Globalization TrendLab 2015

Overcoming the Infrastructure Gap

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Executive Summary

Infrastructure needs worldwide have never been greater. Population growth, migration from rural to urban areas, and the rise of the middle class of consumers will in combination create vastly greater needs for transportation, energy, water, and telecommunications. Much of the increased demand will originate from Asia, while repairs and upgrades to existing infrastructure in Europe and the Americas will also add to the gap.

Historically, much of the initiative and the funding for infrastructure was assumed to be governments' responsibility. Nowadays, given the growing debt burdens of the public sector, the increased complexity of demands on government and the growing consensus that the efficiency orientation of the private sector participation can reduce lifetime costs and deliver better infrastructure, the private sector is expected to play an increasing key role in its financing and management. Although institutional investment capital is presently abundant, it is important to develop ways of matching funding to infrastructure projects using new, innovative structured vehicles. Investors such as institutional funds, sovereign wealth funds, permanent funds, family offices, and private equity firms need to be persuaded to invest in infrastructure through innovative structures so as to complement funding from governments. Infrastructure development will only accelerate, however, to the extent that the different actors involved manage counterparty relations and stakeholder engagement properly and effectively. Interest alignment between concessionaires and owners is also essential to successful outcomes.

The private parties engaged in infrastructure financing and development need to understand the peculiarities of each local institutional context and how policy and regulatory frameworks both enable and circumscribe the value that these projects can deliver over their life-cycle.. Not only is there a dire need for educating the public and policymakers about the realities of infrastructure development, but also the importance must be emphasized of having informed owners who are technically sophisticated and who have the ability to think ahead to the entire project life-cycle

The Infrastructure Challenge

Infrastructure Infrastructure is central to achieving economic, political, and social goals. The modern economy makes extensive use of infrastructure especially at a time of expanding trade, foreign investment, and global value chains spanning multiple countries. Governments have historically used infrastructure as a way to unify their country, establish and maintain borders, and foster nationalism. Most importantly, social development and the well-being of the population depend to a very large extent on satisfying basic human needs such as housing, sanitation, and sustenance through investments in infrastructure. In agreement with the United Nation's Millennium Development Goals, the World Bank continues to deploy its many resources to bridge the infrastructure gap in the developing world.

Unmet infrastructure needs are simply gigantic, especially to accommodate the additional 1.5 billion people that will be living in the world by the year 2030, according to the medium projection by the United Nations, and to improve the standards of living of the 800 million who presently live under the poverty line. In addition, the growth of the middle class of consumers around the world will generate new demands for infrastructure. In the rich countries, extensive repairs and updates to aging and dated infrastructure are needed. Another key variable is the migration of people from the countryside to the cities whose economic model depends upon efficient and effective infrastructure. With nearly 50 cities with at least 10 million people by 2030, and up to 200 between 5 and 10 million people, massive investments in infrastructure will be required to offer urban dwellers quality of life. Urban growth—estimated to be at 1.5 million people per week—will trigger more than half of infrastructure investment in the near future.

The cost of overcoming the infrastructure gap is estimated to be as high as $60 trillion through the year 2030. "Each time the word 'infrastructure' comes up in a discussion, the figure gets bigger and bigger," observes Geoffrey Garrett, Dean of the Wharton School. The largest category of infrastructure needs refers to transportation, including roads, railways, airports, and ports. Second in importance is energy, followed by water and telecommunications.

Geoffrey Garrett

Historically, much of the initiative and the funding for infrastructure was assumed to be governments' responsibility. Nowadays, given the growing debt burdens of the public sector, the increased complexity of demands on government and the growing consensus that the efficiency orientation of the private sector participation can reduce lifetime costs and deliver

better infrastructure, the private sector is expected to play an increasing key role in its financing and management. However, a broad array of stakeholders including local communities and civil society need to be actively engaged in order to avoid the mistakes of the past when it came to large infrastructure projects. Thus, overcoming the infrastructure gap will demand new models of governance and an active strategy of stakeholder engagement on a scale not seen in recent times so as to ensure equity, efficiency, and respect for the environment. It will also require to jettison the political tendency to "kick the can down the road" without boldly addressing the problem, as Wharton Professor Witold Henisz notes.

The global infrastructure market will continue to be dominated by China, estimated to account for nearly 60 percent of the total at the present time. North America is likely to represent 20 to 25 percent of the total, while Europe will fall to less than 10 percent. While substantial, investments in Latin America and the Middle East will likely be around 5 percent of the total each, and Africa barely 2 percent, although in 10 or 20 years it is expected to represent a much bigger proportion. ■

Jean-Marc Aboussouan

Attracting New Sources of Finance

Beth Touomou, Ashby Monk, Cherian George, Jean-Marc Aboussouan and Donald Lessard

In the developed world, governments are no longer in a position to be the main funders of infrastructure. Government spending on infrastructure has fallen to less than 4 percent of GDP, and as low as 1.7 percent in the United States, compared to 8.5 percent in China, which is the world's largest investor in infrastructure. But as Donald Lessard, Epoch Foundation Professor Emeritus at MIT, argues, "the challenge is not to find the money—there is more of it than is needed— but to structure the projects in the right way."

"The issue is not lack of funds on a global scale," concurs Jean-Marc Aboussouan, Chief of the Infrastructure Division at the Inter-American Development Bank, "but to match them in the best possible way to specific projects taking into account risk-return profiles." This is even true after major private, public and multilateral banks reduced their role in the wake of the financial crisis. "Project finance, local banks, pension funds, insurance companies and sovereign wealth funds presently have large pools of money available for both debt and equity investments in infrastructure," notes Aboussouan.

