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## TIME FOR A BIG PUSH ON INFRASTRUCTURE IN AFRICA: WHAT THE G-20 CAN DO

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AUGUST 2011

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The Seoul G-20 Multi-Year Action Plan on Development identified gaps in infrastructure as a key bottleneck to growth in developing countries. It committed the G-20 countries to overcoming obstacles to infrastructure investment, developing project pipelines, improving capacity and facilitating finance, in particular for low-income countries.<sup>i</sup> Estimates of total infrastructure financing needs in developing countries amount to over \$1.2 trillion per year, with \$93 billion for sub-Saharan Africa alone.

As a first step, the G-20 asked multilateral development banks and regional bodies to develop a list of priority infrastructure projects and to identify key bottlenecks. They also created a G-20 High Level Panel for Infrastructure Investment to mobilize support for scaling up infrastructure financing. The panel is being chaired by Tidjane Thiam, chief executive of Prudential plc, from the Ivory Coast. It will report back to the G-20 leaders at the Cannes Summit in November this year.

What the G-20 decides to do on infrastructure will be a critical test of whether it can amount to more than a talk-shop. As a first step toward addressing the infrastructure deficit in low-income countries, it is essential to conduct studies, build a project pipeline and estimate financing needs. Such steps have been taken before by other groups. An institutional platform has now been created, but the time has come to scale up investment in a major way. The acid test is whether any new ideas, programs or actual deals will emerge to accelerate infrastructure investments. This is not to say that the G-20 should try to fund the infrastructure themselves. That is unlikely, given their tight fiscal positions and undesirable given the need to involve the private sector to make sure these mega-projects are efficiently built. Instead, the G-20 must figure out how to be a catalyst. It can do this most effectively by focusing on regional (cross-border) projects in Africa and on filling the financing gap that exists between project identification and the start of construction. Here, we propose establishing a revolving fund to fill this gap.

## CONTEXT

Former President of Nigeria Olusegun Obasanjo captures the hopes as well as the frustrations of Africa's leadership with the slow pace of development, writing that "the pressure is now on the French G-20 presidency, which has to translate the plan into purposeful action by November 2011 and avoid the pitfalls of past efforts—including short-term thinking, destabilizing capital surges and carbon-heavy construction. Success will be measured by the amount of capital generated and the number of projects realized, as well as by the extent to which G-20 activities complement and synergize existing efforts without supplanting or fragmenting them."<sup>ii</sup>

It is now widely accepted that infrastructure deficits are a critical hurdle for African growth. An Africa infrastructure country diagnostic program flagship study<sup>iii</sup> found that better infrastructure had been responsible for more than half of the continent's growth performance between 2001 and 2005, and had raised per capita incomes by 1 percent between 1990 and 2005. Most of this was a result of impressive information and com-

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munication technology (ICT) penetration. But in other sectors, like power, conditions had actually deteriorated, dragging African growth down by 11 basis points (20 basis points for South Africa).

Not surprisingly, the study found that poor infrastructure services were a major constraint to doing business, with productivity losses comparable to those derived from corruption, crime and financial market constraints. Again, power was cited as one of the most problematic areas. Beyond growth and firm-level competitiveness, improved infrastructure was also seen as key to achieving the Millennium Development Goals, whether from the impact of safe water on health, improved health and education outcomes as a result of more reliable electricity, or improved incomes from connecting farmers to markets via well maintained roads and ICT.

The infrastructure deficit in sub-Saharan Africa is enormous: only 30 percent of the population has access to electricity; the telecom penetration rate is only 6 percent; the road access rate is around 30 percent; and only 18 percent of irrigation potential is being utilized.<sup>iv</sup> Africa's infrastructure networks lag significantly behind those of other developing countries, and infrastructure services, when delivered, are more costly. The causes include missing regional links, a difficult economic geography (low population density, large number of landlocked countries, rapid rate of urbanization, and a large number of small economies), low investment and institutional inefficiencies. The diseconomies of scale which emerge from these factors, coupled with a lack of competition in the delivery of infrastructure services due to shortages in supply, makes these services more than twice as expensive in Africa as in other places.

