



Enhancing Social Performance in the Engineering Services Sector through the Process of Risk (and Opportunities) Analysis

June 2004




Overseas Development Institute

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The views expressed herein are those of the authors alone.

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EXECUTIVE SUMMARY

Background

For a wide range of industrial sectors – oil and gas, utilities, manufacturing, tourism etc. – an increasing proportion of the future profits of many multi-national companies will be derived from operations in emerging economies and developing countries. For the engineering service sector in particular, this shift in the geography of the business presents both a challenge and an opportunity.

The manner in which multi-national engineering service companies go about their business in the poorer regions of the world can have a significant impact on the host society. For example, contractors may or may not be effective in mitigating the negative social (ie. community and local economic) impacts of their actions. Construction work poses a particular challenge in this regard. Further, the extent to which the contractor's presence enhances the contribution of the overall project to local social and economic development can be highly variable.

Conversely, forward-thinking companies are increasingly alert to the business development opportunities that can flow from enhancing their 'social' performance. As well as improving their own corporate image with institutional shareholders and various opinion formers in their domestic market, effective social performance, when aligned with the associated strategic interests of their customers, can become a competitive differentiator. The central proposition of this paper is that over the next five to ten years contractors will increasingly gain commercial advantage by offering a social performance 'service' for their clients based on exploiting their close physical interface with local society and their procurement, training, technology transfer and project management expertise.

At present, however, there is sometimes a lack of in-house experience of working in areas characterised by poverty and weak regulatory institutions. In these cases the potential added 'social' value of the large contractor is unlikely to be fully realised, and projects may even in some instances reinforce or deepen poverty. There is a need therefore to develop management tools that help contractors understand better how their business impacts on society and how they might go about managing these impacts in ways that secure commercial advantage, and where possible benefit society in the locale of project implementation. One such tool is project risk analysis.

Risk and Opportunities Analysis

In recent years the practice of undertaking risk analysis within the context of capital projects has undergone some modifications. Methods tend now to focus not only on risks in asset creation, but also in the operating and decommissioning phases. Further, the process is used by some companies

to identify not only project risks, but also opportunities to enhance the project or its profitability, particularly those that might otherwise be deemed too risky to pursue. There is also a trend towards identifying the best man (or party) for the job, so that risk controls or opportunities realisation practices are directed to those best positioned to deliver the required results at least cost. Finally, there is the trend towards improved follow-through from the risk analysis stage, including identification of appropriate and affordable control measures, to risk management once the project has started.

Aligned with these trends, the Balfour Beatty Opportunities and Risk Management Framework is a software-driven, risk management tool currently in use by the company to identify, track and manage project risks and opportunities. This paper looks at the application of the tool to major engineering projects in areas where the socio-economic environment is poor, underdeveloped, complex and unpredictable.

As designed, the tool contributes substantially to delivering improvements in social risk management and enhanced local economic benefits, particularly during construction work. This is due not least to:

- the inclusion of specific criteria for rating social risks and benefits;
- recognition in these criteria that social risk has both a company and customer/client dimension;
- integration of the tool within the core of the company, from Group level to the management of individual construction projects; and
- a capability, built into the tool, to accommodate new risk categories that will in the future include 'social performance'.

In the context of engineering projects undertaken in underdeveloped regions, the framework can be deployed as designed to provide information on social risks and opportunities, both to inform new bids, and in helping manage existing construction or service contracts.

Conclusions

A review of the Balfour Beatty framework, and its practical application to the construction of a high voltage transmission line in Indonesia, has allowed some generalised conclusions to be reached on the role of risk (and opportunities) analysis in enhancing the social performance of major engineering service contractors. These are applicable to any major contractor planning to do business, or already operating, in underdeveloped regions.

- Encourage those undertaking or facilitating processes of risk analysis to focus, for at least a short period, exclusively on social risks and opportunities.
- When brainstorming social risks and opportunities, distinguish between their relevance to the social performance objectives of the client and of the contractor.
- With regard to the preparation of bids, some prior priming of customers may be needed to raise their awareness of the value-adding role that contractors can play in meeting the client's social performance objectives.
- Integrate within the risk analysis process a detailed stakeholder analysis, with a focus on how different stakeholders relate to different sub-components of the process, ie. cause, risk event, consequence, controls/opportunities, residual risks.
- Where practicable, involve external local stakeholders and social development specialists in brainstorming social risk events and opportunities.
- With regard to the post-contract-award period, engagement of non-traditional external stakeholders and/or other key informants in brainstorming social risk events and opportunities should be viewed as an opportunity to widen the range of stakeholders who could possibly be involved in project partnering.
- Introduce into the process of risk analysis, checklists dedicated to social risk events and controls/opportunities, disaggregated according to their commercial, reputation or compliance relevance.
- Consider augmenting the criteria used to rate social risk severity and benefits to be more relevant to the social issues prevalent in the region of operations, as already incorporated in the Balfour Beatty risk framework in the form of local business specific commercial criteria.
- For periodic risk analysis undertaken during the life of a contract, market the process of identifying social risks and opportunities as a positive factor in securing contract extensions or renewal.