Cherian George, Managing Director and Head of the Americas at Fitch Ratings notes that "the challenge is convincing these investors to enter this asset class which they perceive as risky due to historical cost overruns and delays.of many publicly managed projects" "Managing political cycles is also very important to prevent political risks from materializing," Aboussouan warns. Beth Touomou, from Bechtel Enterprises, and a former Managing Director of the Structured Finance Division at the U.S. Export-Import Bank, highlights "the need to truly understand the local context, the political, regulatory and legal support including the degree of resistance to outsiders coming in and dictating privatization."

George explains the role that Fitch and other rating agencies play "as not so much a referee but a gatekeeper." By rating the ability and willingness of debtors to pay back, ratings agencies play a crucial role in infrastructure development by enabling private-sector actors and investors to participate. Countries differ in terms of whether the issue has to do with ability or with willingness to pay. In the United States, for instance, the biggest stumbling block has to do with the unwillingness of government at different levels to spend on

infrastructure, driven by voter concerns about tax burdens. "There are $22 trillion in long-term capital in the U.S.," notes Ashby Monk, Executive and Research Director of the Stanford Global Projects Center, which could be partially redeployed to improve the country's dilapidated infrastructure. "The global capital glut could help overcome most of the relevant infrastructure gaps," George argues. "But private investors wish to be paid back, and there is another kind of gap, a 'trust gap', that is preventing money to flow to infrastructure projects." Ratings agencies are fundamental to the considerable "institutional engineering" that project structuring entails, notes Lessard. For Aboussouan, trust is also central to the success of public-private partnerships.

Plentiful capital is one characteristic of the present scenario. The other is the proliferation of different kinds of actors. "There is plenty of capital available from all sorts of long-terms investors such as institutional funds, sovereign wealth funds, permanent funds, family offices, and private equity," argues Monk, who advises the University of California's Chief Investment Officer. He argues that these new investors can play a very constructive role in infrastructure because of their long-term orientation. In particular, sovereign wealth funds help reduce uncertainties in long-term financing. "Foreign governments are demonstrating a tremendous ability and willingness to help their companies. Pension funds are also interested in infrastructure investing, notes Monk. Finally, family offices are also potentially important, though as a percentage of the total they will be smaller players. In addition, new players such as the China Development Bank or the Silk Road Fund are becoming significant on a global scale. One of the challenges, at present, is that each of these financiers is, to some extent, is playing by their own rules. There are "a lot of new faces" but the task at hand consists of "finding structured ways in which these new players can unleash their funding potential towards infrastructure projects," argues Monk. Local capital markets especially

Beth Touomou

domestic pension funds, not just global ones, are also critical to success but a staged approach is needed. "In particular, you need to avoid launching too many projects seeking local finance and thus driving costs up due to the competition for funding."

Touomou notes that a political expertise is also crucial. "The World Bank, the International Finance Corporation, and similar entities play a pivotal role in helping educate politicians about the best way to structure projects." Aboussouan highlights that the development agencies have funds available to help "shape" projects up-front in a manner that foresees political and other challenges that will emerge down the road and improve their up-front design to avoid cost overruns and delay. "You have to take into account all stakeholders to a project. You can't ignore that. You need to sit down and talk to all of them. If you don't the project is likely to be a failure." Touomou agrees that such efforts are a larger and larger portion of the focus of project developers. She emphasizes that "projects are doomed if they short change project shaping. The smart money is increasingly paying attention to these things."

Ashby Monk

Given the shortcomings in such efforts, historically, the panelists noted that many existing projects will have to be renegotiated. George emphasized that "something will have to give. Contracts may be breached. Along the way there will be renegotiations and defaults." Touomou concurred that bankers understand that "some contracts will be reopened "if they are sufficiently unbalanced. It is the situations where someone feels later that they didn't fully understand what they were getting into, or maybe that the deal is too much in the other party's favor, that people can become 'crazy.' It's better to work towards a more balanced deal up-front and avoid these renegotiations later."

Lessard notes that increasing the provision of infrastructure also requires an increase in "administrative capacity" on the part of the governments involved. For Aboussouan, "governments must be reassuring to private investors," that is, they need to avoid the problem of the so-called obsolescent bargain. Another issue, notes Monk, is that top-notch talent flocks to the higher-paying corners of the financial sector and sometimes is hard to attract to public-sector and nonprofit-sector funds. Many of these funds outsource the management of their investments in infrastructure to Wall Street, which is not necessarily the best way to allocate capital and manage in the context of long-term infrastructure development. He cited the Dutch pension fund as an important example of an agency that was building and retaining the in-house capacity to evaluate and manage its portfolio of infrastructure projects.

Aboussouan also explained that given the decades-long time horizon and massive scale of some infrastructure projects, it may be necessary to divide up the financing into more manageable tranches and allocate these pieces to different types of investors. George spoke of new vehicles which bundles packages of such segments into bundles for investors thus adopting a portfolio approach to managing the underlying risks.

Stepping back from the gaps and innovations seeking to span them, Lessard argues that when it comes to calculating returns to infrastructure, it is important to note that it is supposed to be a "quality-of-life enhancer." Thus, the benefits to society need to be specified and computed, especially when considering the appropriate role for the government to play in infrastructure development. Most importantly, "all of the ramifications, both positive and negative, should be factored in, including environmental concerns" adds Monk. For instance, Lessard points out that Boston's Big Dig project is perceived as a burden financially but it has actually helped retrieve large tracts of previously unusable land in the downtown area.

