was at 51 percent. Their income share would be much lower. We used a very conservative estimate that the very poor, as a class, earn or collect about 35 percent of national income.<sup>11</sup>

With a PIR of 60 percent, compared to the poor's estimated share of GDP of 70 percent, the non-poor capture somewhat more of the benefits than the poor. The PIR for the very poor, at 15 percent, and the very poor's share of GDP at about 50 percent, the project is not favorable for the very poor. Since the estimates are so close for the poor overall, we can claim this project is neutral in its impacts on the poor and non-poor. Yet to make a larger share of the benefits accrue to the poor, the Government needs to remove or lessen the structural constraints that block more of the benefits from going to the poor. The chief constraints were a police force that stopped vehicles moving along the road for pay-offs, and a number of restrictions on the passenger and freight markets that keep down the level of competition. Without competition the non-poor vehicle owners will not pass on the operating cost savings from the project to the poor passengers and freight shippers in the form of lower fares and freight rates.

### The Timor Leste Case Study

Timor Leste is one of the poorest countries in the world. We did a study there in 2005, and estimated that 88 percent of Timor-Leste's population is poor, and 46 percent are very poor. The proposed project was for the first year of a five- and ten-year road investment program to strengthen the country's core road network. We also designed the five- and ten-year programs.

<sup>10</sup> J. Falkingham 'A Profile of Poverty in Tajikistan'. ESRC Centre for the Analysis of Social Exclusion Discussion Paper No. 39. London School of Economics. April 2000.

<sup>11</sup> The distribution of expenditures and incomes in Khatlon Oblast are quite egalitarian – all quintiles are basically poor. This is true for the nation. The only exception is in Dushanbe, the capital. In Dushanbe, the poorest twenty percent of households on a per capita basis account for about 7 percent of household expenditures, while the richest twenty percent of households on a per capita basis accounts for an estimated 37 percent of household expenditures. In comparison to Khatlon Oblast where the richest 20 percent only account for about 11 percent of household expenditures, which is considerably less than their population share – meaning all five quintiles are essentially poor. Given that the distribution of per capita household expenditures on a national level are very egalitarian (and low), this illustrates the common problem of where it is appropriate to set a poverty line.





Our fieldwork found that the poor and very poor are heavy users of motorized transport along the project roads, both for passenger and freight movement. However, motorized transport is still not affordable for many of the poor because fares and freight rates are high, caused primarily by bad road conditions. For the poor, the most common mode of transportation is by foot, followed by the use of small trucks and minibuses.

In terms of structural constraints, there are minimum taxi fare rates, but no minimum rates for passenger and freight buses and trucks. However, as the transport services sector develops, the nascent drivers' associations and commercial vehicle owners' associations are likely to develop at a fast pace, and put pressure on the government to set minimum rates that are above market-clearing rates, which will hinder the development of a healthy market-oriented transport services sector.

As a result, we estimated that only 50 percent of the net economic benefits would be passed on to vehicle users as lower fares and freight rates. Because of the relatively weak competition in the transport services sector, and the predominance of four-wheel-drive vehicles (4WD) and other luxury vehicles in the nation's vehicle fleet, we estimated a PIR of about 20 percent, so 20 percent of the project's net benefits likely will go to the poor, excluding the benefits going to the economy in general. The 4WD vehicles are a large part of the total vehicle fleet, and have been supplied by donors. We estimated that the PIR for the very poor is around 6 percent of the project's net benefits, excluding the benefits going to the economy in general.

These PIRs may appear low, but the project will improve key national road sections in order to strengthen the core road network, not rural feeder roads or secondary roads. That is because the national road network is in very poor shape, and has failed in many places. Based on our international experience, these PIRs are reasonable for a national road development program, especially with the unusual vehicle fleet composition in Timor Leste.

Using secondary data and our survey results, we estimated that the poor's share of GDP is about 40 percent. We also estimated that the very poor receive about 20 percent of national income. Thus, with PIRs of 20 percent for the poor and 6 percent for the very poor, this means that without implementing the complementary actions, the project will primarily benefit the non-poor.

Because the economy is growing at about 6 percent a year, to estimate the total benefits to the economy as a whole, we applied a Keynesian-type multiplier of 2.5, assuming that the strengthened road network will have indirect and induced effects that are 2.5 times the direct benefits of the project. Thus, the total benefit to the economy is estimated to be US\$ 24.8 million. Approximately 40 percent of this total benefit is likely to accrue to the poor. This indirect effect is not included in the estimates of the ENPV or the PIRs.

### **Key Structural Constraints**

- Nascent Vehicle Owners' Associations;
- Poor condition of secondary and feeder roads;
- Inability of farmers to use modern farming techniques;
- Lack of credit and other barriers to entry facing entrepreneurs; and
- Large presence of 4WD vehicles owned by the UN and other aid agencies that will eventually become government property or that only the rich can afford.

### **Recommended Complementary Actions**

- Implement pro-competitive transport services sector policies;
- Rebuild and improve secondary and feeder roads;
- A strong road maintenance program;
- More agricultural extension services;
- Credit programs for entrepreneurs wishing to enter the transport services markets; and
- Institute a Vehicle Fleet Transformation Program. The Program would start with the government selling surplus 4WDs, luxury pickups, and jeeps that the UN and donors give to the government.



