CONCEPT NOTE

CONNECTIVITY IN THE SOUTH ASIA REGION

AUSAID-SAR INFRASTRUCTURE FOR GROWTH INITIATIVE

BACKGROUND

The South Asian Region (SAR) is home to the largest pool of individuals living under the poverty line and some of the fastest growing demographics of any region in the world. The proportion of people living on less than $1.25 a day has decreased by only ten percent in this region between 1990 and 2005, while the population has grown by 30 percent over the same time.[1] Economic growth in this region, while generating additional revenue and increasing fiscal space,[2] has also put immense pressure on demands for infrastructure, especially as the rate of urbanization continues to rise. While current percentage of urbanization is extremely low (29 percent) in this region, rural to urban transition is expected to intensify as many of these countries experience economic growth. According to the United Nations, five South Asian cities (Mumbai, Delhi, Kolkata, Karachi, and Dhaka) are expected to surpass the 15 million-person mark by 2015.[3] Furthermore, according to the livability index produced by Economist Intelligence Unit,[4] three South Asian cities (Dhaka, Karachi, and Colombo) are in the bottom 10 cities out of the 140 cities evaluated.

South Asia's geography and persistent local and regional conflicts limit connectivity, hampering growth and increasing regional disparity. Land locked countries like Afghanistan, Bhutan and Nepal will benefit most from improved access to regional and international markets. Even in a large country like India, with a big domestic market to fuel growth, geographic barriers are important. The peculiar geography that isolates the seven North Eastern states from mainland India, with Bangladesh located in-between is an indication that market integration requires increased connectivity between neighbors to benefit all regions that are lagging and isolated from growth centers. Long standing conflict between India and Pakistan, war in Afghanistan, security issues between Afghanistan and Pakistan and India-Bangladesh border issues have prevented the region from benefiting from market integration. Cross-border conflicts in South Asia are a cause of the current lack of connectivity.

While the region has made strides, South Asia's infrastructure indicators are still closer to Sub-Saharan Africa's than to East Asia and the Pacific's. Bottlenecks are encountered in all modes of transport. The transport infrastructure in South Asia suffers from poor condition of roads, lack of intraregional connectivity between the national road networks, unreliable and overall costly road transport services, unrealized potential for rail and inland water freight transport which has led to the excessive use of road transport, and inadequate road and rail connectivity of ports with hinterlands, among others.[5] Investment climate surveys have pinpointed transport as a particular problem for regional and

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[1] 2009 UN Report; Penn table database; and own calculations for SAR (1990- 2005).
http://southasiainvestor.blogspot.com/2009/09/growing-urbanization-un-south-asia.html

[2] The IMF's definition of *fiscal space* is the room in a government's budget that allows it to provide resources for a desired purpose without damaging the sustainability of its financial position or the sustainability of the economy. Fiscal space is created by evaluating revenues from foreign and domestic sources, and then prioritizing expenditures and improving their efficiency. This definition focuses on the current basket of resources available.

[3] http://www.unfpa.org/swp/2007/english/introduction.html

[4] The Economist Intelligence Unit's liveability rating quantifies the challenges that might be presented to an individual's lifestyle in 140 cities worldwide. Each city is assigned a score for over 30 qualitative and quantitative factors across five broad categories: stability, healthcare, culture and environment, education, and infrastructure. The categories are compiled and weighted to provide an overall rating of 1–100, where 1 is considered intolerable and 100 is considered ideal.
[http://www.eiu.com/site_info.asp?info_name=The_Global_Liveability_Report&page=noads&rf=0]

[5] http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/0,,contentMDK:22099130~pagePK:146736~piPK:146830~theSitePK:223547,00.html

international trade in South Asia. Using "Total Road Network per 1000 people" as an indicator, SAR has 2.7 km, which is close to EAP (2.5 km), SSA (2.5 km), and MNA (2.8 km), but is well below the World average (4.7 km), ECA (8 km), and North America (24 km). Road quality is also very inconsistent among SAR countries. Bangladesh has only 10 percent of its roads paved, India and Nepal fare a bit better with 47 and 54 percent respectively, and Sri Lanka (81 percent) and Maldives (100 percent) lead the region with paved roads. Even though SAR and EAP have similar levels of access to roads, road quality varies. Comparing the largest countries of both regions illustrates this difference well since China has 80 percent of its roads paved.[6] Furthermore, SAR's access indicators for telecommunications are similar to Sub Sahara Africa's and significantly less than EAP.[7] While SAR, SSA and EAP were at par in 1990 in terms of the level of access to telecommunications (measured by fixed line and mobile phone subscribers per 100 people), in 2007 SAR's access to telecoms was similar to Sub Sahara Africa but significantly less than EAP.[8] SAR ranks second to last near SSA, with 27 people per 100 and 25 per 100 respectively, while EAP has 57 people per 100 with telecom access.[9]