Further work is needed to weigh the merits of above suggestions, and pilot and track those that carry the most potential.

1. INTRODUCTION

1.1 Social Issues in Capital Projects

Capital projects involving civil, production, mechanical or electrical engineering are a feature of a wide range of commercial and economic activities, from the provision of public facilities and infrastructure (transportation, power, water, waste management, telecommunications, public amenities, education establishments and hospitals etc.), to industrial projects (chemicals, manufacturing, processing, pharmaceuticals) and mineral extraction projects (including upstream and downstream oil and gas projects).

It is often the case that during the construction phase of such projects, local socio-economic impacts are at their highest, with nearby communities potentially affected by the acquisition of land and assets, disturbance to lifestyle and cultural values, various forms of noise, air and water pollution, and in some cases, potential for the transmission of disease (eg. from worker camps). These impacts can pose a risk to the efficient management of a project.

Conversely, the construction period (as well as the operations phase) offers opportunities for communities and local businesses to secure employment or procure contracts. Fully realised, these opportunities can be of benefit not only in terms of promoting local economic development, but in making a positive contribution to the commercial and reputation objectives of both the main engineering contractors and the project proponent or client.

The challenge in managing the social risks and opportunities of engineering projects lies not only with the project proponent (ie. client), be that a public agency or private entity, but also with the large engineering service companies contracted to develop or manage the project, and with the engineering consultants advising the client in the formulation and review of tender documents and in the task of construction management. This paper is directed at those responsible for managing engineering projects within either the client, the client's engineering consultants or the principal engineering or service contractors. The paper may also be of interest to those financial institutions (commercial lenders or development finance institutions) interested in minimising the commercial risks of their investments, and/or in assuring that it contributes positively to local development and poverty reduction.

1.2 Project Risk Analysis in Developing Countries

Multinational engineering services contractors operate in a business environment that is increasingly complex. They must manage competing demands to maintain shareholder value, protect and enhance corporate brand and reputation and respond to the growing demands for improved social responsibility. As companies have become exposed to new and unfamiliar challenges, the issue of risk has gained importance with both companies and regulators and has prompted a reappraisal of the purpose of risk management. For example, as part of the UK Government's overhaul of company law, all quoted companies will soon have to complete an Operating and Financial Review. Within this, Directors will be required to include information about "environmental matters social and community issues" that are likely to materially affect the company.¹

Nowhere, perhaps, is the business environment more challenging and complex than in the poorer regions of developing countries. Here social risks – such as project delays and site access problems caused by aggrieved communities, or local political or regulatory risks posed by insensitive project design, unfulfilled expectations of public authorities or weak construction management – can play an important part in the success or otherwise of a project. Given the level of poverty in such areas, conventional ways to manage such project risks may not be effective. For example, the recently adopted UK Risk Management Standard,² makes only passing reference to corporate engagement in social issues and many commercial software risk-management packages do not address social issues explicitly. For projects in developing countries, identifying the main social risks and finding cost-effective, innovative solutions to their management is now all the more pressing given the growing proportion of profits derived by many engineering service companies from operations in these regions.

In recent years the practice of undertaking risk analysis within the context of capital projects has undergone some modifications.³ Methods tend now to focus on risks not only in asset creation, but also in the operating and decommissioning phases. Further, the process is used by some companies to identify not only project 'risks', but also 'opportunities' to enhance the delivery of project objectives, particularly those actions that might otherwise (ie. without the rigour of risk analysis) be deemed too risky to pursue.⁴

¹ Department of Trade and Industry (2004), The Operating and Financial Review – www.dti.gov.uk/cld/pdfs/ofr_guide.pdf

² British Standard 6079-3: 2000: Guide to the Management of Business Related Project Risk

³ Institute of Civil Engineers and Faculty and Institute, of Actuaries (2002) Risk Analysis and Management for Projects, London, Thomas Telford Ltd

⁴ Hilson, D. (2001) Extending the Risk Process to Manage Opportunities – www.risksig.com/articles/euro2001/hilson.pdf

There is also a trend towards identifying the 'best man' (or party) for the job, with risk management directed to those most experienced in providing cost-effective mitigation or control measures. Finally, there is the trend towards improved follow-through from the risk analysis stage to risk management once the project has started.