The government would use the funds raised to purchase lower cost vehicles that are more suitable for transport service providers in rural areas.

### **Impacts of Complimentary Actions**

Aggressive pro-competition policies alone will only increase the share of benefits to the poor from 20 percent to 24 percent, and from 6 percent to 8 percent for the very poor. However, the government will seriously alleviate poverty if it starts the program of selling surplussed jeeps and 4WD vehicles to the rich, and begins to use the proceeds to import and sell with subsidized credit vehicles that are most appropriate to serving the poor developing farmers in rural areas. This policy, combined with the above aggressive set of policies to increase competition, will lift the share of the project's net benefits accruing to the poor to 44 percent, and to the very poor to 13 percent.

The largest boost to poverty alleviation would occur if the government adopts all of the complementary actions. Under these conditions, about 62 percent of the net benefits will accrue to the poor, and 30 percent to the very poor. Note that in this most optimistic scenario, the share of project-related benefits going to the poor exceeds the estimated 40 percent-share of national income accruing to the poor. The share of project benefits accruing to the very poor also exceeds their estimated 20 percent-share of national income. This means, over time, this combination of programs may improve the national distribution of income in favor of the poor and very poor.

## **5. Using Process Monitoring to Improve Results**

The relatively new concept of process monitoring is described in order to demonstrate the usefulness of this approach in the monitoring and evaluation of an *Infrastructure-Led Economic Development Corridor* as it is implemented and tracked over time. In process monitoring, the monitoring and evaluation is not a passive exercise, but one where the monitoring and evaluation team constantly makes recommendations on advancing project and program implementation to improve the economic and poverty alleviation impacts of a given project and program. The author's experience with the use of process monitoring for a World Bank-funded small-scale infrastructure project in Vietnam is discussed to demonstrate the successful application of this concept in the context of the new regional development initiative. This review is part of our effort to assess the potential negative aspects of the Infrastructure-Led Economic Development Corridor program on the poor, and put forward policy recommendations that when implemented will mitigate these, as well as any other negative impacts.

### **M&E Systems for Infrastructure-Led Economic Development Corridor Initiatives**

There is a key distinction between purposes and goals. Purposes are the direct and immediate outcomes of the project and should be observable on completion, while goals are linked to the overall goals of the participating nations to which the program contributes, but cannot, on its own, achieve. The achievement of a purpose can be directly monitored, while, almost by definition, the achievement of a goal, on a project by project basis, cannot be directly monitored much less for a program. Poverty reduction, together with economic growth, would normally be a goal (and not the purpose) of these initiatives.

In terms of purposes, the new system needs to focus on the size of actual benefits generated by the projects and programs. In terms of goals, the new system must focus on the distribution of those benefits between the poor, very poor and non-poor stakeholder groups. As such, measuring the degree to which cost savings are passed on to users of transport services, as well as providers of those services, requires that the indicators chosen measure variables useful for an analysis of the evolving nature of the structure and performance of the transport services markets by different classes of roads and other projects in the program.

For the World Bank, process monitoring was used in place of the usual M&E activities required by the World Bank for an anti-poverty small-scale rural infrastructure project in the 13 poorest provinces in Vietnam. Process monitoring uses a more interventionist approach, where the monitoring teams observe the project's and program's outcomes to see how effectively they are meeting the goal of reducing poverty on a regular basis (at least quarterly as the projects' are built, semi-annually after completion). Based on these





observations, the monitoring team recommends ways to improve the project's implementation *immediately* to the implementing agency (i.e. the TCCA) so as to increase the project's and program's ability and efficiency in achieving the goal of poverty reduction. In the Infrastructure-Led Economic Development Corridor process, the goal of poverty reduction is evaluated in light of the identified structural constraints and the degree to which those constraints have been ameliorated. It is critical that the monitoring teams suggest ways to the TCCA to continue to keep the program on track and remove the structural constraints that block a larger share of the benefits from accruing to the poor and very poor **as the project and program are being implemented**. After their fieldwork, the monitors write "requests for immediate action" to the corridor authority so that problems are fixed and blockages removed as soon as they are identified. Of course, it is critical that the corridor authority react immediately to these reports and implement the needed mid-course corrections in implementation.

## 6. Lessons Learned

A number of important lessons can be drawn from the SDI case studies and the project-level poverty work. Although these lessons do not address the full spectrum of issues that impede economic development within transportation corridors, they capture the key problems that need to be considered in planning and implementation of economic development corridors elsewhere. Several of the lessons learned from these case studies can be addressed by implementing the regional planning approach that we propose (*Infrastructure-Led Economic Development Corridor*) that includes the DPA for each project in the program. In brief, the lessons learned include:

- Political stability and peace is a prerequisite to developing productive economic activities, especially those involving private sector involvement.
- Political will from the top leaders of each country involved in the transport corridor must be present if the corridor is to succeed as an economic development zone.
- Weak institutional capacity leads to poor project management, inadequate coordination and hinders attempts to successfully develop an economic corridor.
- Stakeholder consultation is an integral part of successful implementation of any project.
- Prioritizing actions is required since each element of a program is composed of a series of projects that are likely to elicit different levels of support from different stakeholder groups.
- Viable economic corridor development cannot be achieved without the participation from the private sector.
- For financing, MIGA, IFC, OIPC and/or other donors recommended to be involved to share the risks.
- Government needs to improve the enabling environment for private investment.
- Improvements must be made to facilitate cross-border vehicle and personal movement.
- A requirement is to establish a corridor management institution that represents key stakeholders.