There is a growing imbalance between regions within the countries and among countries in South Asia. A consequence of economic progress is the increasingly uneven transformation of countries' economic landscapes. Economic growth becomes increasingly concentrated in some regions – leading areas, while poverty becomes concentrated in other regions – lagging areas. Unbalanced growth is the norm, with China, India and Sri Lanka as current examples. Between 1975 and 2005, manufactures in Sri Lanka went from 6 percent of national exports to 60 percent. As a consequence Colombo and its neighboring areas have prospered. Western Province now contributes more than 50 percent to national GDP. But, productivity and wages in Western Province have become twice those in other provinces.[10] In India, the engines of growth are the largest metropolitan areas, where the largest share of the production of goods and services takes place, while economic specialization is very limited in secondary cities and rural areas.

MOTIVATION AND RATIONALE

The size and quality of infrastructure services is critical for economic growth, poverty reduction, and enhancing the quality of life.[11] The relationship between infrastructure investment (including rehabilitation and maintenance) and GDP over time and across countries is that infrastructure investment drives long-term economic output more than other kinds of physical investments.[12] In particular, investments in electricity and telecommunication produce approximately a 0.25 percent increase in long-term economic growth rates for each 10 percent increase of service/penetration.[13] In addition, a 10 percent reduction in transport costs increases trade flows by 25 percent.[14]

Connectivity can be a powerful tool for increasing growth, reducing the gap between leading and lagging regions, and reducing vulnerabilities for the poor. Improved connectivity within a country, within the entire region and with the rest of the world (i) improves access to goods and services at lower prices, turning prices less responsive to domestic shocks; (ii) increases access to markets and competitiveness of domestic goods; (iii) helps business develop competitive advantages; (iv) provides workers, particularly those in rural areas, with greater job and income opportunities; and (v) increases the

[6] World Road Statistics (2007), latest data available are for 2003.
[7] The Role of Infrastructure in Employment, Productivity, and Urban-Rural Transition (2007).
[8] Ibid.
[9] Ruiz-Núñez and Biller (2009).
[10] World Bank (2004), "Sri Lanka: Reshaping Economic Geography."
[11] World Bank (2005), "The Role of Infrastructure in Employment, Productivity, and Urban-Rural Transition."
[12] OECD (2009).
[13] Ibid.
[14] Limao, N., and A. J. Venables (2001), "Infrastructure, Geographical Disadvantage and Transport Costs." *World Bank Economic Review* 15 (3).

access of businesses to needed inputs. For example, according to empirical work railroads built by the British in India were found to have most of the effects just mentioned.[15] Also, Banerjee et al. (2009) found that the "proximity to transportation networks [in China] has a large positive causal effect on per capita GDP growth rates across sectors."[16] Therefore, building the right infrastructure to connect lagging and leading regions can help countries reap the benefits of both uneven growth and inclusive development.

Connecting people to prosperity requires a cross-sectoral approach. There are infrastructure services such as transport and information and communication technology (ICT), which have a direct impact on connectivity. But, there are also infrastructure services, such as energy, that are necessary for connecting people to prosperity, even though they do not play a direct role on the movement of goods and information. For example, mobile phones allow farmers to obtain information vital for their businesses, and seek new work opportunities directly, thereby reducing their dependence on middlemen, but if there is no electricity in their villages, farmers cannot charge phones making investments in ICT useless. Hence, to reap the full benefits of connectivity, a cross-sectoral approach developing connective (e.g., transport and ICT) and supportive (e.g., energy) infrastructure is a prerequisite.

The challenge is to identify transport improvements that generate the highest aggregate reductions in transport costs, but also improving connectivity. The transport systems directly affect trade competitiveness through delivery costs, transit times, and supply reliability. Road transport is the primary transport mode in South Asia. "Road transport accounts for about 95 percent of total ton-km in Pakistan, 70 percent in India and 60 percent in Bangladesh."[17] The cost and quality of road transport services are heavily influenced by the quality of the highway network. For example, in Sri Lanka it costs $2.90 per kilometer to move products within the country, compared with $1.25 in the United States.[18] Even though ocean transport is less costly than road transport, South Asia has not taken full advantage of it yet. According to the United Nations Conference on Trade and Development's index on liner shipping connectivity, even though India ranks quite highly and its connectivity is increasing, it is still far from China's connectivity level.[19] According to the same index, Sri Lanka benefits from having Colombo as a hub port, but "Pakistan has about half India's connectivity and Bangladesh has extremely low connectivity, well below its main competitors in the garment sector."[20] In addition to improving network efficiency, transport improvements are needed for providing basic services such as schools, health facilities, electricity and water and sanitation, which are important for improving people's welfare.

