

This Eurosif sector report has been compiled with research by Dexia Asset Management. It describes the major environmental, social and governance (ESG) challenges facing the global infrastructure industry as well as the associated risks and opportunities these potentially pose for long-term returns.

INFRASTRUCTURE OVERVIEW

The term 'infrastructure' traditionally refers to technical facilities (assets) and associated services that support an economy, in particular:¹

- Public utilities (power, telecommunications, piped water supply, sanitation, sewage, piped gas, waste collection and disposal)
- Public networks (roads, dams, canals)
- Transport (railways, urban transport, ports, waterways, airports)

As infrastructure assets are the backbone of an economy, they are at the centre of political and public attention. The development of infrastructure depends on various social and geographic factors (i.e. size and age of population, urbanisation rate, resource scarcity, availability of new technologies, etc).

INFRASTRUCTURE TRENDS

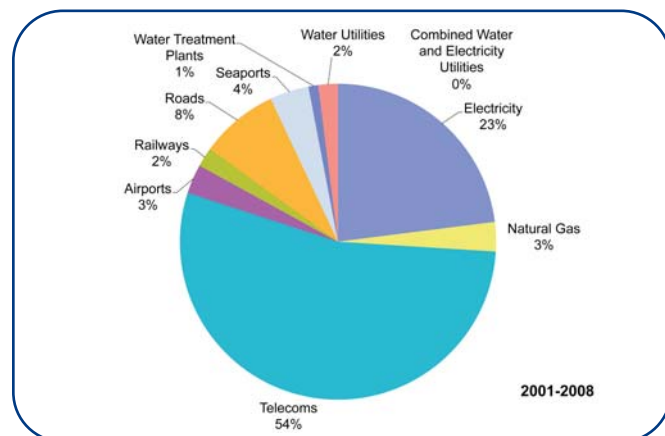
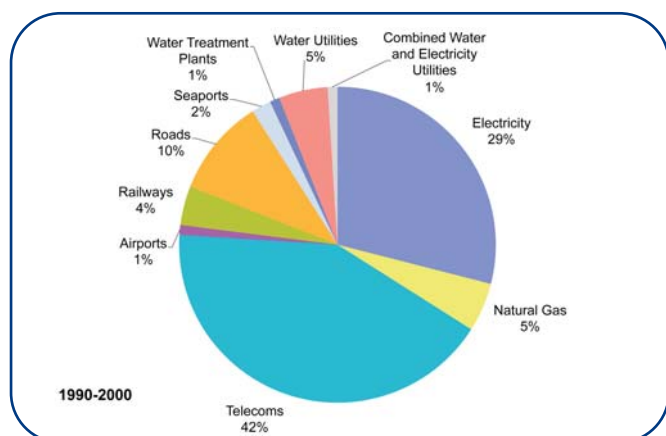
Growing Demand: The world population grew from 1.6 billion in 1900 to 6.8 billion in 2008, with almost 80% of that increase having occurred since 1950. Less developed regions now account for 80% of the world's population, which is projected to reach 9.2 billion in 2050. Except for Africa, nearly all future population growth will take place in urban areas.² According to the OECD 'Infrastructure to 2030' project, about €1.5 trillion would be required annually to finance world infrastructure by 2030, including additions and renewal.³

Financing: Government spending in fixed assets has continuously decreased for the past 20 years. States are now seeking alternative financing methods, such as privatisation of former public assets, public-private partnerships (PPP) or Build-Own-Operate-Transfers (BOOT⁴). Private investment in developing countries often relates more to trade services (such as telecom and transportation) than health provision systems (such as water and sanitation). Paradoxically, developing countries have reached 68% of mobile cellular penetration rates at the end of 2010,⁵ while almost half the population of the developing world does not have access to adequate sanitation.⁶

Security: Costly preventive and protective measures against major accidents, natural disasters or terrorist threats are becoming critical for governments. Moreover, fears of resource scarcity (energy and water) have greatly impacted the infrastructure sector over the past 10 years. Renewable energies (particularly solar and wind), waste and water treatment plants, as well as new information and communication technologies have all revolutionised the global infrastructure landscape.