Distribution/Poverty Analysis should be used to refine future project design, especially for infrastructure projects implemented under the regional planning approach. The lessons learned show that stakeholder consultations, especially early on in the planning, are an integral part of the successful implementation of any project. For any project to be sustainable in the long term, it is essential to gain understanding and support from key stakeholders, which include both public and private entities, and local communities including the vulnerable sectors of the population such as the poor and women.

## 7. A New Framework for Regional Economic Development

The SDI was one of the first methods designed to promote investment and economic development using an overland corridor approach. It has been primarily applied in Africa. In Asia, the ADB has sponsored a major regional development program named the Greater Mekong Sub-region (GMS) program and is sponsoring a large number of such corridors throughout South and Central Asia. Within the GMS program, the East-West Economic Corridor (EWEC) is one of the projects, developing the only transport corridor that crosses





Southeast Asia on an east-west axis. Running through four countries, Myanmar, Thailand, Laos, and Vietnam, the EWEC is an example of a regional development strategy that does not use the SDI method. Some may judge the corridor as not fully successful for two reasons. First, the definition of the region includes Myanmar, which is sanctioned by many nations, so the ADB's definition of this corridor as a "region" is questionable. Second, the EWEC does not adequately address the inclusion of traditionally excluded stakeholder groups such as the poor and women. In order to address the need for regional planning throughout Asia, it is critical to implement programs that aggressively promote poverty alleviation. SDIs nor the EWEC nor many other corridor development projects do not adequately address poverty alleviation or look closely enough at stakeholder groups' gains and losses for the projects related to the programs.

The *Infrastructure-Led Economic Development Corridor Program* is proposed primarily to correct for the problem of unequal regional development. A necessary condition is that the top national leaders of the countries spanned by the corridor aggressively move the program forward. Provincial and other local government units must also do the same. A donor-driven program may not succeed because of the lack of strong support from the region's politicians and governments.

For example, institutional weaknesses often dampen the resolve of the top leadership, and this reduces the effectiveness of corridor regional development plans. Such weaknesses arise from political instability, institutional issues between national and provincial governments, or a lack of capacity. The lack of coordination between city-level municipalities and district governments can result in ad hoc project implementation, which creates misunderstandings and confusion between both the public and private parties involved. This is where the role of a regional coordinating authority becomes clear.

National governments pushing for this regional development program need to establish a transport corridor coordinating authority (TCCA). The TCCA designs and manages the overall program and is the focal point for the government units, donors, and businesses that are part of the program. The authority has executive, technical, and administrative staff to manage the program. Usually two or three representatives from each of the national governments serve on the governing board of the authority. Another key role for the TCCA is to involve the region's other stakeholders through regular public consultations. The governments supporting the corridor-led regional development program should fund these transport corridor-coordinating authorities, but are most often supported by donor contributions. There are other financing mechanisms available, but dependence on donors is an issue (Adzibgey et. al., 2007).

Stakeholder consultation is an integral part of successful implementation of each project in the program, so the TCCA and private investors must do so throughout the process of implementing the program. Taking these consultations as given, implementing the new approach means following the steps below in the order presented:

- Regional governments and other stakeholders, including financial institutions, identify a sensible multinational region, transport infrastructure linkages, and potential projects;
- Regional governments establish the transport corridor coordinating authority (TCCA);
- The TCCA sets rules so that it can be financed in a sustainable manner;
- The TCCA does a pre-feasibility study for each potential project;
- The TCCA holds an investors' conference allowing the private sector to review the pre-feasibility studies and select the potential projects that are most attractive to each potential investor;
- Potential investors do their own full feasibility studies;
- The TCCA shows potential investors the benefits of the distribution/poverty analysis and assists the people doing the private feasibility studies so they can include DPAs. This may require the TCCA to partly subsidize the businesses doing the feasibility studies to include this analysis;
- Businesses decide to move ahead and develop their business/implementation plans, using the TCCA's expertise when needed;
- TCCA works with its member national governments and possibly donors to develop the required infrastructure (i.e., the expressway, power plants, and secondary roads);
- Public sector improves the enabling environment for private investors;





- Member governments, with the TCCA, facilitate cross-border vehicle movement and thus trade;
- TCCA follows up on the results of the DPAs for publicly provided projects and helps member governments enact the appropriate policy reforms and other interventions;
- TCCA and the governments more efficiently design future public projects using the DPA results;
- TCCA uses process monitoring during project and program implementation and that continues for at least five years after the program is operational; and the
- TCCA provides technical assistance to private investors to use process monitoring for the private-sector projects in the program.