In sum, the availability of capital is not a constraint on infrastructure development at the present time. The challenges lie with facilitating the involvement of private-sector actors, structuring projects, and ensuring that the relevant expertise exists at all levels. ■

Managing Counterparty Relations

Nicolas Rubio, Ed Merrow, Michael Loulakis, Tim Cummins, Niels Noorderhaven and Ray Levitt

Infrastructure development is a complex task involving different types of expertise, companies, and industries. There are planners, consultants, policymakers, regulators, clients, contractors, subcontractors, concessionaires, community stakeholders, and others involved. Thus, "the management of counterparty relations is critical to success," states Ray Levitt, the Kumagai Professor of Engineering at Stanford and former member of the California Public Infrastructure Advisory Commission.

For Nicolás Rubio, President and CEO of Cintra USA, a subsidiary of Ferrovial, the most challenging relationship is the one between the client or owner and the concessionaire or private contractor, "mainly because both actors tend to be very sophisticated." Moreover, when contracts stretch for 20, 50 or even 99 years, it is difficult to anticipate all of the potential contingencies. Ed Merrow, founder and President of Independent Project Analysis, Inc., agrees. "When something goes wrong, and that is frequent, the finger-pointing starts, meaning that everyone blames the other party." Michael Loulakis, founder of Capital Projects Strategies LLC, further observes that differences in time horizons make counterparty relations management even more difficult. Key political actors place enormous pressure on others to "just get it done." The key problem is to "ensure that interests are aligned," according to Tim Cummins, founder and CEO of the International Association for Contract & Commercial Management.

The concessionaire or contractor "needs to understand that in infrastructure the client is really an owner," notes Merrow. It is key that the owner has a clear idea of what the objective is, and that it is communicated unambiguously with clear and technically feasible metrics for success. In addition, "the owner needs to be coherent in its preferences and ways of acting as well as in keeping the actual user of the infrastructure in mind." "Efforts at project shaping need to identify the key stakeholders to the project and allocate benefits to them so as to insulate project managers from undue turbulence." The design-build model, in which the owner interacts with only one contracting entity, can be a useful to help match needs and solutions, according to Loulakis. "It is important to promote skill formation among policymakers and government officials," argues Cummins. For Rubio, it is essential that the owner understands the model of public-private partnerships. Most crucially, the owner needs to

> "The balance between debt and equity in a particular project also affects every aspect of counterparty relationships."
>
> *– Nicholas Rubio*

grasp the potential gains from private-sector involvement. "Indifference on the side of the public-sector owner is not enough; active and informed cooperation is required for success."

Managing time is a paramount concern. Loulakis emphasizes that mechanisms for the prompt resolution of disputes are needed. "If you have disputes, but a good relationship, a fair contract, profits, you can work it out. If, by contrast, you have a long-standing sense of unfairness in the relationship, a bad contract, no profits, it is difficult to get to a quick, amicable, resolution." Merrow argues that risk transfer from the owner to the contractors is "a very uneven process because the latter are usually less than perfectly capable to assume the risk." For Rubio, "both parties need to acknowledge and accept the distribution of risks and rewards as stated in the contract." Cummins also emphasizes the importance of mutual understanding, especially of the cultural peculiarities of each party. One needs to overcome the "fundamental distrust between project managers who want to partner, collaborate and share and engineers who think contractors are fundamentally evil."

Nicolas Rubio and Ed Merrow

"The balance between debt and equity in a particular project also affects every aspect of counterparty relationships. For example, highly leveraged projects may reduce the amount of equity at risk to levels well below the potential returns of industrial partners in parallel businesses like construction related contracts. This would break the healthy alignment of interests between sponsors and financiers that exists in lower leveraged projects, increasing the potential for disputes, delays and other conflicts between the parties.," observes Rubio.

"Governance of long-term infrastructure is inherently problematic," argues Niels Noorderhaven, a Professor at Tilburg University in the Netherlands. For Cummins, the key is to invent new governance mechanisms that go beyond classical contracting. "A European Union report suggests that the average mega-project is two years behind schedule and 80 percent over budget." Thus, contracts do not seem to provide optimal results. "The contracting process does not seem to provide the discipline that is required. The only certainty is that there is rampant contractual uncertainty. There is a lack of clarity on scope and goals and too little emphasis on mechanisms for managing uncertainty." For

him, it is important to shift the mindset "away from punitive contractual safeguards and grievance resolution to other mechanisms that build trust among the parties involved." For him, "contracts are written by lawyers, for lawyers, and in anticipation of litigation." He called for better tools to enable trust-building in these relationships and to allow counterparties to interact and learn more about each other. Henisz notes that contracts do matter and can help align interests, if they are carefully designed.

Niels Noorderhaven and Ray Levitt

Rubio, who has ample experience as a concessionaire, argues that "every company attempts to make money over the long run," and therefore "relationships are paramount." In this context, "being transparent has value in the long term, although being opaque may give you a short-run advantage." According to Loulakis, transparency is better guaranteed when there is a competitive bidding process, and this has resulted in a recent trend in the U.S. towards solicited P3 bids. Loulakis does note a downside, however, as "The dominance of low-price as the fundamental selection criteria can undermine the benefits of rewarding proposers who offer other areas of value, such as a unique technical solution that may have a higher first cost. Selecting on low price also has a long history of creating conflicts during execution, as the owner realizes that its view of the contract scope differs from the contractor's view."