These trends are a further reason to look again at risk management standards, systems and procedures in the context of capital projects in the developing world. The World Business Council for Sustainable Development recognises this deficiency when it urges companies that "...a more comprehensive and strategic approach to risk assessment and management is a requirement for global businesses, based on a new generation of analytical tools and management structures".⁵ This would seem to be of particular relevance to engineering services contractors because of their close interface with society and the high impact nature of their operations.

⁵ See www.wbcsd.org/templates/TemplateWBCSD1/layout.asp?type=p&MenuId=Mz15

2. SOCIAL RISKS AND OPPORTUNITIES IN ENGINEERING PROJECTS

Discussed in more detail below are some of the issues and trends relevant to the way in which contractors manage social risks or realise social and economic opportunities in the context of major engineering projects undertaken in developing countries and regions.

2.1 UK Engineering Service Companies in Developing Countries

A number of UK-listed⁶ engineering service companies currently operate or have past experience in low and low-middle income countries around the world⁷ (see *Table 1*). Others operate in the regions of wealthier countries where local economic development is weak and poverty reduction a pressing concern of the local population. There are many other international engineering service companies with similar experience located outside the UK, but with major subsidiaries based in the UK. These include, for example, Kellogg Brown and Root (part of Halliburton group), Buro Happold and Scott Wilson. There are also other UK private companies not listed on the UK stock market but operating in developing countries.

Table 1 UK-Listed Engineering Service Companies with Turnover > £1billion and with Operations or Experience in Developing Countries

UK-Listed Company	Market Value (£m) <i>(FT March 2003)</i>	Turnover (£m) <i>(FT March 2003)</i>	Operations or Experience in Developing Countries	
			Low income countries <i>< \$735 GNI per capita/yr</i>	Low-Middle Income countries <i>\$735-\$2935 GNI per capita/yr</i>
RMC	978	4502	India	
Hanson	2294	3648		Malaysia, Argentina, China, Indonesia
AMEC	594	3212	Angola, Nigeria	Indonesia, Russian Federation, Azerbaijan, Philippines, Moldova, Malaysia, Venezuela
Balfour Beatty	826	3100	Lesotho	China, Oman, Indonesia, Brazil, Malaysia, Philippines
Taylor Woodrow	990	2208	Ghana	
BPB	1318	1661	Mozambique, Zimbabwe, Lesotho, India,	Botswana, Namibia, Moldova, China, Russian Federation, South Africa
Novar	629	1448	Zimbabwe, India	Indonesia

Source: FT March 2003; World Development Report 2003, World Bank; Corporate websites

⁶ Publicly listed on the London Stock Exchange

⁷ Low income = < \$735 GNI per capita/yr; Low-middle income = \$735 – \$2935 (World Bank Report 2003)

2.2 Social Risks and Opportunities of Engineering Projects Undertaken in Poor Countries

In low and low-middle income countries, it is not unusual for the capacity of either the local infrastructure or the supplier base to be a risk factor in meeting the needs of major engineering projects. This includes capacity limitations in relation to the power and water demands for the main civil works, the sanitation and waste management requirements of temporary worker camps, or the capability of sub-contractors to meet specified health, safety and environmental standards during the operation or maintenance of complex engineering facilities.

Further, the cultural sensitivities of the local population and/or their dependency on local natural resources (agricultural land, fish stocks, forest products etc.) can render communities particularly vulnerable to the risks of disturbance effects from engineering activities including related migrant labour force, especially during construction work.

Given the capital-intensive nature and/or time-limited duration of major construction projects, failure to manage local social and economic risks effectively can carry significant consequences for the contractor, both in commercial terms, in the form of delays to work schedules, and in reputational terms with clients and project investors. Likewise, in the context of service contracts for operations and maintenance work, stoppages as a consequence of the client's and contractor's poor relations with local communities, or their workers or sub-contractors, can lead to financial loss, either directly due to increased mobilisation costs, or indirectly in the form of penalties for failing to deliver the required service.