The public sector must develop a compelling case for attracting private sector investment to the corridor. It is critical for the public sector to evaluate the region and its resources while resisting the temptation to pick and choose what it believes to be the winning sectors and/or industries. Unwarranted subsidies to private firms to develop these industries will follow if this is the case, thus likely leading to distortions and inefficiencies. Instead, using this new approach, private firms are free to choose which sectors or industries to invest in based on a careful evaluation of their own business interests combined with the results of their own feasibility studies. These feasibility studies, when coupled with distribution/poverty analyses, should help to avoid unequal distribution of benefits, or preferential focus on one group of stakeholders. The public sector must undertake the distribution/poverty analysis, assuming the firms will share the results of their feasibility studies with the public sector. The public sector must evaluate the structural constraints and implement the resulting policy recommendations to avoid the sharply unequal distribution of benefits that can occur. Unequal distribution of benefits and costs are politically risky for the public and private sectors. Enabling a more equal distribution among key stakeholders lowers risk of project failure, and will increase community support for the associated projects, thus fostering regional development.

For corridor-based regional development programs to work, the public sector must lift the constraints to private-sector growth. The World Bank publishes one of the best tools for this type of policy reform; the title of the most recent edition is “Doing Business 2008: Comparing Regulation in 178 Economies.” The publication ranks 178 countries based on the ease of doing business in these countries, and for almost all the countries, comparisons with their performance in reforming compared to past years. Results from the publication are widely cited in the press and used by international investors as a guide to the best countries in which to establish operations. Ten sets of indicators show the ease of doing business in each ranked nation: starting a business; dealing with licenses; employing workers; registering property; getting credit; protecting investors, paying taxes, trading across borders; enforcing contracts; and closing a business. These indicators also show the ease with which domestic businesses can legally operate.

If a nation ranks poorly on these indicators, developing the private sector is difficult, and results in a large, inefficient informal private sector. Specific to developing transport corridors, the public sector needs to establish the conditions that promote developing PPPs and other forms of private-sector financing. To do so, the governments in Sub-Saharan Africa must push policy reforms that produce a more “business friendly” environment. These include: reducing barriers to starting or closing a business, protecting investors, making it easier to trade across borders, and the like. A look at the indicators in the paragraph above shows that key indicators where policy changes improve the business climate.

Some examples for Sub-Saharan Africa illustrate the issues. Out of the top 50 nations with the most pro-business environments, only three are in Sub-Saharan Africa: Mauritius (27<sup>th</sup>), South Africa (35<sup>th</sup>), and Namibia (43<sup>rd</sup>). And Mauritius is an island nation. Yet nine out of the bottom ten are in Sub-Saharan Africa. Overall, between 2005/2006 and 2006/2007 only two of the 10 top pro-business reformers were in the region: Ghana, moving from 109<sup>th</sup> to 87<sup>th</sup>, and Kenya, moving from 82<sup>nd</sup> to 72<sup>nd</sup>. Since the data are from April 2006 and June 2007, the recent civil unrest and violence in Kenya was not captured by the indicators. Three other countries in Sub-Saharan Africa improved their business environments in 2006/2007, while two made their business environments worse. Otherwise the average score for the region was 136 out of 178, and relatively unchanged from earlier years. This is the lowest ranking compared to the other major regions of the world.





What has happened in Kenya reinforced the view common among international investors—any country in Africa can turn to anarchy overnight. In order to use private sector equity to finance transport infrastructure, (or any other business) and develop the corridors described in this paper, the region's governments must make a concerted long-term effort to improve the business environments and most important, improve their images in the eyes of international investors.

## 8. Financial Requirements

The financing requirements for trans-national highway or railway projects are immense. These sums are generally not available from the budgets of nations in Sub-Saharan Africa, or Sub-Saharan sources of private capital. Capital must come from regional development banks such as the African Development Bank or the East African Development Bank, international development institutions such as the World Bank. Sometimes international private investors or sovereign wealth funds can provide the capital. Sovereign wealth funds are now being encouraged by a number of international institutions and international leaders to invest more in Africa. While private capital can finance these projects, normally they only do so with some kind of insurance, mostly provided by public institutions. The TCCA's can be financed a number of ways, from road and port user fees, public-sector budgets, multilateral or bilateral aid agencies, or international or regional development banks, or by some combination of these. Other emerging features on the financial landscape for the private sector in Africa are enterprise funds established by aid agencies and wealthy individuals or groups.

### Sources of Funds

For major highways and railways, those that form the backbone of any transport-infrastructure-led development initiative; international private capital may be available. Private investors need information so they can form acceptable estimates of risk and return. Assuming this information is not too costly for them to acquire, private investors will be attracted to financing major infrastructure when the returns are sufficient to offset potential risks. This can happen, and the financing of some of the infrastructure for the Maputo Development Corridor is an example of this in Sub-Saharan Africa. High expected (and actual) returns, and the governments of South Africa and Mozambique willingness to provide the right investment climate, combined so that the investors felt that the risk-return trade-off was acceptable. Many of the investors also benefitted from the support of institutions including the IFC and MIGA, as mentioned before.