"It is important to establish the selection criteria at the beginning of the process," agrees Nuria Haltiwanger, CEO of ACS Infrastructure Development, Inc., one of the world's largest groups. However, Haltiwanger disagrees with Loulakis regarding the relative risks of focusing on price. She perceives that "price should be one of the more important ultimate selection criteria. In her opinion, a properly structured solicitation process, includes very clear rules at both the prequalification stage, for short-listing of firms with the necessary technical experience for the project, and then at the actual bid stage. The rules need to be very clear upfront as to how the project will be awarded, especially to the extent that technical scoring will play a role in points assessed for award. Overall, if the prequalification for technical capacity has been done properly and there is a proper technical check of the solution (including a set number of points allocated), the vast majority of the award should then be based on price. If you make things too open in terms of technical scoring, it permits too much capacity or risk for inappropriate bidding practices and a lack of transparency."

Ultimately, managing counterparty relationships depends on achieving the right mix of behavioral, contractual, and regulatory parameters to align incentives of disparate counterparties on achieving long-term value rather than optimizing short-term or narrow particularistic interests and apportioning that value in a manner that all internal and external stakeholders will perceive as fair *ex post*. ■

National and Local Political Challenges

Janet Kavinoky, Alexander Kazan, Harry Broadman, Samara Barend and Francesc Trillas

Formal and informal institutions matter," Francesc Trillas, a Professor at the Universitat Autònoma de Barcelona and researcher at IESE, reminds us, but we must make an effort to be precise about how they matter When it comes to infrastructure development, projects often run into trouble because of unforeseen political or regulatory changes, or because of a lack of understanding of the local institutional context. "The interplay between the public and the private is always tricky," adds Samara Barend, Senior Vice President and Global Director of Public-Private Partnerships for construction firm AECOM. "There are also differences by sector in the sense that existing regulatory and policy frameworks can handle transportation projects relatively easily, whereas water and other types of projects are harder to launch," she argues reflecting on the case of the United States, where each state and many municipalities have a different framework. An additional complication has to do with taxation, which affects incentives and the participation of private capital.

> "The interplay between the public and the private is always tricky."
>
> *– Samara Barend*

For Harry Broadman, CEO and Managing Partner of Proa Global Partners LLC, a boutique consulting firm focused on emerging markets and formerly Senior Managing Director at PriceWaterhouseCoopers, Managing Director at Albright Stonebridge Group as well as a senior official at the World Bank and United States Assistant Trade Representative, "the biggest problem is that politicians do not understand the nature and implications of the infrastructure gap." He also emphasizes that the problem manifests itself mainly at the local level, not the national level. Another complicating factor is the increasing competition among projects to secure funding in the best possible conditions, and the competition by bidders from different countries with diverse structures and ways of doing, sometimes in violation of World Trade Organization rules. Kazan adds that at the present time the inertia in the United States against revisiting the Bretton

Woods institutions may not be beneficial to global infrastructure development.

It is very important to "get the basics right in emerging markets" before launching a major infrastructure development program, argues Alexander Kazan, Director of Emerging Markets Strategy at the Eurasia Group. These would include macroeconomic stability, a sound regulatory foundation, and a process for initiating and implementing projects. "It is also important for governments to manage the public's demands for better infrastructure, especially at a time when income from commodities has declined."

Janet Kavinoky and Alexander Kazan

For Kavinoky, Director of the Congressional and Public Affairs Division at the U.S. Chamber of Commerce, the basic issue is that "if you are talking about politics, you cannot win with rational thought. The usual assumption about rational analysis when it comes to long-term infrastructure planning and execution is foreign to many politicians." Ignoring politics, however, is not feasible; one must be realistic because "it is impossible to depoliticize the process." A related issue is that the government plays many different roles: provider of direct funding, extend lines of credit, create tax incentives, establish policy priorities and harmonization criteria, and so on. It is critical to demystify the underlying political process to investors and counterparties.

Given the primacy of politics in this area, "it is fundamental to have a sound strategy to communicate to politicians and the public." According to Barend, "people have many misperceptions about the value of public-private partnerships or the benefits of new infrastructure, for instance." The problem is that we are ineffective at explaining and "when you are constantly explaining, you are losing the political process." She contrasts the United States in this regard with the more successful education and awareness campaigns run by the provincial level P3 agencies in Canada. For Broadman, "it does not help that so many projects end up being delayed and over budget. That undermines public perceptions and insures that communication efforts are spent on ex post remediation instead of ex ante prophylactic or proactive efforts." The key solution is to "have a good methodology for calculating the value of an infrastructure project and then communicating that effectively to stakeholders," says Broadman. "Make it transparent who bears the costs and benefits. Bring in stakeholders." Kazan adds that certain types of projects like Internet broadband generate little controversy, while those related to water can be highly contentious. "It is important to prioritize projects with a greater multiplier effect and to communicate that effectively." The challenge according to Kazan is that, in the aftermath of the financial crisis and the end of the commodity boom, governments who just survived crises, accusations of corruption and public backlash lack the credibility or the appetite to make this case. The only projects that will move forward in this environment are those for which it is obvious that there "is a price people are willing to pay that could in aggregate cover the cost of provision."

Kavinoky was a bit more optimistic about the potential for "a ground game of public relations that starts early and is maintained throughout the

Harry Broadman, Samara Barend and Francesc Trillas

life of the project. You want the idea of the project to take hold in people's head and never let it get out. The challenge is that once people have seen something as free for a very long time, they don't want to pay for it. The importance of people who can communicate the value proposition under these circumstances is growing rapidly. It's a different skillset that quantitative engineers but a necessary complement for project success." Barend noted the example of the PR22 highway in Puerto Rico and the extent of efforts to win "stakeholder support before the government went public with the project" as well as the extensive poster campaign that accompanied the rollout. She provided a counter-example of a South Carolina water treatment project that was derailed by the city council for whom the project had not been socialized and, as a result, passed a resolution prohibiting private finance embarrassing the Mayor who had been a supporter.