Most significant perhaps, the transactional arrangements governing many large scale engineering projects (Design & Build, turnkey, BOO/BOTT, concession agreements, service/management contracts, affirmation, public-private partnerships etc.) frequently carry 'local content' requirements that the client then passes on in part on to the main contractor. This includes requirements to train nationals to replace expatriates ('succession') or to preference sub-contracts and suppliers notified in 'approved lists'. Complying with these requirements presents both a risk to the main contractors and an opportunity. A risk, because either the competency of employees may not be able to be raised quickly enough to comply with the contract schedule; or because local or 'given' sub-contractors may not meet procurement specifications for availability, quality, reliability and delivery, and the costs of such inefficiencies may not be transferable to the client. An opportunity, because successfully meeting these requirements, such as through early effort to build the competencies of employees and the local supplier base, may be viewed by the client as a future competitive differentiator in winning new work or an extension or renewal to an existing contract.

Finally, the construction phase of major engineering projects is often viewed by communities living in close proximity to project activities and by local firms, as a chance to secure employment or expand their business. Relative to the operational phase of the investment, the volume of materials and labour procured for construction work is high, with the further advantage of a concentration of manual and semi-skilled labour jobs, which tend to more closely fit the skills profile of the local population when compared to the higher level technical positions available during operations. Contractors who innovate to fulfil these economic expectations are likely to secure both for themselves and for their clients better community relations and an enhanced 'social licence to operate'.

In conclusion, particularly in under-developed regions of the world, during both the construction and operations/maintenance phase of major engineering projects, the range of social risks and local social and economic opportunities are many, placing on the main contractors demands for a systematic and innovative approach to the overall delivery of what can be termed 'social performance', both for itself and for its client.

2.3 Risk Analysis and Social Performance at Tender Stage

Longer-standing in the private sector, but a more recent feature of public sector civil projects in developing countries, is the trend towards outsourcing design, procurement, construction, operations and maintenance work to large-scale, often multi-national, contractors.

The precise terms and conditions under which a project proponent shifts these fundamental responsibilities to large contractors, and likewise, the terms by which these contractors then sub-contract or source supplies, have developed in importance across the industry. In relation to the transfer of responsibilities for overall social performance, at present this focuses on two areas:

- the mitigation and management of adverse social risks, eg. in relation to the health and cultural impacts of worker camps, disturbance to natural resources (water, vegetation etc.), protection of local infrastructure, and waste disposal/treatment; and
- meeting 'local content' requirements, eg. for employment and sub-contracting.

In most other areas of social performance the project proponent tends to retain control, for example for compensation, resettlement, community projects directed at project-affected people, philanthropy, and in some cases, contributing to development in the wider project region, eg. through support to local businesses in developing their marketability.

Some large contractors clearly have, or are in the process of, developing the necessary experience and staff to be able to offer their clients a service in meeting these minimum social performance requirements and in exploiting the as yet untapped opportunities. Conversely, those contractors who are slow to make these changes will be less well placed to manage social issues on projects in poverty-afflicted areas, ie. where community vulnerabilities are heightened and/or the quality of the supplier base is particularly low relative to the industry average. In some cases such contractors may actually pose a liability for their client, particularly if the client is brand-sensitive or financially supported by an investor for whom corporate social responsibility is a material consideration.⁸ Such concerns increasingly extend to large contractors who enjoy global brand recognition in their own right.

In summary, it is conceivable that those contractors who can demonstrate an 'on the ground' capability to deliver the increasingly stringent minimum requirements for social performance, and who can also identify ways to contribute additional social and economic value due to their close physical interface with affected communities and their control over procurement, may secure a competitive advantage in winning future work. It is important to note however that given the low profit margins of even the large multi-national engineering companies, such competitive advantage depends in part on the willingness of the client (or its financial sponsors) to either accommodate⁹ the additional bid costs of the proposed higher social performance standards, or allow innovation in social performance by the main contractors to be classified as an 'extra ordinary' item in the contract and thus be cost-recoverable.

At present, such augmentation of the contracting process is limited to either brand sensitive commercial clients – examples include the Shell gas to power Malampaya project in The Philippines and the BP BTC pipeline in Turkey – or public sector clients where a part of the project is financed by international development institutions such as the World Bank or Asian Development Bank, where the tendering processes are required to take account of these institutions' stringent environmental and social 'safeguard' policies and standards.

It should be further noted that the opportunity to enhance both the contractor's and client's social performance also carries inherent risks and this is especially true of innovative measures. The basic methodology of risk assessment, which allows for careful consideration and weighing up of the potential risks as well as benefits, should be built into any initiatives to enhance social performance.