When the level of risk is judged to be too high but still within a reasonable investment climate for private sector activity, institutions like the International Finance Corporation, can facilitate private investment when the investment will strengthen the private sector in the host country. The IFC provides loans, equity, risk management products, and advisory services to build the private sector in developing countries. For a project to be eligible: it must be in a developing country that is a member of the IFC, in the private sector (or a sub-national institution with no government guarantees), the project must be technically sound, expected to be profitable, benefit the local economy, and meet the environmental and social requirements of the IFC or the host country, whichever is more strict. The IFC will never be the only or major investor in a project. At most, it will provide up to 25 percent of the equity required for a project, with a minimum investment of US\$ 1 million. The IFC provides project finance, corporate finance and trade finance. It also offers a number of risk-management tools. The IFC also will act as the leader to assemble a loan syndication to attract international private investors who otherwise would not be attracted to investing in a project. It also will help assemble a private equity fund or investment fund, and these allow small and medium sized enterprises to access international capital markets. IFC also offers structured finance, including partial guarantees. Together with the World Bank, the IFC provides financing to municipalities, primarily for infrastructure projects (IFC, 2006).

The Multilateral Investment Guarantee Agency (MIGA) is also an arm of the World Bank and very active in Sub-Saharan Africa and the enterprises involved in numerous transport corridors. MIGA offers insurance to private-sector firms against non-commercial risks including: currency inconvertibility, expropriation, war, civil disturbance, terrorism, sabotage, and breach of contract. MIGA also provides dispute resolution services. In Sub-Saharan Africa, MIGA has issued US\$ 2 billion in guarantees since 1988. Its current exposure is about





US\$ 900 million. In fiscal 2007, Africa represented almost 20 percent of MIGA's portfolio. There are no size limits on its insurance products. All insured projects must meet the environmental and social standards of the World Bank Group and the host country, whichever is stricter (MIGA, 2008).

The US Overseas Private Investment Corporation (OPIC), the US Trade and Development Agency (USTDA), the US Export-Import Bank, and the PRC Export-Import Bank can all provide some products similar to the IFC and MIGA. These often take the form of insuring private investors against the risk of the loss on the principal of their investment in developing countries and are all active in Sub-Saharan Africa. But some also provide subsidies to feasibility studies, direct lending to private firms, and lending to Enterprise Funds in Sub-Saharan Africa.

OPIC provides a number of financial products to U.S. firms investing in projects in Sub-Saharan Africa. These include a lending program for small and medium-sized U.S. firms, those with annual revenues below US\$ 250 million. It also lends on a medium- to long-term basis to larger U.S. firms for projects in Sub-Saharan Africa where other lenders will not finance the project. OPIC works with other lenders to provide Structured Financing for large projects; these packaged loans are typically for infrastructure projects that are undertaken by U.S. firms. Similar to MIGA, OPIC offers non-commercial risk insurance to U.S. firms investing in projects in the region, including insuring against: currency inconvertibility and political risk. The insurance is for up to US\$ 250 million per project, and can cover the risks for up to 20 years.

Enterprise Funds, based on the models used to help Central and Eastern Europe transition to market-oriented economies after the Cold War, are an interesting alternative to stimulating private sector activity to finance infrastructure in those Sub-Saharan nations linking together to build a development transport corridor. Enterprise funds are capitalized by the budgets of developed nations, the IFIs, and sometimes private agents. They are managed by businesspeople and are able to assume risks that private equity holders are unable to accept given the expected returns and risks. The funds are designed to promote private sector development. In infrastructure, this most commonly would be through developing firms to partner with governments through PPPs to undertake a variety of infrastructure financing, such as purchasing a concessions to operate a tolled corridor expressway.

OPIC is providing capital to Investment Funds and Enterprise Funds that are active in Sub-Saharan Africa. Since 1991, OPIC has placed US\$ 3 billion in these types of funds globally. Of its current funds exposure, almost 40 percent are in Africa, and 11 percent for transportation and infrastructure. Specific Investment Funds supported by OPIC in Africa include the: Africa Catalyst Fund, AfrilInvest Fund II, Atlantic Coast Regional Fund, ECP Africa Fund II PCC, Ethos Fund V, Helios Sub-Saharan Africa Fund, Millennium Global Africa Opportunity Fund, and others.

There are other enterprise funds developing and active in Sub-Saharan Africa. For example, the Africa Enterprise Challenge Fund, when operational later in 2008, is primarily to stimulate private-sector firms in Africa to innovate and find profitable ways of improving access to markets and the way markets function for the poor, particularly in rural areas. It will do this by offering grants that must be matched by private sector contributions. This will be to support innovative business ideas which encourage greater participation of poor people in markets. The matching grants will also be available to NGO's. Its investments likely will have an upper limit of US\$ 1.5 million per project. It has an initial capitalization of US\$ 50 million, and is funded by the AfDB, IFAD, DfID, and other donors. The AECF has an expected life of 9 years. AECF is aimed at helping to achieve two of the MDG's: eradicating poverty and extreme hunger, and developing a global partnership for development.

Individuals have established such funds. The Africa Enterprise Fund, capitalized with US\$ 150 million, is an example. The Fund, which has just been set up, will target companies in financial services, consumer goods, energy and agricultural processing. The aim is to focus on established businesses that need cash and experienced management to grow, and the average investment per project is expected to be around US\$ 20 million.