Broadman spoke of the importance of shifting from "a technical to a strategic focus." He advocates drawing on restrospective analyses of value from previous projects that identifies value in going forward and comparing it to the costs of not going forward which is communicated through credible third parties. Kazan cites the Brazilian case as a failure according to this criterion. At a time when the public infrastructure is falling down, the public sees funds going to connect the wealthy areas of town to the center and the bus fares that they depend upon being raised. Instead of being perceived as raising costs to the middle class and poor to fund road development for the rich and vanity projects, the government should target bottlenecks that exact a large toll on all such as those that lead to a 20% cost increase for goods transported inland. Kavinoky concurs up to a point but adds that the public wants "to see the money." Project developers and managers have to realize that the public doesn't believe them. "What they want to do is to see the benefits as money in their pockets. Don't convince them that it's good for the public or the economy, show them the money. They don't want to see private profits which they equate with crony capitalism or windfall profits. " She draws attention to the current US debate on the Export-Import bank as an example of a public good being branded as a subsidy for the rich. The key is to explain to the public "how their lives will be

Broadman spoke of the importance of shifting from "a technical to a strategic focus."

improved, as opposed to how the economy as a whole will benefit." She concludes that it is important to understand that most people "do not want the private sector to make money out of the development of what they perceive as being public infrastructure. They want to understand the money flows and who will benefit. They want to see and receive the shared savings, understand the costs to them of not doing the project and understand what is novel and could not be done by the government." Barend cites the state of Florida's Value for Money analysis as an example of a process that can provide this level of information

Harry Broadman

to the public. Lessard adds that "construction of physical infrastructure disrupts people's lives, and so the benefits need to be readily apparent to them, both in economic and in social terms." Broadman thinks that a key tool is to "engage the public when it comes to establishing infrastructure priorities and to be transparent about the process."

One important difference across countries in terms of infrastructure projects is the presence of a national infrastructure bank. Barend and Broadman see the value of it not just as a funding agency but as a repository of expertise and standards. Still, it would be very difficult in certain contexts, especially the U.S., to create such an institution. Still, "we should not give up on a Federal transportation strategy," argues Kavinosky. Barend draws attention to multiple modest proposals which can make a substantive difference for the sector including the use of Transportation Infrastructure Finance and Innovation Act funds which provides federal credit assistance to transportation projects that lower the cost of finance below those of tax exempt bonds. She also highlighted efforts by some states to compensate bidders for projects rather than forcing them to absorb the costs of lost bids as well as the creation of centers of excellence. And at the very least, the Federal government "has the Constitutional power to facilitate inter-state commerce, which requires certain types of infrastructure to be in place," notes Michael Garvin, an Associate Professor of Civil and Environmental Engineering at Virginia Tech.

It is also important to establish and monitor milestones over the entire life-cycle of the project, as a way to demonstrate success to stakeholders, including the general public, argue Barend and Broadman. "Each concern needs to be addressed with the milestones, from efficiency and effectiveness to environmental impact and safety," argues Kavinoky. Garvin notes that the communications strategy has to focus more on the win-wins as opposed to winners and losers.

The enormous cross-national and local variations in institutional context has at least three implications for concessionaires. First, success is highly contingent on a thorough understanding of the institutional intricacies of each location. Second, companies that operate in different locations and countries can leverage their experience over time because there is a learning effect that translates past experience into adaptability and an ability to move faster and more effectively in new settings. And third, the organization of the firm and its human and managerial resources need to be arranged in such a way that such learning occurs. Similar implications can be derived for the owners of the infrastructure. Governments and other types of owners should learn about best practices in other locations with a view to improving outcomes. ■

Securing and Maintaining Support from Local Communities

Veronica Nyhan-Jones, Dennis Flemming, Sinziana Dorobantu, Saleem Ali and Bennet Zelner

Stakeholder management is key to any economic undertaking, including infrastructure projects. There are two generic approaches to this topic. The normative approach proposes general guidelines or principles as to how to engage with stakeholders, but tends not to be grounded in the specific circumstances in which the project takes place. The second approach builds on the political process described earlier to develop and maintain support for a specific project among specific stakeholders," notes Bennet Zelner, a Professor at the University of Maryland's Smith School of Business. "It requires gathering and analyzing data on the characteristics and preferences of stakeholders, and determining the best ways to engage stakeholders."

> "There is a trend towards deeper awareness in local communities about the infrastructure bargain which is being made by governments to woo private investors."
>
> *– Saleem Ali*

"There is a trend towards deeper awareness in local communities about the infrastructure bargain which is being made by governments to woo private investors, and as a result a desire to engage, more directly with such negotiations when international deals are being made. This is particularly the case with Chinese investment in Africa" notes Saleem Ali, Director of the Center for Social Responsibility in Mining and Professor at the University of Queensland in Australia. The number of issues has multiplied over time, including jobs, the environment, local traditions, and so on. That awareness may lead to dissatisfaction if it is not properly channeled, and dissatisfaction typically translates into resistance, sometimes violent. And there are certain circumstances that make the situation even more volatile. For instance, when the investment in infrastructure is undertaken in the context of privatization, "it can be problematic to overcome the resistance of local stakeholders," notes Touomou.

