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*Benefits and Costs of the Infrastructure Targets
for the Post-2015 Development Agenda*

Charles Cadwell

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Post-2015 Consensus

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¹“Build resilient infrastructure” is the admonition of proposed goal 9, with the apparently related additional direction to “promote inclusive and sustainable industrialization and foster innovation.” Proposed target 9.1 layers on objectives of “quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure ... with a focus on affordable and equitable access for all.” In a few lines of text, this goal is a microcosm of the challenges that the SDG effort itself confronts: to realize an ambition for universality and inclusiveness while, at the same time, to ensure there is clear measurability of that progress. This Viewpoint note will argue that, notwithstanding the challenges in specifying universal, inclusive targets, an SDG goal to improve infrastructure would be important progress over the 2000-2015 MDGs. At the same time the architects of the SDGs would be sensible to resist the temptation to satisfy every development value by attaching multiple outcome requirements to each target to be set.

In the interests of parsimony, this note will shortly focus on transport as one element of infrastructure, though many points also apply to other forms of infrastructure such as water, energy, or telecommunications and ICT.

Infrastructure as an appropriate SDG: Given the centrality of achievements in infrastructure to the achievement of most other of the proposed SDG’s, and the enormity of the gap in accessing infrastructure services, it is surprising that it was not included as an MDG in 2000. Its proposed inclusion in the current SDGs suggests (modest) movement towards a collection of development goals that target some causal conditions, recognizing that the world we want depends on essential intermediate accomplishments.

A November 2014 joint statement by the heads of the World Bank, IMF and other development banks summarizes simply: “no country has developed without access to well-functioning infrastructure.”² Numerous authors have documented the role that road and transport access play in economic growth, access to social services and schooling, and regional integration.³ If access to primary health facilities is a basic goal (as it is in the proposed SDG framework), then the time and means to travel share importance with the construction and staffing of clinics. We can build more clinics or reduce travel time to reach them—both increase access in measurable fashion. Improved transport infrastructure also generates multiple other positive externalities beyond health access,

¹ Comments from the Urban Institute’s Harvey Galper, Solomon Greene and Ammar Malik contributed helpfully to this Viewpoint; the author remains responsible for the points made.

² Statement by the heads of Multilateral Development Banks and the IMF on Infrastructure, November 13, 2014. (<http://www.worldbank.org/en/news/press-release/2014/11/13/statement-heads-multilateral-development-banks-imf-infrastructure> accessed November 13, 2014.)

³ World Bank (1994) “Infrastructure & Development”: Donaldson, Dave (2010) “Railroads of the Raj: Estimating the Impact of Transportation Infrastructure,” National Bureau of Economic Research, (<http://www.nber.org/papers/w16487> accessed 7 December 2014; Canning, David and Marianne Fay (1993) “The Effects of Transportation Networks on Economic Growth,” Columbia University, (<http://academiccommons.columbia.edu/catalog/ac:99886> accessed 7 December 2104.)

such as economic growth. In similar fashion weak electricity infrastructure in Africa is linked to burdens on the poor and its improvement targeted as a pathway out of poverty.⁴

The scale of the infrastructure gap is huge. The November 2014 statement of the multilateral banks and the IMF estimates the infrastructure gap in emerging and developing countries at over US\$1 trillion per annum. As has always been the case, most infrastructure will be produced by developing countries themselves – planned, financed, built and maintained with domestic resources - relying on local systems of governance, public finance, regulation and private sector participation. The multilateral donor institutions, with all of their emphasis on infrastructure, contribute less than one-fifth of the needed annual investment.⁵

It is not just because infrastructure is important to broad development outcomes that donors have emphasized its provision over the decades. Planning, siting, financing, building and operating infrastructure in an inclusive, economically productive fashion tests the quality of a network of institutional arrangements that are frequently in as short supply as the physical infrastructure itself. If these institutional arrangements are not present or weakly available, then long-term planning, long-term agreements with investors and providers, and performance incentives that reflect broad needs of citizens all are hard to deliver. Donors, because they are not captive to the local political economy, can enhance the credibility of these complex arrangements by introducing guarantees, standards, or other external participation. But even this is hard to do, as the history of donor-funded infrastructure programs gone awry attests. As a recent Overseas Development Institute report⁶ notes, the political economy of transport infrastructure investment means that policies often benefit elites, favor short-term over long term investments and prefer construction to operations and maintenance.

This suggests that perhaps we need to broaden our sense of the needed infrastructure to include the institutional arrangements essential to meeting the physical infrastructure gap and support other Sustainable Development Goals. This institutional infrastructure is the governance “software” that operates the “hardware” of physical infrastructure. The quality of the institutional “software” determines whether resources are available and allocated in an efficient, effective and inclusive fashion, whether needed private savings are available to finance long-term investments, etc. and whether infrastructure is distributed equitably, sustainably, etc.

Is there a theory of infrastructure that would permit us to establish a universal measure of its adequacy? While almost every individual infrastructure project entails some sort of cost-benefit analysis, there is no algorithm that combines the costs and benefits of a combination of road access, electricity, piped water and telecommunication service to measure progress towards the broad aspirations of Goal Nine. While we can imagine

⁴ US Agency for International Development (2014) “Power Africa Annual Report” (<http://www.usaid.gov/powerafrica/annual-report> accessed 7 December 2014)

⁵ See statement of Multilateral Banks, footnote 1.