⁸ Such as international financial institutions (IFIS), bi-lateral export credit guarantee agencies and commercial banks with strong ethical policies (for examples those recently signatories to the World Bank's 'Equator Principles').

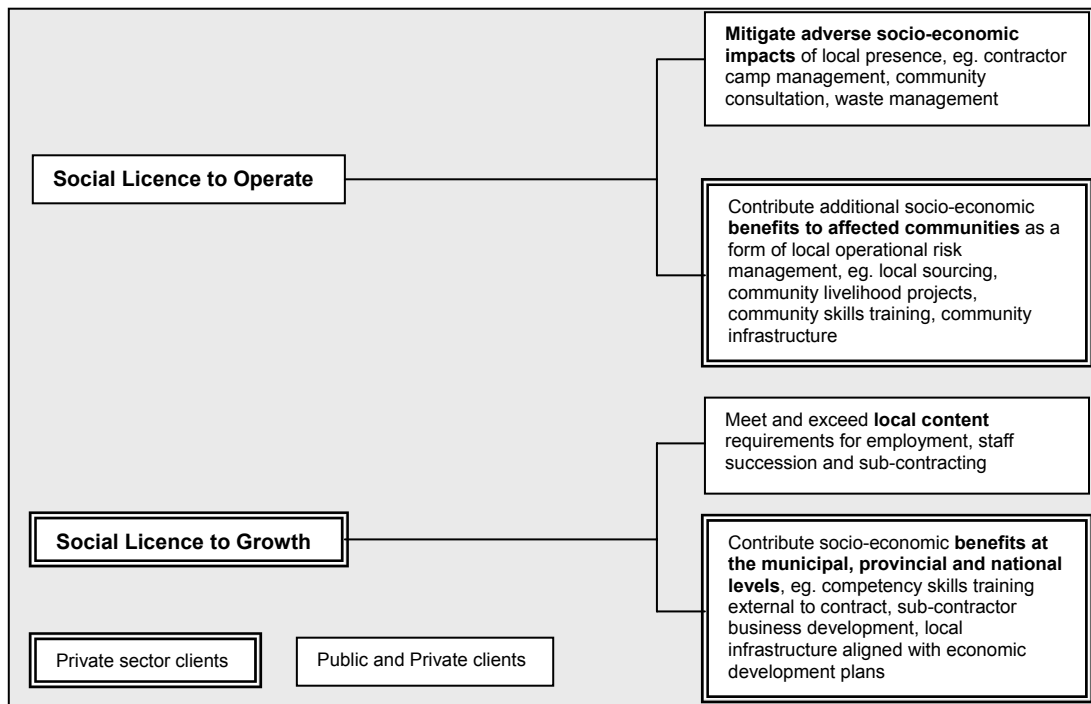
⁹ or when reviewing bids, accept proposals for social investment that lie outside of the standard bid-cost

A culture of ongoing discussion, review and evaluation by both contractor and client throughout the project life-cycle is required to capture and embed the relevant lessons and to adapt social programmes in the light of experience.

A central proposition of this paper is that over the next five to ten years large-scale contractors will increasingly be rewarded in the tendering process for positioning themselves as 'delivery agents' of social performance for their clients. This will require the client to incorporate measuring and performing requirements on social performance in bid documents and conditions of contracts.

Figure 1 shows the main drivers of private and public sector clients in the area of social performance. It is these drivers that contractors will increasingly need to take into account if they wish to use a process of risk and opportunities analysis to inform the social performance dimensions of bid preparation.

Figure 1 Common Social Performance Drivers of Public and Private Sector Clients in Developing Countries



2.4 Risk Analysis and Social Performance at Post-Award Stage

With some large-scale engineering projects, immediately after the main engineering, procurement and construction contract or subsequent service (operations and/or maintenance) contract is awarded, the client seeks a closer, more collaborative, partnership-principled, relationship with their main contractors. Here the working relationship is based less on overbearing contractual detail and

more on principles of shared risks, mutual rewards, pooled skills and knowledge (based on 'the best man for the job'), combined with strong incentives towards completing work on time and on budget. This is client-contractor 'project partnering'.¹⁰

Project partnering has to date been limited to two stakeholders, the client and its main contractors, and it has rarely been used as a method for improving overall social performance.¹¹ The recent World Bank's Business Partners for Development Programme is the first known international initiative to try to link experience of client-contractor 'project partnering' with the new growth area in international development, that of multi-sector (or tri-sector) partnerships for sustainable development: partnerships between government, business and civil society.¹²

This paper seeks to build on that experience. We suggest that a joint client-contractor risk analysis at the post-contract-award stage – a common feature of conventional client-contractor project partnering – might be modified to include participation of local government and civil society stakeholders (or at least reference to their perceived risks and strategic interest), such that the process of post-award detailed design and procurement planning explores more fully the potential for the project to deliver an enhanced social performance.