Saleem Ali and Bennet Zelner

"In order to be successful in mining, for instance, it is no longer about technology or investment; it's about social consensus," argues Sinziana Dorobantu, a faculty member at NYU's Stern School of Business. "And social consensus is not a fuzzy concept; its impact on the net present value of the mine can be quantified." In her research and case writing, she has used a mix of field-interviews and systematic coding of media articles to identify the preferences of stakeholders towards a project and towards each other. This dataset covering 26 mines in 19 companies over 15 years has rigorously reinforced many of the arguments long-made by proponents of stakeholder engagement. Companies need to engage stakeholders from the beginning and analyze tradeoffs in terms of which stakeholders and at what level are prioritized. Engaging proactively with a diverse group of stakeholders and in a manner that cedes real authority to them helps to build enduring trust and the social license to operate. By contrast, more expedient investments with high status or well-connected stakeholders may provide short-term benefits but less depth and robust support. At a time of crisis that will almost surely emerge over the life of a project, the difference between these two relationship strategies will be material.

One problem is that the workers, engineers, and managers who build the infrastructure do not adopt a time horizon that extends throughout the entire life-cycle, argues Dennis Flemming, Executive Director of the Chevron's Niger Delta Partnership Initiative. Instead, there is an overwhelming focus on getting to the "end of construction" and avoiding any delays or the incurring of any costs before that goal. Flemming argues for a focus on the value of stakeholder engagement rather than on the cost or delay it might incur. He highlights that the most important issues in such engagements are typically local content and supplier development. He concurs with Dorobantu that companies talk to the most important especially the loudest stakeholders rather than pursuing more holistic engagement. This focus on political leaders actually enhances the distance from leaders and the rest of the community and distracts from a focus on the key long-term issues of local content and supplier development. It is also important to ensure that the government understands the implications of building social infrastructure such as schools or hospitals in the context of an extractive project, including staffing and maintenance over the long run. Project developers and managers too often make the expedient assumption that the government will live up to its commitments.

A useful strategy is to orchestrate "collaborative interventions involving international aid agencies, the local government, and civil-society organizations," says Flemming. "The best partners are civil society organizations with community connections. It is important to not just coopt these organizations but to take the time to form real and genuine partnerships with them." In Flemming's experience, such partnerships are easier to create in the neutral space of a corporate foundation than directly between the company and the stakeholders. Foundations are less threatening than working directly with the company and allow for the bypassing of overly restrictive contracting

Veronica Nyhan-Jones and Dennis Flemming

rules which preclude sourcing from local suppliers. "It is smart policy and smart practice to take environmental and social issues into consideration," observes Touomou. The involvement of the multilaterals "brings discipline and enhanced attention to social and environmental concerns."

Investing in infrastructure requires "not only a value proposition but also attention to values," notes Veronica Nyhan-Jones, Global Head of Advisory Services for the Infrastructure and Natural Resources Department at the International Finance Corporation (IFC). "Clients need to listen and realize the importance of internal and external alignment. Engagement is the tool, but ultimately one needs to ensure that the benefits are shared in a manner that is fair, reasonable and resilient." In its investments, the IFC encourages the spread of benefits across the community. "Uncertainty also needs to be shared, and expectations managed, because local communities in emerging and developing countries are seeking to improve their lot." Jones prefers the label of constituents to that of stakeholders because "constituents deserve to be listened to. They are not just getting handouts." Clients to see the world as their constituents do and understand the very different views that they have on the same reality. The timing of benefits is not understood by constituents and it is critical as well as are the risks that that timing will shift.

"Engineers believe that there is one objective scientific reality not as open to other equally well-trained and informed perspectives on the shifting nature of that reality."

Jones highlights the importance of "doing research on how to address the concerns of the stakeholders, especially the local community." Flemming proposes household surveys, focus groups and other techniques to engage the community, although it has to be done in ways that do not upset community leaders. New communication technologies pose both challenges and opportunities for stakeholder engagement. On the one hand, mobile phones and social media lower the costs of organizing resistance and protest. On the other, they can help companies reach the relevant stakeholder to explain the logic behind the project. "Social media are also increasingly relevant, and companies are starting to experiment with them for the purpose of community engagement," notes Flemming. The IFC has conducted some pilot studies giving people in the community a free SIM card that enables them to find out more about an infrastructure project, reports Nyhan-Jones.

The stakeholder challenge, however, goes far beyond data acquisition. Ali mentions that oftentimes the results of data collection indicate disagreements between the leadership and the members of the community, gaps that need to be addressed in the process of engagement. Dorobantu notes that engagement is a process not just a count or a register or a matrix of data. The representatives of a project must accept that they are just one party at a table. They should move away from dyadic relations with each stakeholder towards a more complex multi-party process that allows stakeholders to interact with each other and work together to realize their goals. Flemming concurs that the rhetoric or participation as far outstripped the reality. He criticizes "consultants who construct a reality via a stakeholder survey rather than allow stakeholders to provide data on

> "Rarely there is enough time and resources to do things in the best possible theoretical way."
>
> *– Dennis Flemming*

themselves to the project team and to each other thereby constructing a shared understanding. This can be a fascinating experience for all." He highlights, however, that it is a time and resource intensive process that has to be started early. He strongly challenges those who believe that you "should withhold engagement because you don't want to raise expectations as pursuing a sure route to project failure." He similarly criticizes those who view knowledge on stakeholders primarily as an asset to be stored, valued and sowed instead of focusing on the actual people that embody that knowledge. He seeks to shift the focus from tools and models to the capacity of the people. "Good models and tools used by bad people pointless whereas good people working with primitive tools and bad models will adapt those tools and models so as to find a solution."