Low cost, high quality communications are essential for economic growth and inclusive development. In the absence of good infrastructure, information is hard to come by, leaving people unaware of options for improving their well-being. By connecting poor people to markets, improving their access to government services, better enabling them to express their voice in decisions that affect their lives, information and communication technology has an immensurable potential for transforming poor people's lives. For example, a wireless network could help rural clinics provide improved healthcare to poor, rural communities at lower costs to patients than traditional healthcare service.[21] In turn, this is also highly dependent on the availability of reliable energy supply, which serves as a basis for industrial development and connectivity as well.

OBJECTIVES

[15] Dave Donaldson (2008) "Railroads of the Raj: Estimating the Impact of Transportation Infrastructure," working paper, MIT.
[16] Abhijit Banerjee, Esther Duflo, and Nancy Qian (2009) "On the Road: Access to Transportation Infrastructure and Economic Growth in China," working paper, MIT.
[17] World Bank (2008), "Trade and Transport Facilitation in South Asia."
[18] World Bank (2004), "Sri Lanka: Reshaping Economic Geography."
[19] World Bank (2008), "Trade and Transport Facilitation in South Asia."
[20] Ibid.
[21] http://wbi.worldbank.org/developmentmarketplace/idea/rural-connectivity-enhanced-healthcare

Funds from AusAID will be used to assist in addressing the necessary infrastructure policies via policy dialogue and lending projects inter-alia so as to avoid potential bottlenecks in economic growth. For example, transport policies need to manage the tradeoffs between the challenges stemming from a national efficiency perspective and those from a spatial equity perspective.[22] How transport policies in South Asia can manage these efficiency-equity tradeoffs is a question that funds from AusAID-SAR IFGI can help answering. Improving connectivity between leading and lagging regions in order to connect people to prosperity is clearly the main objective. This can be done by implementing the most adequate policies, but also by making the right infrastructure investments to increase the flow of goods, people and information between regions within countries and among countries. Hence, funds from AusAID-SAR IFGI will be used for lending development, appraisal and supervision. Most of the activities under lending development include analytical studies that go into the preparation of Bank lending and can be classified as Analytical, Advisory Activity (AAA) in the Bank's parlance. AusAID-SAR IFGI will also fund activities to support public private partnerships (PPPs) in infrastructure that will improve connectivity between leading and lagging regions in South Asia. In addition, AusAID's funds will be used for monitoring and evaluation (M&E) activities and impact evaluation studies of infrastructure programs related to connectivity.

The funds from AusAID will leverage the South Asia Sustainable Development Department's portfolio of infrastructure investments related to improving connectivity. This will be made possible through co-financing from the Bank for specific tasks, through project preparation for lending or TA to which the tasks will contribute, through supervision or evaluation of existing projects or as additionality to the Bank's work program. The TF will also multiply its impact by using funds to obtain contributions from other donors, such as DfiD, ARTF, ESMAP, BNPP, TFESSD, WSP, JICA, PPIAF and DevCo. The AusAID-SAR IFGI funds will also leverage the department's work through a non-financial mechanism by facilitating new engagements or deepening existing ones.

OUTCOMES

This initiative will serve to deepen and strengthen connectivity between lagging and leading regions in South Asia, so the train of prosperity does not leave anyone behind. Specifically, it is expected that this program will have the following outcomes:

(i) Strengthening of the design and implementation of policies on pro-connectivity infrastructure services in the South Asia region;
(ii) Improvement of the design and implementation of projects on connectivity related infrastructure in the South Asia region;
(iii) Leveraging of SASSD's portfolio of infrastructure investments to improve connectivity;
(iv) More adequate selection of investments in infrastructure services to improve connectivity in the South Asia region;
(v) Improvement in the delivery of connectivity related infrastructure services.

OUTPUTS

This section is divided into two parts. The first part consists of a list of projects and outputs on connectivity related infrastructure that have already been approved and are still going on – portfolio. The second part consists of a list of possible activities and outputs on connectivity related infrastructure that could be funded by AusAID-SAR Infrastructure for Growth Initiative – thematic pipeline.