2.5 Risk Analysis and Social Performance within Existing Contracts

The extent to which risk and opportunities analysis continues throughout the life of a construction or service contract is a function of both the project itself, ie. whether it is deemed susceptible to high or volatile risks, as well as the extent to which the culture of risk and opportunities analysis is embedded within the culture of the main contractors. For international engineering services contractors engaged in 'live' contracts there are a number of reasons why a periodic search for ways to better control social risks or exploit opportunities might be commended. These include:

- **enhanced reputation with the client** – a source of added value on social performance that might contribute to the extension or renewal of contracts (specially relevant to service contracts);

¹⁰ adding value to an existing design or management arrangement by bringing in people previously unconnected with a project how can provide a new and fresh perspective

¹¹ See www.bpd-naturalresources.org/media/pdf/working/work12.pdf

¹² Dom Verschoyle and Michael Warner (2001) Learning from Project Partnering in the Constructive Industry, Working Paper No. 12, Natural Resources Cluster, Business Partners for Development – www.bpd-naturalresources.org/media/pdf/working/work12.pdf

- **increased earnings** – for example by speeding up the rate of competency succession (ie. replacing expats with national employees), or by providing business support to a sub-contractor that leads to improvements in overall cost efficiency;
- **enhanced reputation with international opinion formers** and institutional investors – ie. contributing to social and community projects (such as orphanages, local infrastructure, community skills training etc.) as a philanthropic exercise;
- as above, with the aim of building internal **staff morale** and improving staff retention/recruitment.

In summary, large contractors working in poor regions of the world have a growing need to understand the full range of social performance issues affecting the engineering projects with which they engage, both from their own and their clients' perspective. They need to know which among the wide range of risks and opportunities they face have a social dimension, and when such risks or opportunities are of sufficient significance to warrant intervention with some social management strategy. They also need to be able to choose between the various risk control or opportunities realisation strategies available.

2.6 The Expanding Services of Contractors

The role of large contractors, such as Balfour Beatty, is increasingly moving beyond conventional design, engineering, procurement and construction services, and into maintenance and operational services that span the project life, as well as into areas such as training, technology transfer and institution strengthening. The growth of private finance initiatives and various forms of public-private partnerships has played a part in this expansion.

This expansion has led to the necessary development of new competencies within the contractors' firms. For example, earlier engagement with client in the project cycle – ie. Early Contractor Involvement (ECI) forms of contract – requires the contractor to demonstrate a strong understanding of the local project context and of what design and technology choices best fit with the needs of clients, wider stakeholder groups and, in the case of public infrastructure and services, end-user groups. Key to this understanding is an awareness of what technology choices are most likely to be appropriate not only in financial and engineering terms, but also in terms of their acceptability to the populations affected, their affordability to local end-users, their environmental sustainability and their alignment with local economic priorities such as municipal or provisional development plans and policies. This suggests that project risk and opportunities analysis undertaken to inform bid preparation or at the time of contract award, take into consideration a wide range of topics and views, many of which have social (rather than engineering or financial) dimensions.

Operational and maintenance contracts tend to be longer-term, with the possibility of extensions. There is thus an opportunity for the main contractor to dedicate more time (perhaps in collaboration with other organisations working in the area of local business development) to build the competencies of its supplier base. The incentive here is not only to improve the returns on the contract by reducing costs, but also to enable proposals for contract extensions, or new bids for other regional clients, to better deliver on 'local content' requirements and price. Ways need to be found for these types of social opportunities to be recognised in project risk analysis.

The following section looks at social performance in capital projects with specific reference to the Balfour Beatty Opportunities and Risk Management Framework.

3. THE BALFOUR BEATTY OPPORTUNITIES AND RISK FRAMEWORK

The Opportunities and Risk Management Framework developed and applied by the Balfour Beatty group is discussed briefly below. The potential of the tool to contribute to the enhancement of social performance on engineering projects undertaken in underdeveloped regions is explored.