"Not just consultation and data gathering but participation is needed for effective stakeholder engagement, argues Flemming. "The more participatory the process, the better the outcomes." The issue, of course, is that participation requires time and resources. "It's about moving away from a transactional approach to a relational one," adds Nyhan-Jones. "You have to get people to be willing to come to you." "Trust is not always about what you can do for me. Stakeholders need authority over decisions and clients need to cede control." Ali highlights the important role that mediators can play in the process of giving stakeholders not just voice but real power. Flemming cites the work of the Consensus Building Institute which works with clients to train their negotiating partners. This counterintuitive process of improving the capacity of your negotiating partner and waiting before you even begin that negotiation until you have created a more level-playing field is critical to the sustainability of the outcome of that negotiation. Ali acknowledges that there are limits to the scope of engagement. Some stakeholders who are hold-outs should be excluded as there is no point in bringing in those committed only to disrupting the process.

There are a number of key inputs into a successful process. Jones highlights transparency. Flemming cites the challenge of getting leaders who want to be gatekeepers to build up their comfort level with broad engagement. He suggests empowering them by having them open doors and then encouraging them to listen to others who work in small groups to define goals, success metrics and initiatives to which they are willing to contribute. Another important issue is aligning the time horizons of companies, governments, and the community. "Governments and private investors are often under pressure to get projects under way quickly, which raises the issue of how one balances those pressures with the need to engage the community," notes Ashwin Mahalingam, a faculty member at IIT-Madras in India. "Companies will need to slow down," argues Nyhan-Jones. "There is always a tension between the ideal and the practical," explains Flemming. "Rarely there is enough time and resources to do things in the best possible theoretical way."

"Another main problem is that the project may run into preexisting cleavages or conflicts that have little to do with the project itself," notes Henisz. "That is a key and rather common challenge," explains Flemming. "It's important to avoid exacerbating conflicts that could put the project at risk. For instance, for every project in the Niger

> Most broadly, "shifting distributional conflicts from the short-term to the long-term is an essential tool in stakeholder engagement."
>
> *– Veronica Nyhan-Jones*

River Delta we need to study the preexisting situation very carefully in anticipation of any potential threats. You never want to get drilled into the middle of it unwittingly. Instead, you should adopt a do-no-harm approach and avoid exacerbating conflict. To do this you need to mainstream conflict sensitivity into everything you do. You have to become an agent for peace and reconciliation." He cited the example of PNG where a client sought to bundle stakeholders who were in conflict into a single operating company. The company was unable to overcome enmity between the stakeholders leading the project to be delayed by six months. Finally, the project team relented and negotiated a formula for division of contracts across multiple smaller firms. Most broadly, "shifting distributional conflicts from the short-term to the long-term is an essential tool in stakeholder engagement," argues Nyhan-Jones.

A final major challenge is securing internal alignment for the resource and time investments needed for true external stakeholder engagement. Jones notes that, ironically, it can be helpful to calculate the value proposition in order to engage representatives from multiple functions around this seemingly non-financial goal. By working together to build an integrated financial model, internal constituents better see their interdependencies and the manner in which cooperation in pursuit of external stakeholder goals can enhance project success. Flemming concurs noting the importance of dialogue around measurement of business value to Chevron. He works to insure that "different functions in his companies are represented in the process of determining performance metrics and the business case for stakeholder engagement. Finally, it also makes sense to "adopt a broader regional engagement strategy as opposed to one focused solely on the immediate local community that is affected by the project," notes Flemming.

Stakeholder engagement has always been key to success in infrastructure development. Enhanced attention focused on environmental and social issues has made this issue even more salient nowadays. There is no substitute for a methodical and systematic approach to this important issue by both concessionaires and owners if projects are to be successful. Such an approach has to combine rigorous data including that sourced and developed by stakeholders themselves with a participatory often facilitated dialogue in which stakeholders are empowered to work together to realize their primary goals with the assistance of the project team. Realizing this goal requires careful attention to transparency, process, and pre-existing cleavages among both external and internal stakeholders. ■

Integrated Governance for Infrastructure Projects

Peter Morris, Professor at University College London, argues that infrastructure projects pay insufficient attention to stakeholders and value and, as a result, experience remarkable shortfalls. As Miller and Lessard (2001) noted, they tend to be managed more efficiently than effectively, that is, the owners' goals are met to a lesser extent than the degree to which the project is finished on time and on budget. "Shaping context, creating value, and having impact," are the critical activities. Shaping context is all about foreseeing the likely conflict among stakeholders over the life of the project and addressing them up-front. Creating value is about improving lives and minimizing the impact of unforeseen consequences such as natural disasters not just "value for money." Having impact shifts the focus from the project to its place in society. The key innovations that are occurring in project management today are those that allow projects to address these three challenges mostly by breaking down mental barriers, adopting longer time horizons, enhancing communication and challenging vested interests. "The essence is enabling genuine integration to address these challenges."

Peter Morris and Bob Prieto

Innovation is a critical part of managing infrastructure projects. According to Bernard Sheahan, Global Industry Head for Infrastructure and Natural Resources at the International Finance Corporation, emerging markets are increasingly innovating, including large-scale wholesale auctions of bundles of projects in Brazil, India, and South Africa. More of these projects are being undertaken by local or regional companies with a burst of new activity from internationalizing emerging market players.

"PPPs are no panacea," argues Nuria Haltiwanger, CEO of ACS Infrastructure Development, Inc. Governments and stakeholders somehow perceive them to deliver free money. "Life-cycle procurements" is a more useful concept that goes beyond a mere financial arrangement about risk-sharing and risk-shifting to consider the management and operation of an asset over time. New models that compensate for availability such as the Florida I-595 project offer the promise to overcome confusion by better delineating the respective responsibilities of the state and the private contractors.

"Better management by itself, however, will not close the global infrastructure gap," argues Bob Prieto, Senior Vice President of the Fluor Corporation. "A true transformation is required." Prieto advocates incorporating lessons from system and chaos theory to enhance our current models of project management.