PORTFOLIO

1. **Leveraging a proposed IBRD loan for the Second Karnataka Highway Improvement Project with private sector financing through PPP concessions and domestic borrowing – India:** (i) Set of standard PPP bidding documents, including Request for Quotation, Request for Proposal and Concession Agreement acceptable to the World Bank's principles, with a view to finance the transactions by the proposed IBRD loan. (ii) Terms of reference for financial plan and transaction to support PPP and domestic borrowing. (iii) Report containing financial analysis of PPP concession road and debt capacity and fiscal impact analysis.

2. **Preparation of First National Highways Interconnectivity Improvement Project – India:** (i) Report with assessment of distribution of roles and responsibilities, institutional capacity in the highway sector; (ii) Screening of roads and identification of risks, mitigation strategy, and implementation plan; (iii) Governance and Accountability Action Plan; (iv) Work site safety action plan, monitoring plan, clauses in civil works contracts, and terms of reference of supervision consultants; (v) Report with road safety audit of road design; (vi) Model of civil works contract.

3. **Impact Evaluation of National Emergency Rural Access Project (NERAP) − Afghanistan:** (i) Household and Focus Group Instruments for First Follow-Up Survey; (ii) Cleaned and coded NERAP First Follow-Up Survey Dataset; (iii) Presentation on Findings from NERAP Follow-Up Survey and Estimates of Early NERAP Impact; (iv) Comprehensive Report on NERAP Evaluation and Estimates of Early NERAP Impact; (v) Website for NERAP Evaluation, displaying all reports, presentations, and datasets noted above; (vi) NERAP Evaluation Implementation Manual to document evaluation process and provide guidance for replication of the methodologies employed in the NERAP evaluation for the evaluation of other rural access projects inside and outside Afghanistan.

4. **South Asia Cross Border Energy Program – India, Nepal, Bangladesh, Sri Lanka:** (i) Pre-feasibility assessments leading to Pre-feasibility reports. (ii) Analytical work to build internal consensus resulting in strategy and policy advisory notes. (iii) Capacity building through training programs and staffing advice. (iv) Advisory Assistance to help reach optimal deals.

5. **Sri Lanka** Infrastructure Assessment (SLIA)**:** SLIA's objectives of the Sri Lanka Infrastructure Assessment are twofold: a. Improve understanding of the infrastructure sectors in Sri Lanka, including their current state and performance, future development needs, investment requirements and financing gaps, as well as the bottlenecks to infrastructure development; and b. Provide policy makers in Sri Lanka a sound analytical basis for prioritizing investments, and designing policy interventions that result in the mobilization of funds and their effective use for the future development of Sri Lanka's infrastructure. To this end, the SLIA assesses the country's infrastructure endowment and performance, analyze the contribution of infrastructure to economic and spatial development, and outline investment needs and strategic priorities within those established by the Mahinda Chintana. It provides a cross-sectoral analysis of the major infrastructure cross-cutting themes including the link between infrastructure and poverty reduction & economic growth; the institutional and regulatory framework; the main issues regarding planning, coordination and financing, and the role and constraints of private sector participation in infrastructure financing and service provision. The SLIA identifies bottlenecks to economic growth and consider policy issues to address them. It provides a menu of policy instruments targeting those that generate incentives for better maintenance, mitigate infrastructure related market failures, create appropriate institutional arrangements and, where feasible, promote market based pricing. The SLIA strives to indicate where infrastructure improvements yield the highest economic returns and hence promote Mahinda Chintana's overall objective of promoting economic growth, increased efficiency and improved logistics. It will bring out international experience that is relevant to the country. Most of the issues described are pertinent to most of the infrastructure sectors. Nevertheless, each sector presents its own specificities that require an in-depth analysis. The sector-

specific analysis will cover in more detail energy, telecommunications, transport, urban services (solid waste), and water supply and sanitation.

6. **Afghanistan Energy Infrastructure Work – Afghanistan:** (i) A report on alternative options to complement/support the power Utility- DABS in delivering electricity, efficiently and economically to the Afghanistan people and industries/enterprises residing close to the existing/planned grid; (ii) A dissemination workshop will be held with key stake holders and feedback sought; (iii) Identify and prepare the corresponding implementation plan for two pilot projects for the two most feasible options, selected in consultation with the key stakeholders (consumers, donors, utility, government agencies, etc.).