Climate Change: Adaptation and mitigation measures are becoming the drivers of new investment. Over the past decade, the number and intensity of extreme events (droughts, floods, storms, etc.) have increased, considerably damaging existing assets: the insurance industry estimates that overall losses reached €98 billion (\$130 billion) in 2010, inclusive of natural disasters.⁷ Infrastructure assets also have a role to play in the moderation of certain environmental impacts. Most of these mitigation measures require the sector to develop new forms of expertise (e.g. smart grid, carbon capture and storage).⁸

Total Investment Commitments to Infrastructure Projects with Private Participation in Developing Countries, by subsector, 1990-2008



Source: World Bank and PPIAF, PPI Project Database

¹ World Bank, "Infrastructure for Development", 1994.

² United Nations, "World Population Prospects: The 2006 Revision", 2007.

³ Barrie Stevens, "Global Infrastructures to 2030", OECD, 29 April 2008.

⁴ After construction and years of operation, the asset is sold to the public sector.

⁵ International Telecommunication Union, "ICT - The World in 2010", October 2010.

⁶ United Nations Environmental Programme & United Nations Habitat, "SICK WATER? The Central Role of Wastewater Management in Sustainable Development", 2010.

⁷ Munich Re, "Overall Picture of Natural Catastrophes in 2010", Press Release, 3 January 2011.

⁸ Audrey Holm, "Infrastructures in the Face of Climate Change: What Implications for Long-term Investors?", CDC Climat Research, May 2010.



KEY CHALLENGES

ESG ISSUES

Corruption and Lobbying

- According to the Transparency International Bribe Payer Index, construction and public work contracts are among the areas that rank the highest in terms of bribery and legal/illegal payments to influence project outcomes.⁹
- Bribes can be instrumental in obtaining building mandates or receiving and extending concession contracts. Even though the rules of public market attribution are increasingly geared towards more transparency, corruption seems to be greater in developing countries.
- Lobbying practices are also common in the infrastructure sector, particularly at the upstream level where strategic decisions (ex. rail vs. road, wind vs. solar, wireless vs. fixed broadband) are made.

Environmental Impacts

- The spectrum of direct and indirect environmental impacts of infrastructure projects is very large and often specific to the type of asset. Asset construction, use, retrofitting and decommissioning steps have an effect on the surrounding environment. The consumption of water, energy and material resources, water and air pollution (including greenhouse gases), noise, and loss of biodiversity are among the most commonly observed impacts.
- As for energy consumption and GHG emissions, the power generation sector clearly dominates, accounting for approximately 37% of global greenhouse gas emissions. The shift to more renewable energy sources is possible, but operational improvements on existing plants is also necessary: older power plants consume between 18 and 44% more fuel per kilowatt hour than similar new power systems operating to their best practice levels. They also have a greater transmission and distribution loss.¹⁰

Social Acceptance and Community Relations

- The social license to operate an infrastructure asset is almost always controversial.
- Infrastructure assets, even if serving the local economy, are also sources of concern for local populations as they can be visually intrusive and may have adverse effects on local amenities by physically dividing neighbourhoods.¹¹ Air pollutants, electromagnetic waves, radiation, noise disturbances and landscape disruption are all important issues to local communities, as these impact their life and their physical and mental well-being.
- Land requisition or forced property sale is likely in the vicinity of infrastructure projects. In developing countries, where property rights do not always exist, massive population displacement and relocation may occur.

The Specific Question of Access

- The privatisation of public services, such as electricity, gas distribution or public transport, raises concerns over the access to these services.
- Access is defined as the ability to use the considered service without restriction at an affordable price, with some guarantee on its reliability. This theme is especially relevant in developed countries for low-income and remote customers, and in developing countries for a greater share of the population.
- A wide diversity of wealth within a fragmented customer base means that some customers must rely on subsidies to obtain access to certain services. Urbanisation in developing countries and increased energy/water prices in developed countries also add to the importance of such subsidies.

Service Quality

- Due to the essential nature of infrastructure, disturbance in production, distribution and supply can have considerable impacts on customers and the economy in general.
- For example, both the 2003 Italian blackout and Eurocontrol's prediction of 20 major European airports reaching critical overflow by 2030 are dreadful situations that governments can avoid with proper infrastructure systems.

⁹ Transparency International, "Emerging Economic Giants Show High Levels of Corporate Bribery Overseas", 9 December 2008.

¹⁰ World Bank, "Infrastructure for Development", 1994.

¹¹ Commission of the European Communities, "Thematic Strategy on Air Pollution", 2005.