The Southern Africa Enterprise Development Fund (SAEDF) is another regional private equity firm that provides US\$1 to US\$ 5 million in funding for mid-market management buy-outs, management buy-ins, acquisitions and expansion opportunities in Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe. SAEDF was formed in 1994 to manage US\$ 100 million. It is funded by USAID.

When the level of risk is extremely high, or when the infrastructure assets to be financed are not the type that can be used to generate a return, such as a network of rural roads, multilateral or bilateral grant-making institutions can provide the funding needed to build the infrastructure. Alternatively, multilateral institutions can provide concessional loans on terms very favorable to the host country. This type of infrastructure can be funded by the host countries themselves out of their domestic revenues or, sometimes, domestic bonds.

Grant- and concessional-loan-making multilateral institutions include the International Development Association, an arm of the World Bank, the African Development Bank, and a host of other African regional development banks. The PRC also makes grants for this type of infrastructure, as does USAID, the US Millennium Challenge Corporation, DfID, the EU and other bilateral aid agencies. “Grants” are not totally free and concessional loans also carry a nonfinancial “price”—they usually require some conditions related to host-country policy reforms. The concessional loans from the international financial institutions (IFIs) are tied to policy conditionalities.

There are a number of African regional development banks aside from the AfDB that are active in supporting transport corridor development and translating the corridors into economic development zones. The Development Bank of Southern Africa (DBSA) is an example. Another is the East African Development Bank (EADB) that serves Uganda, Kenya, and Tanzania. Also to be included is the East and Southern Africa Trade and Development Bank. Then there is the Banque Ouest Africaine de Developpment (BOAD) that serves Benin, Burkina Faso, the Ivory Coast, Guinea Bissau, Mali, Niger, Senegal and Togo. The Economic and Monetary Union of West Africa operates a guarantee facility for private investment in infrastructure. In 2007 it was active in the partial financing of 2 roads projects. It also is making loans for urban road rehabilitation in the countries it serves. The overall mission is to encourage PPP’s.

### **Applying Finance to Transportation Infrastructure and Regional Development**

There are several mechanisms that can be used to take capital to build, operate, and maintain transportation infrastructure. Large sums are required at construction start-up, and then are repaid over the life of the infrastructure. Governments benefit from using private capital in that it enables them to: undertake programs that they cannot finance out of public budgets, share some of the risks of financing the infrastructure, and harnessing the efficiency of private-sector operators to save on the costs of providing transport services. For multinational transport corridors financed by private capital, the host country and the private investors have a number of mechanisms to choose from and then to tailor to each type of new construction, rehabilitation, maintenance or operations programs. Public-Private Partnerships have become a popular way of financing these types of activities in recent years.

A PPP is a contractual arrangement whereby a private party performs a departmental function on behalf of the national or provincial government (or potentially a TCCA) for a specified amount of time. This often includes a substantial risk transfer to a private party or an international agency. In order to understand the risks and benefits to both sides of PPPs, it is important to identify each type of contract because they involve different mixes or risks and benefits to the private and public sector. Regarding the provision of transport infrastructure the following are the most common forms of contracts:

#### **Service Contracts**

This type of contract is used when the private sector is required to provide specific services, however the public sector remains responsible for operation. The two most common forms of this support are: management support, and operational and management support. In the former, the private operator supplies the public authority with human and technical resources for a fee and in the latter; the private operator is typically in charge of daily maintenance of facilities. In a service contract, the private sector bears the majority of risk because it often guarantees a level of services for a fixed fee. The risks to the private





investor are that the required maintenance costs are higher than expected, due, for example, to higher traffic than forecast, unexpectedly high rates of truck overloading, of the inability of the public sector to pay the fees in a timely manner.

### **Delegated Management Contracts**

In this type of contract the public sector retains overall ownership of assets but delegates operational responsibility to the private investor, often through an Affermage or Concession. An Affermage occurs when the private operator manages the services for a set period (typically 5-15 years) and is responsible for all maintenance costs. The public authority maintains control of all new investment and compliance to agreed-upon standards. In a Concession the private operator is entrusted with management of the services and all necessary investment for a period of 20 years or more. Public authorities maintain the right to make decisions regarding applicable rates and targets unless otherwise specified in the contract. If such is the case, the private sector once again bears most of the risks because it is limited in its capacity to cover its costs and generate some profits.

### **Construction Support Contracts**

The most wide-ranging form of PPP contracts requires that the private operator is involved in the design and construction phases of new infrastructure. The following are the most common forms of contracts:

- *Build Design Operate (BDO)*: In this type of contract public authorities entrust the private operator for a selected time period with the design, construction, and operation of new facilities to specified standards. The private sector assumes all risks associated with these factors.
- *Build Operate Transfer (BOT)*: In this type of contract the private operator designs, finances and builds the infrastructure. Ownership of assets is assigned to the public sector, however, the private sector operates the project until the services have been delivered and a suitable return has been earned.
- *BOO (Built Own Operate)*: In this case, the private investor retains ownership and complete control of the project. The private sector assumes all the risks with such a project.