The subsequent analysis explores the framework as an example of 'state of the art' risk analysis in the engineering services sector. This analysis is informed in part by a recent visit of the authors of this paper to a Balfour Beatty managed construction project in Indonesia, the Lot 3 Java-Bali 500kv Transmission Line.¹³

3.1 The Framework

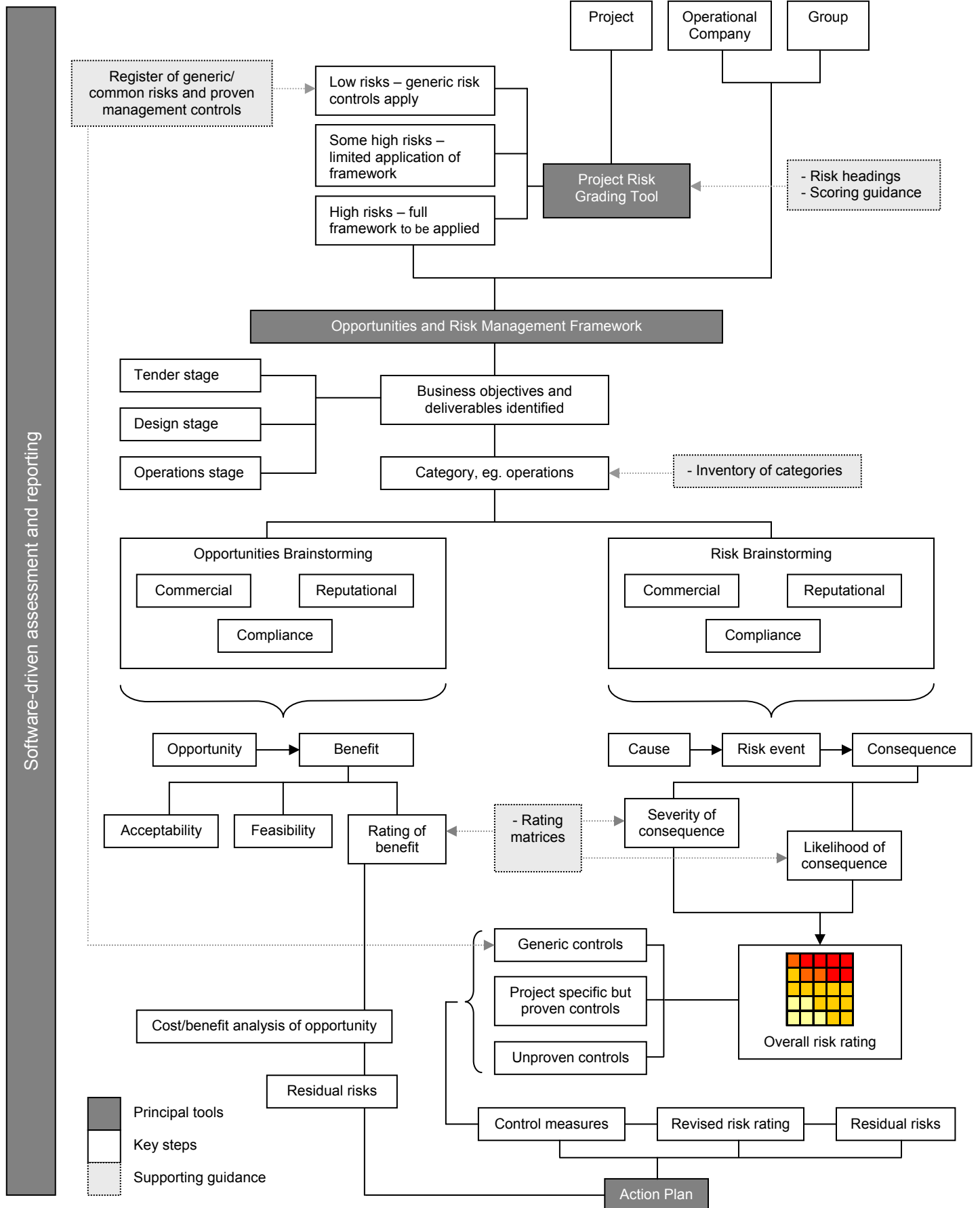
The Balfour Beatty Opportunity and Risk Management Framework is a computerised methodology for assessing and managing the risks and opportunities associated with its business at the group, operating company/business unit and individual project levels. The framework is part of the package of measures put in place by the company to operationalise its commitment to shareholders to manage corporate and operational opportunities and risks. The main focus of this commitment is to ensure that:

- the public, employees and the environment are safe from potential hazards inherent in operations;
- the potential for damage to Corporate reputation and/or financial loss to shareholders and other stakeholders is minimised; and
- opportunities for commercial or reputational gain are realised.