BUSINESS RISKS & OPPORTUNITIES

- Financial penalties for corruption practices are an important risk for companies. Another risk is the potential loss of governmental contracts. For instance, the World Bank has blacklisted certain construction companies, because they were found to have violated fraud and corruption provisions in the procurement guidelines.¹² Litigation and remediation costs can also put an extra burden on companies' finances.
- Regulation, such as the 2010 UK Bribery Bill, which introduces the concept of "negligently failing to prevent bribery," requires companies to guarantee the robustness of their compliance systems.
- While the Lobbying Disclosure Act of 1995 requires mandatory public disclosure in the United States, disclosure on lobbying practices is still voluntary in Europe, leaving comprehensive figures unavailable.
- The 'greening' of the energy mix in infrastructural operations, for instance switching to renewable energies, can be expensive. Carbon offset credits may be a cheaper option, although their availability may be limited.
- Opting for non-green infrastructure projects means increased costs in a near- and long-term future, including: remediation costs (financial compensation), reputational costs, compliance costs (stricter environmental norms) and supply costs (energy and water).
- Most of these disturbances are difficult to avoid, but companies may reduce their impact on communities. If this impact is not reduced, the development of the infrastructure may be delayed or even cancelled. The cost of additional measures to protect inhabitants from nuisances may accumulate.
- Communities and public officials may slow down infrastructure projects by blocking permits or delaying construction.
- When dealing with the privatisation of former public services, the proper management of the transition period is critical in order to avoid service disruptions (e.g. strikes).
- Companies have an interest in appropriately managing access to infrastructure, particularly to avoid disadvantageous regulation adjustments (such as tax, competition or environmental policies).
- The main risks that companies face associated with access issues are the loss of contracts and the seizure of assets, as well as the nationalisation of services.
- Apart from the direct cost of poor quality (e.g. maintenance costs, service restoration costs), the reputation of the entity is clearly affected and impacts customers' loyalty.
- Regulators often provide incentives and mechanisms to improve customer service: bad performance can induce further loss of revenue as the operator loses incentives and incurs penalties.
- As bribery practices may involve double accounting systems, companies that demonstrate proactive behaviour in addressing corruption (i.e. compliance officers, business integrity policies, regular training of employees, appropriate monitoring) will have a better control of their operations, even when highly decentralised.
- Strict monitoring of lobbying practices, as well as proper disclosure of expenditures and targeted lobby groups, are positive steps to maintaining good working relationships.
- Public authorities increasingly require that projects internalise the service costs of adverse environmental externalities. Environmental impact assessment is increasingly common for large infrastructure projects (supported by the World Bank and the EIA).¹³ Successful experiences and demonstrated commitment will bear positively on authorities.
- Greener solutions for transportation infrastructure may considerably improve emissions and consumption performance. For example, better pavement on motorways and the availability of e-technologies to improve traffic fluidity result in lower CO2 emissions. Similarly, the electrification of existing rail lines will ensure sustainable growth levels.
- Authorities will give priority to operators who can ensure better transparency on infrastructure development. The upstream involvement of stakeholders is imperative.
- Some factors can contribute to better acceptance of infrastructure projects. For instance, in their operational phase, most infrastructure assets are both human capital and knowledge intensive. These assets require large numbers of workers, which benefits the local labour pool and economic development.
- Projects with recognised efforts to improve the local economic situation will be favoured. The introduction of specific partnerships with local training centres, apprenticeships and lifelong learning mechanisms for workers all lend to the social acceptance of a project.
- Taking access issues into account can offer companies a competitive advantage. Governments are weary of population dissatisfaction as it may have immediate political consequences. Thus, when privatising former public assets, governments will favour bidding companies that place importance on the question of access.
- Good relationships with public authorities and customers can be preserved through various multilateral initiatives (local presence and local mediation initiatives, technology transfer programs, innovative project financing, etc.).
- Putting in place adequate management systems to ensure short and long-term availability and reliability of services and conflict mitigation (mediation process, ombudsman, etc.) are essential features for success.
- The appropriate recruitment and training of staff, as well as the introduction of new technologies (Information Control Technology, smart grid) and changes in planning/maintenance approaches are necessary to avoid service failures.

¹² World Bank, "World Bank Listing of Ineligible Firms & Individuals: Fraud and Corruption", 2010.