With all that has been said about the risks above, there is an asymmetry in the distribution of large unexpected gains or losses. When the private sector has a large unexpected gain from a PPP, all of the gain goes to the owners of the private firm. However, if the private firm encounters unexpectedly high losses, then the firm goes back to the host government and renegotiates the contract so that the public sector will cover the losses such that the private sector earns a “normal” return and continues to operate under the contract. This is true in the EU and the US as much as it is in developing countries, including Sub-Saharan Africa. This asymmetry in risk sharing is the subject of current research.

Generally, when the institutions of the host country government are weak, the private firm can negotiate a PPP contract that is more favorable than it could, say in the EU. Sub-Saharan governments need to be aware of the weaknesses in their institutions and consider hiring (bonded and insured) expert negotiators who are placed at risk of loss if the government is to lose under the negotiated PPP. And the asymmetric risk of loss to the host country needs to be weighed against the expected benefits of involving the private sector in financing transportation infrastructure (Bracey and Moldovan, 2006).

While a TCCA is operational in the northern transport corridor that runs from Mombasa up to South Sudan, then down to Burundi and into the DRC, it is not institutionally strong enough to manage private-sector financing of the corridor’s infrastructure at this time. However, conceptually a corridor’s TCCA is the ideal institution to manage the private sector’s involvement in operating, maintaining and improving the corridor, including the financing. The strength of a TCCA comes from the governments of the nations through which the corridor passes, and thus requires a high level of political support from the involved governments.





### **Sources and Mechanisms for Financing Highways: Implications for Road User Fees**

In public finance, the “user pay” principle means that users pay the financial as well as the economic costs of a publicly provided good. The economic and financial costs are the same when there are small or no spillover effects or externalities. Externalities are either costs or benefits of using the transport infrastructure that are not captured by the user. For example, the benefits of additional regional or national economic growth and poverty reduction are not felt by the typical trucker. Similarly, the pollution generated by the vehicles on the infrastructure is not borne by the users. So, if pollution is negligible, and the regional development benefits are large, transport infrastructure should be subsidized by the government and user fees set below the costs of maintaining and developing the infrastructure. This is the case when the distances are large, traffic relatively light, and the transport corridor is a catalyst for regional development and poverty reduction. As the corridor approaches large urban areas, pollution rises and traffic increases, and congestion costs are imposed on all users in excess of what is borne by a single user. In this case, tolls for transiting cities may make sense. Providing urban bypasses that are not tolled, or tolled at lower rates as an alternative to passing through cities often make good sense. Tolls can also be set to be higher during peak hours of use in or near urban areas; this reduces congestion costs that include increase pollution and lost time.

In general, tolls have the advantage of encouraging multinational trade on corridors while giving users incentives to avoid urban areas or to avoid travelling during peak-use times. The disadvantages of tolls include the costs of installation and operations. Typically operating costs for a tolling system account for a third of the revenue collected from the tolls. Traditional tolling systems are labor intensive, and also can be a cause of congestions as vehicles wait their turn to pay at the booth. Tolls are also an avenue for corruption when the transport authority is weak. There are new technology-intensive tolling systems that reduce the operating costs, waiting times, and the potential for corruption. But they require steady sources of electric power, databases on license plates and vehicle ownership, as well as a degree of technological skills, all of which are lacking in most Sub-Saharan nations at present. Still they are under consideration in some of the region’s nations.

Other forms of road user fees that are more common in Sub-Saharan nations are fuel taxes and axle-overloading fees. While neither of these addresses congestion costs or provide incentives to keep heavy trucks off urban roads, they are useful in raising revenues and reducing the wear on roads. Fuel taxes are less expensive to administer than tolls. While smuggling fuel to avoid the tax can be a problem, applying a color dye to fuel that has been taxed allows enforcement authorities to spot smuggled fuel and fine the offenders. Corruption can still be a problem, and contracting out enforcement or enforcement supervision to a private sector firm may help control the problem.

Axle-overloading is the main cause of accelerated road wear and thus means more road maintenance. Stiff fines for this practice are a must, especially in Sub-Saharan Africa where overloading trucks and busses is very common. These require weigh stations along the corridors, and mobile weigh stations are a good way to cut down on truckers avoiding well-known weigh-station locations. Again enforcement can be a source of corruption, and again using the private sector to operate the stations and collect the fines can be a solution. Whoever is responsible for collecting the fines must be subject to independent supervision.

The mix and level of road user fees are linked to the degree and nature of private sector involvement. When there are no or small externalities, road user fees need to cover the costs of maintaining and operating highways, as well as developing new highways. In this case, a BOO can be used. When there are large positive spillover effects, such as accelerated regional development and poverty reduction, road user fees should be kept low, and the private sector should not be permitted to charge tolls to cover the full costs. If the government needs the private capital to develop the highway and wishes to price the externalities in user fees, the private operators will have to set the tolls as decreed by the government, and be paid an agreed-upon amount over time out of the government’s general revenues. Outside of BOO, all other types of private-sector involvement are possible, and the government can de-link user fees from repayments to the private firms.