Large investments would be required to remedy this situation. Africa needs about \$60 billion a year in capital spending for infrastructure, according to the African Development Bank, most of which is for power (Table 1). Donors are prepared to contribute substantial funding and news reports suggest that \$55 billion was mobilized in 2010. Most of that came from traditional donors who are members of the Infrastructure Consortium for Africa (ICA), a grouping established to help achieve the Gleneagles pledge to increase aid to Africa. These donors pledged \$28 billion. Substantial additional funds were pledged by the private sector (\$11 billion), new bilateral donors (China, India, Arab funds) (\$7.5 billion) and the multilateral institutions. Although there may be still be a funding gap, if these pledges can be realized and expanded in the next few years, aggregate resources for African infrastructure could allow many of the priority projects to move forward.

**TABLE 1: OVERALL INFRASTRUCTURE SPENDING NEEDS FOR SUB-SAHARAN AFRICA**

*\$ billions annually*

Infrastructure sector	Capital expenditure	Operation and maintenance	Total spending
ICT	7.0	2.0	9.0
Irrigation	2.9	0.6	3.4
Power	26.7	14.1	40.8
Transport	8.8	9.4	18.2
WSS	14.9	7.0	21.9
<b>Total</b>	<b>60.4</b>	<b>33.0</b>	<b>93.3</b>

Source: Foster and Briceno Garmendia (2009)

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Most of the resources required are for the power sector, with 30 countries facing regular power shortages. The Africa diagnostic study estimated that some 7,000 megawatts of new power generation would be required (about half from hydropower), and regional power trade would be needed to be facilitated through 22,000 megawatts of cross-border transmission lines. The benefits would be considerable. Cross-border energy trade could reduce electricity costs by \$2 billion year. Regional infrastructure would also be critical for other infrastructure sectors to capture economies of scale: beyond power, this calls for completion of the inter-regional fiber optic backbone, trade facilitation via interconnections with good quality road networks, and port and airport hub improvements.

Why infrastructure bottlenecks remain so large is a long and complicated story. It is probably not because of low returns. Most infrastructure projects in developing countries have rates of return that are super-normally high: 30 percent to 40 percent in telecommunications; 40 percent in electricity generation; 80 percent in roads.<sup>v</sup> The problems lie on the risk side of the ledger.

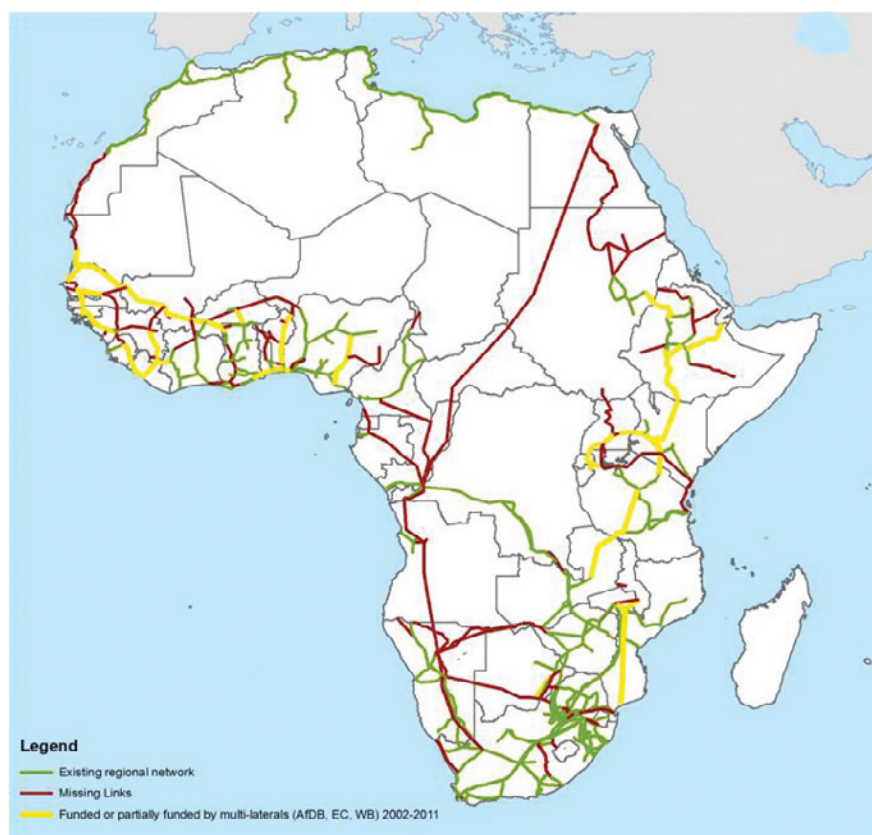
The policy and institutional challenges in providing the right environment for infrastructure financing in developing countries are enormous. As summarized by Sheppard (2003) these characteristics are: (1) financing needs exceeding local markets' capacity requiring the private sector to tap foreign financial markets and thereby introducing currency risk; (2) long pay-back periods, with significant time of negative cash-flow, both during project preparation and project construction phases; (3) dollar-denominated inputs, translating into further currency risk; (4) lumpy assets that are fixed in place with limited residual sale value except for the designated purposes (meaning limited collateral value of fixed investments); and (5) government-regulated prices, usually denominated in local currency terms, subject to political pressures in their adjustment over time. Many mechanisms have been used by private investors to mitigate these risks, including a variety of partial risk and credit guarantees provided by multilateral agencies, as well as joint shareholdings with host country governments. But it has become clear that the actual risks involved in private participation in infrastructure are substantial, while public provision of infrastructure is hampered by limited finance and limited implementation capacity.