THEMATIC PIPELINE

The outputs and activities in this section are organized around connectivity related sub-themes:

1. **Service Provision at Regional Level:** As metropolitan areas grow, it is very often more economical and efficient to provide infrastructure services in a coordinated and integrated manner in the entire metropolitan areas. This would require a new institutional set-up or cooperation among several local governments since most metropolitan areas cover more than one city's jurisdiction. Activities under this theme will focus on:
    - ***a.*** **Institutional and regulatory mechanisms:** Review and establishment of institutional and regulatory mechanisms (public or private) to provide infrastructure services at a regional level (e.g., public transportation and inter-modal interfaces).
    - ***b.*** **Application to selected regions/metropolitan areas:** Development of actual infrastructure plans and/or designs of regional infrastructure facilities for selected regions/metropolitan areas.
2. **Emerging Cities and Secondary Towns:** While South Asia has many mega-cities, there are many more emerging cities and secondary towns which are growing as rapidly as or even more rapidly than mega-cities. Activities of this theme would address urgent issues of weak urban institutions, inadequate infrastructure services, deteriorating urban environment and the growing urban poor in many of these emerging cities in selected countries
3. **Energy Efficient Transport:** This activity aims to develop a conceptual framework and suggest practical methodologies for a comparative analysis of energy consumption and pollution by alternative transport modes serving a typical urban travel market in South Asia and outline necessary infrastructure investments. This activity would seek answers to the following questions: (i) What are the main components (e.g., urban rail, bus, private car) of typical transport systems in the five South Asian mega cities (i.e., Dhaka, Delhi, Karachi, Kolkata and Mumbai)? (ii) What are the energy consumption and pollution impact of each component? (iii) Is urban rail really superior to other land-based transport modes on reducing pollution? (iv) What components of the urban rail project present the biggest opportunities for reducing pollution via technology innovation or policy intervention?
4. **Development in the energy sector:** Most barriers for shifting SAR countries to a sustainable development path and sustained economic growth are institutional weakness, lack of strategic planning and inadequate investments in the energy sector, particularly in the poorer countries, and policies to promote energy efficiency and sustainable energy use. Activities under this theme will focus on inter-alia on Training programs, twinning arrangements, and introduction of modern management information systems to provide support for institutional development. It also includes policy support that promotes energy efficiency and sustainable energy use via better pricing, PPPs, and knowledge transfer. Peer to peer support and the development of robust infrastructure investment needs including a pipeline of lending projects.

The pipeline below provides an indicative list of the main outputs we expect to achieve utilizing the $ 2.5 million which will be available with the receipt of the next tranche. A more detailed outline of each of the proposals will be prepared and can be submitted to AUSAID for concurrence before work starts if needed. As future tranches are made available, we will send additional themes for the full utilization of funding (if AUD 10 million is available in FY 2012 additional concept notes will be prepared to complement this one). This will also facilitate the process of the annual review to take place in May as suggested by AUSAID enabling the planning process to coincide with the closing of the fiscal year in both institutions.

PIPELINE

Outputs	Allocation
Development of the Electricity Transmission line linking Central Asia and Pakistan, passing through Afghnaistan (CASA 1000)	$ 500,000
Development of a Highways Investment Plan in India	$ 400,000
Development of Pakistan's Hydro Energy potential Development of Selected State (s) Highways Investment Plan in India potential	$ 400,000
	$ 400,000
Strengthening the oversight over implementation of transmission line projects In India and Nepal	$ 250,000
Strengthening the oversight over implementation of road projects in India and Sri Lanka	$ 250,000
PPP Policy Frameworks in South Asia	$300,000

AUDIENCE

The results of this work are intended to benefit governments throughout the South Asia region and potentially will have spillover effects in other developing nations that are seeking to improve their approach for improving connectivity. In view of the multi-sectoral nature of the infrastructure development agenda, the results will go beyond the development ministries and target planning commissions and ministries of finance, and sector- specific infrastructure. The work on energy efficient transport can have wider acceptance and will provide new ideas for reducing the pollution impact of urban transport. The megacity and metropolitan areas where pilots will be implemented will additionally benefit through an applied programmatic approach which would give clear policy recommendations as well as identifying viable projects with respective financing solutions for near term implementation.

TIMELINE

1. Connectivity concept note adopted – **April 30, 2011**
2. Review of Annual Report – **May 2011**
3. Review of Annual output according to fund availability – **May 2012**
   As agreed, the annual report will be reviewed every May. At this time the pipeline of outputs should be reviewed as well.