Best practices suggest the use of axle-overloading fees and enforcement regardless of the private sector's role. If the government's institutions are strong enough, and independent Road Fund is an optimal solution to road maintenance, operations, and rehabilitation. All road user fees, such as fuel taxes and tolls if tolls are deemed appropriate, are paid directly into the Road Fund, bypassing the Ministry of Finance (MOF). Then all maintenance, operations, and rehabilitation are paid for by the Road Fund. The managers of the Fund contract out all works to private-sector firms. Requiring the private firms to maintain an agreed-upon "level of service" for the highways in return for fixed payments over the life of the contract shift most of the risk to the contracting construction firms. Development of new highways is funded out of general revenues, or by private capital. The MOF should establish a capital account to cover the large and lumpy investments required to build new roads if domestic funds are to be used. The Road Fund is overseen by an independent Board of Directors, composed of representatives from road user groups, the construction industry, the government and other stakeholders. The Fund should be managed by a private contractor. The government must provide good supervision over these private sector actors. Best Practices also require using independent construction supervisors, private engineering firms who inspect and certify that the works done by the contracted construction firms meet the government's design specifications. If the certification turns out to be false, the independent construction supervision firms are liable for damages, thus they must be bonded and insured.

For multinational transport corridors, managing the financing, maintenance and operations have been dealt with through the nations' Ministries of Transport cooperatively, either using PPP concessions as in the case of the Maputo Corridor, or on a national basis in the case of the Northern Corridor. The great success of the Maputo corridor represents very good fortune in having inexpensive hydropower to fuel the aluminum plant and the willingness of the governments to cooperate and encourage private sector cooperation. Circumstances do not always permit this approach. An innovation would be to create a strong TCCA to manage the financing, maintenance operations and private sector participation on a corridor level and not a national level.

## 9. Conclusion

The SDI approach can be useful in some contexts, but has a flaw of encouraging the public sector to "pick winners" for the anchor projects. The infrastructure-led economic development approach developed here that leads to pro-poor economic development, where the public sector role is clearly defined and limited. Private firms pick which projects will be the drivers of economic growth in the region served by a transport corridor. The use of the distribution/poverty impact analysis as part of a regional approach allows estimating the benefits that are likely to accrue to the poor from a particular project. This new regional approach develops a program consisting of multiple projects that better target benefits to the poor, while generating regional economic development in the economic development corridors identified by private and public sector regional specialists. Yet key to financing infrastructure and the businesses that generate permanent jobs requires a much-improved business environment. The role of the public sector includes: creating an enabling environment for private investment and cross-border trade/movement, conducting pre-feasibility studies to evaluate potential projects for private investment, and providing good transport and other infrastructure for the corridor's development, drawing as much as possible on private sector support through PPPs for financing. The role of the private sector includes: conducting feasibility studies for the proposed projects and choosing the projects that will maximize benefits and minimize risks. Also they will be encouraged to cooperate with the Transport Corridor Coordinating Authority so the Authority can pay for and help perform a distribution/poverty analysis on the potential private sector projects as well as the public sector projects.

Because the perceived risks of private investment are so high compared to the expected returns, and the unfriendly business climate in most Sub-Saharan nations, financing for the infrastructure and indeed the businesses that are part of the transport corridor will have to rely heavily on guarantees or other private-sector protection mechanisms offered by: the IFC, MIGA, U.S. OPIC, the U.S. EXIM Bank, sovereign wealth funds and Enterprise and Investment Funds similar to those established by the U.S. to develop the private sector in Central and Eastern Europe after the break-up of the Soviet Union. Failing these sources, grants





or concessional loans from the World Bank, the regional development banks, other multilateral development institutions, the PRC EXIM Bank and bilateral development agencies will be necessary to supply the capital and technical assistance to make the regional corridor development concept a reality in most potential development regions. Domestic public funds, supported by road user fees, will also be needed for at least the maintenance, operations and rehabilitation works for the corridors. Strengthening host country Ministries of Transportation and Public Works are also a must. Also efforts must go into developing independent road funds, and using private sector contractors and independent construction supervisors for the nations in the developing corridors and hopefully into better operated, sustainably financed, and some new TCCA's.

The migration to an infrastructure-led regional approach with a poverty impact/distribution analysis component will create jobs and enhance growth throughout the region, maximize benefits and minimize risks in the process. One of the keys is to develop a series of good projects in terms of poverty reduction by applying the distribution/poverty analysis approach to each project being seriously considered for the economic development corridor. Projects can then be ranked by the total economic net present value and their poverty alleviation impact to evaluate the project's importance to the region. By then monitoring the projects as they are implemented, and tracking how benefits go to different stakeholder groups, the TCCAs can show how well each project does in meeting expectations. If a project does not do well, then subsequent projects of a similar nature can be redesigned to better consider the poor or other disadvantaged groups. Similarly, the exercise for each project reveals the structural constraints that block more benefits from going to the poor. These analyses for proposed projects identify policy reforms that ameliorate these constraints, and enhance regional governments' awareness of the current environment. This enables policy reform and project selection that provides economic growth and benefits for the long term. We show how applying this approach to all projects makes the development of the economic development corridors more efficient and provides the governments with a long-term tool for project evaluation to alleviate poverty while generating economic growth that can be used to create a "living" regional strategy.



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