Added to this list are the new risks that come from a changing climate. The energy/water nexus in particular will be tested because of expected extreme climate variability, with both drought and floods challenging the development of hydropower resources. Competition for water use is an added complication, as is already becoming clear in the discussions involving the Gibe hydro-development in Ethiopia. As another example, the move to clean energy through major investments in solar power in both north and southern Africa could be transformative, but will need to address risks associated with new technologies, uncertain project economics in the absence of a market price for carbon and the absence of a track record for the specific regulatory regimes that are being developed.

Regional infrastructure projects, in particular, are typically large in scale and complex in scope. They suffer from all the same risks as other large infrastructure projects, but have the added complication of needing to address synchronized policy and regulatory issues across a number of countries. Regional projects suffer from: (1) coordination failures; (2) front-end risks and costs; (3) regulatory and political risks, influenced by legacy actions of previous governments (even in neighboring or similar countries); and (4) distortions and political influences in the allocation of grant financing.<sup>vi</sup> It is these issues that the G-20 must act to resolve.

Donors have previously tried to address such risks and have had some positive impact. Most notable are the new institutional arrangements such as the Infrastructure Consortium for Africa (ICA) hosted in the African Development Bank that now includes all the G-20 members as well as major multilateral institutions, the Private Infrastructure Development Group (PIDG), the New Economic Partnership for Africa's Development (NEPAD) infrastructure project preparation facility (IPPF), and the Pan-African Infrastructure Development Fund. These groups have produced diagnostics including the African Infrastructure Action Plan 2010–2015 and the longer range Program for Infrastructure Development in Africa (PIDA), with gaps in the infrastructure network clearly identified (see Chart 1), but action and funding are still modest compared to the challenge.

**CHART 1: REGIONAL ELECTRICITY LINKS IN AFRICA**



Source: AICD, 2009: [http://siteresources.worldbank.org/AFRICAEXT/Resources/Africa\\_Infrastructure\\_Maps.ppsm](http://siteresources.worldbank.org/AFRICAEXT/Resources/Africa_Infrastructure_Maps.ppsm)

The difficulty is that each large infrastructure project has to be tackled individually, which takes time, effort and funds and is also taxing the institutional capacity of the various groups that have been established. For example, the PIDG appears to be a well-functioning agency and was positively reviewed in a recent multilateral aid assessment. It has disbursed \$390 million since 2002 to help bring 46 projects with \$10.5 billion in private sector investments to financial close. But it is not operating on the scale that is realistically required.

The stage is set for another big push. A much bolder vision, which targets transformational investments in regional integration, is needed. NEPAD has built capacity through its various initiatives and is appropriately becoming more assertive. It has developed a list of priority regional projects and for each project there is a sponsoring government that has agreed to act as the project champion at the highest political level. Thus, the essential African leadership on this issue has been growing.

For their part, multilateral development banks have also organized themselves to play a larger role in regional infrastructure investments. The International Development Association has set aside \$3.6 billion of its recent aid pledges specifically for regional projects. It has developed a list of the 10 priority bankable projects.

What is lacking is a large political push from the G-20 coupled with selective financing in critical project preparation areas. A G-20 endorsement of the NEPAD priority infrastructure list could help encourage all its members, including newly-important donors like China and India to respond to well-vetted regional plans, rather than trying to develop their own priority list. With this political and financial backing, private capital would be likely attracted to undertake the high return projects that have been identified. The goal should be to mobilize \$1 billion in project preparation resources, which could leverage \$10–12 billion in new investment in at least 10 major regional projects.