⁶ Overseas Development Institute (2013) “The Post-2015 Delivery of Universal and Sustainable Access to Infrastructure Services, p 22.

targets for individual types of infrastructure, their collection under a single goal is not intended to imply any relative contribution to human development. And even disaggregated, the multiple characteristics of resilient infrastructure proposed, for example in Target 9.1, challenge construction of a single measure for sector-specific targets.

Transport infrastructure illustrates the challenge. While the text of proposed Goal 9 is general, it may be easier to discuss in the context of one type of infrastructure. The mobility of people and goods is essential to progress in economics, social and political spheres.⁷ There are several candidates for targets for transport infrastructure. The World Bank's Rural Access Index, for example, noted that in 2003, 900 million people lived in isolation without access to an all-weather road within 2 kilometers. Organizing a target around such a metric would permit calculation of benefits and costs. Similarly, in urban areas the time to journey to work constrains land and labor markets, in effect reducing a city into several smaller, labor markets.⁸ A target could be developed to capture this outcome. Reaching the target would involve important choices between mass transit or road infrastructure. The benefits from improving performance in urban and rural transport would flow through multiple channels – expanding economic opportunity, prompting investment in transport-dependent sectors, expanding access to goods and services (both public and private), and broadening access to social, cultural and political opportunities.

Differences in access to transport are wide among countries and within countries and contribute to the lack of inclusiveness in other outcomes targeted by the SDGs. Yet would a target of access to all-weather roads or a metric of urban commuting time capture each of the other proposed characteristics that are the ambition of the goal? Few would agree that targets such as these would, by themselves, mark the reliability, quality, sustainability, resilience, affordability, and equitable access characteristics of transport infrastructure that is called for in the Open Working Group proposal. If we somehow developed individual measures of these several characteristics it still seems reasonable that different countries could nonetheless assign different weights and values to each – responding to different national calculations of benefits and costs. Particularly since infrastructure benefits accrue over an extended period, choices about quality and affordability reflect some calculation of broad political and fiscal stability, among other factors. The “bang for the buck” will be different in different places.

But we also have to admit that the multiple objectives tacked onto this, and other proposed SDGs, are not all additive, but in fact may set up opposing ambitions that affect decisions such as whether to fund roads or urban mass transit. My colleague, Ammar Malik, notes, “The twin objectives of ‘supplying infrastructure’ while maintaining “affordability” and “equitable access for all” contradict each other. Infrastructure is supposedly a public good (at least theoretically), but it’s also expensive and requires new forms of financing

⁷ UN Open Working Group on Sustainable Development Goals, (October 2014) “Compendium of Issue Briefs “ (in particular Issue Briefs 12 (Inclusive and Sustained Economic Growth, Industrialization and Infrastructure Development) and 21 (Sustainable Transport), (http://sustainabledevelopment.un.org/content/documents/1554TST_compendium_issues_briefs_rev1610.pdf accessed 7 December 2104).

⁸ Work underway by Anjum Altaf and others at the Lahore University of Management Science is documenting this cost.

arrangements (think PPPs). This means infrastructure becomes both excludable (e.g. via tolls) and rivalrous (e.g. congestion) – all this means that much of the ‘publically provided infrastructure’ is in fact unaffordable to many and creates significant access barriers.”

This lack of a working theory makes me sympathetic to the approach suggested by Harvard’s Matt Andrews⁹ in responding to those urging an SDG on governance – an exercise as troubled as fixing an encompassing physical infrastructure measure. Interestingly, Andrews suggests that one metric that captures a wide range of governance capability is road deaths. Andrews’ premise is that governments are uniquely responsible for road safety and that solutions to road safety involve multiple sorts of governance functionality – constructing roads, establishing standards for vehicles, establishing licensing systems and policing behavior of road users. He notes that road deaths per 100,000 are three times higher in less developed countries, citing WHO data. How individual countries address this goal would depend on their assessment of where there are opportunities to improve particular factors leading to road deaths – a calculation requiring simultaneous judgments about goals, resources and political and administrative contexts for performing needed steps.

Perhaps his logic could extend to Goal Nine as well. If one had a metric such as road deaths, as Andrews suggests, it could serve as a clearer focal point for local stakeholders to measure their own government’s effectiveness and summarize important infrastructure progress at the same time. Subnational measures of road deaths would capture inequitable resolution of the construction, regulation, and enforcement systems that lead to better access to infrastructure.

This leads me to suggest that a combination of targets for road access, commuting time and road deaths might motivate creativity in individual country solutions but still encompass many of the values that lead to so many commas in the current proposal.

⁹ http://matthewandrews.typepad.com/the_limits_of_institution/2013/11/ideas-for-post-2015-governance-indicators-focus-on-state-capability-or-governance-gaps.html

This paper was written by Charles Cadwell, Director, Center on International Development and Governance at The Urban Institute. The project brings together 60 teams of economists with NGOs, international agencies and businesses to identify the targets with the greatest benefit-to-cost ratio for the UN's post-2015 development goals.

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