One aspect is the frame of reference. Functionality is not everything. "Rather, stakeholders now need to be engaged, and the entire theory of how to manage needs to be revisited." Both "tacit and

Bernard Sheahan

explicit knowledge" play a role in project management, adds Morris. An essential aspect of infrastructure development, construction, and operation is that deploying technology is more important than inventing the technology itself, and thus the tacit organizational skills and know-how embedded in processes and routines are fundamental. But this deployment typically assumes that best practices are static whereas, in reality, they are constantly changing. Furthermore, this change is occurring over time unfathomably long time horizons. "Most projects last longer than the people involved in them," notes Prieto. "Therefore the organization needs to provide for continuity." We need better models of adaptive governance that allow for a clear articulation of objectives but flexibility in the means to attain them. Perhaps big-science or space projects are similar, argues Prieto, and one can learn from them about modularization and integrated procurement, for instance. These examples also highlight the importance of having "very informed owners who are technically sophisticated and have the ability to think ahead to the entire project life-cycle." They also show the importance of an "acceptance of failure and an emphasis on failing forward." Our current emphasis on "punishing failure chokes innovation." We also need to better model extreme risks that fall outside of the typical probability distributions used in scenario planning tools. We need to focus on the reliability of the outcome not the precise formula of achieving that outcome.

Morris summarized seven insights from his analysis of the defense sector, NASA and other large-scale projects: (1) projects are managed as a process; (2) project success is achieved by people, for people, through people; (3) understand the sponsors' goals, and think what success means; (4) understand the context, the size, complexity and urgency of the project; (5), look at uncertainty you are facing and plan for it; (6) engineer and align your supply chain; and (7) manage innovation carefully given that unproven technology comes with a higher risk and return tradeoff.

On the policymaking side, knowledge transfer is also a challenge. Haltiwanger highlighted the performance of the Canadian P3 agencies in this regard. They combine the requisite skills, standardized contracts, requirement of pre-planning or project shaping, value for money analysis and stakeholder engagement that are increasingly seen to be correlated with success. This level of sophistication by Canadian agencies gives investors confidence that requests for

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>
> *– Bob Prieto*

proposals will lead to contracts as compared to the majority of US projects which are stopped before bids are awarded.

Regarding political risk, good management involves aligning interests across a broad array of stakeholders. "While some political risks are centralized in the sense that they have to do with regulation and taxation, and are thus subject to contractual assurance clauses, a growing share are local and revolve around social or environmental concerns," observes Sheahan. The main driver is "disruptions of people's lives (e.g., local pollution and land disruptions). For these cases, "deep engagement that addresses stakeholder needs is what generates trust," according to Prieto. "An absence of engagement violates due process. It doesn't matter if the outcome is material if the process was problematic." "Civil society has now interjected itself into the governance of large-scale projects. The result has been enhanced transparency and emphasis on values." Project managers are, however, often unprepared for the task. "We need to teach, score and manage complexity."

In sum, launching, completing, and operating infrastructure projects requires a combination of different kinds of know-how and skills, which

Nuria Haltiwanger

must be levered throughout the entire life-cycle. This requires developing the skills at the different organizations involved, from the government agency to the concessionaire, and from the consultant to the suppliers. Morris summarized by saying that "we can't ignore capitalism and shouldn't demonize it but we need to understand and take seriously stakeholder concerns, respect civil society and be positive in our engagement." ■

An Agenda for Research and Policy

Overcoming the infrastructure gap is essential to improving people's lives and growing the economy around the world. Successful infrastructure development, however, involves many tradeoffs and potential pitfalls. The following are the main challenges to be addressed:

- Attracting an increasing share of the vast pools of available capital to infrastructure projects, and developing appropriate structures for matching investors to projects.
- Attracting and retaining talent at public and nonprofit-sector investment funds to increase their ability to directly participate in infrastructure project financing.
- Improving transparency throughout the life-cycle of infrastructure projects, from bidding to procurement, construction, and operation.
- Shaping the context and establishing mechanisms so that trust can develop among the parties involved in infrastructure projects.
- Educating government officials about the need to consider infrastructure projects as long-term endeavors.
- Explaining the value of infrastructure projects to the public in order to preempt criticism, especially in anticipation of projects getting delayed or going over budget.
- Finding better ways of accessing tacit knowledge about infrastructure development, embedding it in organizational processes and routines.
- Promoting comprehensive collaboration among multilateral, national, and local stakeholders in support of infrastructure projects.
- Developing pedagogy for project managers that draws upon the insights summarized here including the use of life-cycle analysis, a heavy emphasis on relational contracting with internal and external stakeholders, and a systems engineering approach to model complexity.
- Producing research that draws upon multiple methods ranging from rich case studies to large-sample econometric analyses to provide a range of best practices and methodologies when it comes to tackling each of the challenges. ■

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Overcoming the Infrastructure Gap

Infrastructure needs worldwide have never been greater, especially given demographic trends, the growth of cities, and the rise of the middle class of consumers. Historically, much of the initiative and the funding for infrastructure was assumed to be governments' responsibility. Nowadays, given the growing debt burdens of the public sector, the increased complexity of demands on government and the growing consensus that the efficiency orientation of the private sector participation can reduce lifetime costs and deliver better infrastructure, the private sector is expected to play an increasing key role in its financing and management. Although institutional investment capital is presently abundant, it is important to develop ways of matching funding to projects using new, innovative structured vehicles that offer the potential to improve governance and reduce risks. Infrastructure development will accelerate to the extent that the different actors involved manage counterparty relations, and stakeholder engagement effectively examine and take into account national and local institutional and regulatory variations.

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