## **BOTTLENECKS TO AFRICAN REGIONAL INFRASTRUCTURE INVESTMENT**

Some progress has been made in moving forward with important large regional infrastructure projects. Projects have been identified, prioritized and championed by regional organizations like NEPAD. Significant increases in funding from traditional donors and diversification of funding sources to include new donors have materialized. An example of the type of major projects underway is the West Africa power pool program, which is being funded by the African Development Bank, the World Bank, the European Investment Bank and the Islamic Investment Bank, and is receiving bilateral support as well. The private sector, which had withdrawn major financing as a result of the Great Recession, has already returned to its pre-crisis level of commitments. But progress in making a significant dent in implementing the full range of transformational regional projects is still elusive.

The main reasons are now due to implementation. Many of the projects involve fragile and post-conflict states with limited government capacity. A large part of the burden of project preparation falls on the multilateral institutions, but they are hampered by bureaucratic rules. For example, IDA defines regional projects as those involving three or more countries. But some single country projects that are excluded, like the improvement of the port of Dar es Salaam, would have immediate regional impact because all of Zambia's trade flows through this gateway. Because it cannot be designated as a regional project, IDA resources are deployed elsewhere in Tanzania.

Likewise, there are no formal budgetary arrangements in the multilateral institutions to help defray the administrative costs of complex regional projects. These are treated under the same norms as other projects, meaning that line managers must find ways to cross-subsidize project preparation by finding trust funds or other resources. IDA itself has project preparation facilities, but these are limited to \$3 million per project, a totally inadequate sum for large infrastructure.

Thus, the bureaucratic incentives for regional projects are poor. Managers get no additional recognition for successful delivery, have to manage considerable incremental risk, face budgetary shortfalls that absorb time and energy, and must try to coordinate across a number of countries at the same time in order to satisfy internal processing rules designed for single-country projects. Although there is now a more serious effort to offset these disadvantages and IDA has set aside \$3.4 billion for regional projects, it is not surprising that it has been hard to move past the concept stage to a full project preparation and appraisal, financial close and implementation.

### **THE MISSING LINK: A REVOLVING FUND FOR REGIONAL INFRASTRUCTURE PROJECT PREPARATION**

NEPAD's Africa Infrastructure Action Plan 2010–2015 outlines a series of regional projects in the energy, water, transportation and ICT sectors, and is a good starting point for identifying regional priority projects. The state of readiness is quite variable, with most projects still in a pre-feasibility stage. That means that investment cost estimates are still very preliminary, but the total project costs are in the range of \$32 billion<sup>vii</sup>. The World Bank has narrowed down this list still further, with an assessment of the top 10 most promising regional transformative projects that could be feasibly implemented based on political support, maturity and institutional capacity, and scored against impact on integration and transformation. These projects include hydropower and water resource management projects, with the Inga 3 Hydro project in the Democratic Republic of Congo the most ambitious; the next phases of the West Africa Power Pool program, plus a number of transport corridor programs. These 10 projects have a shortfall in capital funding of around \$10 billion.

The challenge of preparing this magnitude of investment projects should not be underestimated. An assessment by the Public-Private Infrastructure Advisory Facility (PPIAF) looked at the special challenges to project preparation in Africa<sup>viii</sup> and concluded that project preparation is more complex than usually recognized. It recommended that the concept of project preparation should be broadened to include a full range of activities along all phases of project development. These include assessment of the enabling environment, project definition, project feasibility (including economic, social, technical and environmental studies), project structuring (legal dimensions, transaction support for the design and negotiation of contract documents), as well as post-signing support.

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PPIAF notes that project preparation costs worldwide average about 5 percent of project investment costs. However, the complexity of the projects in Africa, and lack of upstream preparation, could take this ratio closer to 10 percent. The World Bank computed a project preparation financing gap of about \$800 million for its list of the top 10 regional infrastructure projects in Africa.

Yet available resources are well below this level. When the Infrastructure Consortium for Africa was launched, an inventory of project preparation facilities was prepared. It catalogued 23 different sources of project preparation funding, with a patchwork of coverage against the full range of project development phases. Only a handful of funds covered all phases of project preparation. And the size of grant funding per project was modest, with the top funding amount from a few sources at around \$1 to 2 million and most providing funding of less than \$300,000.<sup>ix</sup> Since then, an additional scale-up has been achieved through the European Investment Bank (EIB)-managed European Union Africa Infrastructure Trust Fund, a co-financing facility that can provide grants for preparatory works and technical assistance. The EIB and the Development Bank of Southern Africa also established a project preparation facility to provide early-stage funding for regional projects. NEPAD's Infrastructure Project Preparation Facility (IPPF) hosted by the African Development Bank<sup>x</sup> currently has a fund of \$46 million of which \$30 million has already been committed to fund 43 projects with a total capital investment of \$5 billion.