¹³ World Bank, "Strategic Environmental Assessment (SEA)", 2010.; European Commission on Environment, "Environmental Impact Assessment (EIA)", 2010.

CASE STUDIES

Access to Electricity in South Africa

While South Africa is experiencing an unprecedented economic boom, inequality among the population is still an important concern that may endanger the country's development. With a GDP per capita over \$7,000 (€5,300) in 2010¹⁴, the country aims to secure its development and particularly limit massive electricity shortages.

In 2002, 76% of South African households had access to electricity. In 2009, this share increased to 82% and a 100% target has been set for 2015.¹⁵ Improved access and the growing industrialisation of the country are both putting further pressure on the energy supply.

In 2008, Eskom (the national power utility company) and the Minerals & Energy Department released a new plan to enhance the country's electricity distribution structure and electricity projects by independent power producers.¹⁶ Eskom expects to double its capacity to 80,000 MW by 2026.¹⁷

Today, access to electricity has surged, and it will aid South Africa's development, notably by improving quality of life. However, there is a serious environmental impact of this increased production as the current South African energy mix is highly carbon intensive, with more than 93% of South African electricity production relying on coal at the end of 2008. In October 2010, Eskom announced that it was reopening the coal-fired Camden power plant (decommissioned in 1988), thus adding 1520MW to the national grid.

The social benefits of access to electricity have been favoured over 'greener' forms of energy supply. Nevertheless, Eskom has remained mindful of environmental issues. Since 2004, the company has led a customer awareness campaign on energy efficiency. This initiative is aimed at all sectors, but particularly focuses on residential cooking practices. During the evening peak demand period, Eskom broadcasts a "Power Alert" which prompts residential consumers to switch off all "not absolutely essential loads." This public message has proven effective in avoiding power rationing.¹⁸

Infrastructure projects that juggle both social and environmental factors may struggle to balance these, and therefore, trade-offs can be unavoidable.

The French Road to Preservation

A 2x2 lane motorway linking Bordeaux to Pau was inaugurated in December 2010, after more than 2 years of construction. A'Liénor (structure co-owned by Eiffage and Sanef) was responsible for designing, financing and building this motorway and will oversee operations and maintenance for the next 55 years. The authorities' choice to build this motorway was motivated by safety and economic development reasons. Although this project is still criticized (opponents mostly doubt traffic targets will be reached, especially with the high toll fees), the A65 is proudly the first "Grenelle compatible" motorway.¹⁹

Approximately €200 million was dedicated by A'Liénor to specific environmental measures, accounting for more than 15% of the total motorway cost. The initial project (initiated before the Grenelle laws were passed) was revised: the full layout was reconsidered, with new civil engineering structures added to avoid detrimental impact on fragile wetland ecosystems and a new modus operandi was established. Even after this first reshuffling, environmental experts estimated that 590 out of the concerned 1,500 hectares of biodiversity were still at risk, due to presence of endangered species such as the European mink, otter and white-footed crayfish. A'Liénor then introduced compensation measures to limit the impact on biodiversity, by creating 1,372 hectares of impact-offset zones. The company is sponsoring economic development and landscape projects in the vicinity.

People who buy or rent land near the A65 must sign conventions to guarantee the development and/or the maintenance of ecological/green corridors to preserve species. The monitoring and management of these sites will be entrusted to relevant NGOs.²⁰

¹⁴ International Monetary Fund, "World Economic Outlook Database", October 2010.

¹⁵ United Nations, "Republic of South Africa, Millennium Development Goals, Country Report", 2010.

¹⁶ Republic of South Africa, "Department of Minerals and Energy Strategic Plan 2008/9 – 2010/11", 16 May 2008.

¹⁷ Eskom, "Build Programme in South Africa: Background", April 2009.

¹⁸ Eskom, "Energy Efficiency", 2007.

¹⁹ The Grenelle Environment Project was launched in 2007, bringing together French government and multi-stakeholders' representatives to define key points of government policy on ecological and sustainable development issues. This consultation's results were materialised in two laws (respectively promulgated in June 2009 and July 2010) that impact most business sectors.

²⁰ Les Echos, "L'A65, Première Autoroute en Ligne avec le Grenelle", 15 December 2010.; Le Monde, "La Nouvelle Autoroute A65 s'accompagne de Contreparties Environnementales sans précédent", 17 December 2010.

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