The track record of the IPPF and the PIDG show that a well-functioning project preparation facility is indispensable to speeding up realization of large infrastructure projects. IPPF funds have averaged 8 percent of total project costs. Using this as a yardstick, a project preparation facility of around \$1 billion (8 percent of the \$10–12 billion in investment costs) is now needed in order to bring the 10 priority transformative projects for Africa to financial close.

## THE OPPORTUNITY FOR ACTION

There are two important questions to be resolved in establishing a new project preparation facility. Where will the money come from? And where should the fund be located?

The money must come from official sources, but it does not have to be fresh money from donor budgets. There are several possibilities. One is to ask aid agencies to use their resources for project preparation rather than for direct project investments. This approach is consistent with the idea that aid is a catalyst for development, an agent of change, rather than a direct instrument of development. If small amounts of project preparation funding can unlock much larger private sector investments in infrastructure, then it is surely better to put aid resources towards this endeavor. Unfortunately, most aid agencies still prefer to see the “bricks and mortar” of their financing; the IDA Board did not support the idea of using IDA regional funds for project preparation. The G-20 could work to reverse that decision.

A second option is to call on official private sector institutions like the International Finance Corporation or the European Bank Reconstruction and Development, to contribute to a project preparation facility as a business development expense. These bodies could expect to be heavily engaged in the structuring and financing of the large deals that would result, and so would recoup their contributions through commercial pricing of the follow-up services that are generated by the higher investment deal flow.



A variant would be for official agencies to partially fund the facility with soft credits that would be repaid by project sponsors at the time of the financial close (or through a specified repayment period). Even large investors like sovereign wealth funds interested in taking debt or equity positions in the project might be willing to contribute.

A third option is to follow the example of the Nam Theun II Hydropower project. There, the World Bank advanced money for studies and was later reimbursed by the project sponsors. The private sponsors were happy to pay for studies once the project was certain to move ahead. But they would have been very reluctant to provide the money up-front and take on the risk of a complete write-off during the years of delicate negotiations until the project was finally approved.

Last, the G-20 members could rationalize some of the existing funds dedicated to project preparation and prioritize these for complex, regional projects.

None of these variants require G-20 member countries to contribute fresh resources. Rather they require a mindset change to using aid as catalytic funding rather than for direct costs and a change in approach toward how multilateral institutional funds are used.

Of course, even a \$1 billion fund could be exhausted quickly. Therefore, we recommend establishing a revolving fund where project sponsors would reimburse the facility for expenses occurred when financial close is achieved. In that way, the \$1 billion could hopefully catalyze the entire array of projects identified by NEPAD with a total investment cost of \$32 billion.

The second issue is where the facility should be located. Given the plethora of existing facilities and our suggestion to potentially consolidate some of these anyway, it makes sense to use an existing arrangement, as long as this is open to all potential project sponsors. Given the focus of the G-20 on African infrastructure and the need to ensure a linkage with the political champions identified by the NEPAD process, we suggest first exploring the expansion of the IPPF. The IPPF already has a strategic framework in place to expand modestly over the period 2011–2015. The G-20 could encourage it to be even bolder in its approach.

## POLICY RECOMMENDATIONS FOR THE G-20

The focus on infrastructure as a growth driver for sub-Saharan Africa is welcome. A pipeline of priority projects that pre-feasibility studies suggest would be transformational for the region has already been developed. Now is the time to translate this work into actual project deals. The scale of the financing gap is too large for the public sector to consider on its own. It must attract the private sector to participate. But this means reorienting aid to catalyze private financing. We argue that this is best done by focusing on mitigation of the risks and up-front monetary outlays required to bring projects to financial close. The G-20 could help in three important ways:

1. The G-20 should endorse a list of priority transformational regional infrastructure projects in sub-Saharan Africa, drawing on the NEPAD list and focusing on those programs which are assessed as good candidates based on evaluations of readiness by the World Bank, African Development Bank and other financial institutions active in the region.

2. The G-20 should encourage its members to prioritize the regional projects on this list for their own bilateral infrastructure investments in Africa.
3. The G-20 should expand the IPPF with a \$1 billion revolving facility funded from multilateral institution resources, soft credits from new investors and a reallocation of ODA.

## ENDNOTES

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