The Framework requires that opportunities and risks be identified and recorded, that measures to control or mitigate the risks or realise benefits are assessed, and that an action plan is developed to implement the measures and communicate with those responsible for their control. The framework has been rolled out across the business as a whole. The main building blocks in the methodology of the framework are shown in *Figure 2*.

¹³ See visit report at: www.odi.org.uk/PPPG/activities/country_level/odpci/msp/sector2.html

Figure 2 Building Blocks of the Balfour Beatty Group Opportunities and Risks Management Framework



Taking each of the building blocks in turn, there are number of areas where the tool has potential utility as a means to leverage enhanced social performance for projects in underdeveloped regions. These are discussed below.

3.2 Current Usage

It seems inadvisable to suggest modifications to the overall methodology of the Balfour Beatty framework as embedded in the software platform. This is so for at least two reasons. First, the tool is enjoying some success across the Group, at the corporate, Operating Company/business unit and project levels. Any changes that might contribute a delay in the rate of uptake of the tool, such as adding new source code to the software, would delay what is already a value-adding vehicle for identifying and managing issues relating to social performance. To illustrate the current usage of the tool with regard to social performance, an extract is given below of a monthly risk assessment undertaken by Balfour Beatty Sakti project managers for the high voltage transmission line construction project in Indonesia (*Figure 3*). Here, not only were significant social risks identified (in this case problems of access to construction sites due to tensions within the affected community), but the overall importance of the identified risk was rated as high (in dark/red), meaning that if left uncontrolled it could have deleterious commercial and reputational consequences for the operating company.

Figure 3 Extract of Social Risks Identified by Balfour Beatty Sakti on the Lot 3 High Voltage Transmission Line Project, Indonesia

Category	Risk	Cause	Consequence	D	S	C	2	L	T	Mitigation
Commercial	Contract overrun	Land acquisition and ROW problems	Reduced margin	2	1	4	4	4	4	Record and notify in accordance with contract requirements
				2	1	4	3			
Operations	Disruption of wiring works	Social problems	Additional mobilization costs	2	1	3	4	4	4	Ask client to assist in resolving problem
				2	1	3	4			

Second, unlike the more conventional ways in which local social risks and local economic opportunities are commonly identified by the clients of major engineering projects in developing countries (such as via Environmental and Social Impact Assessment studies or through ‘bolt-on’ community development/social investment programmes), project risk analyses, such as the Balfour Beatty framework, are undertaken on an on-going operational basis and are integral to the core business of the contractor. Consequently, risk analysis as a tool has the potential to influence all aspects of the design and management of such project, throughout both the construction and operational periods.

Environmental and Social Impact Assessment studies, in contrast, are one-off events, often perceived by the client as part of the required permitting process (or process to secure investor

support), with parts of the resulting action plan (Environmental or Social Management plan) frequently passed as a condition of contract to the contractor, who then generally assigns responsibility for meeting these conditions to its compliance (ie. Health, Safety and Environment) managers.

3.3 Generic Risks Register

Like many engineering service companies, Balfour Beatty maintains a generic Risk Register, comprising known risks and proven risk management controls. With respect to the Opportunities and Risk Management Framework, the register is applied to both:

- assist in identifying strategic risks at the Group and operating company/business unit, and
- grade individual projects for their overall risk potential.

Assuming that this is common to many engineering companies, risk analysts may find value in unpacking what is currently included in such registers, in an effort to identify possible gaps relating to social risks and opportunities, or to ensure that the strategies and tactics offered as risk controls take account of all the available options. To aid this exercise, *Table 2* provides a checklist of project-level social risks and risk controls/opportunities relevant to contractors operating in underdeveloped regions. Similar lists could be developed to identify opportunities and to cover Operating Company/Business Unit and Group level activities.

3.4 Risk Grading Guidance

It should be possible for companies to develop this checklist (see *Table 2*) further, drawing on knowledge of social risks and control measures/opportunities experienced in past projects from across their Group. The findings can then be incorporated into the existing guidance given to managers to undertake risk analysis. For example, the Balfour Beatty Framework provides managers with guidance on various topics to help in initial grading of individual projects for their overall risk. The topics that most lend themselves to be modified in relation to social risks are as follows: client; contractual; reputation; scope of work; and compliance.

Table 2 Checklist of Typical Project-Level Social Risks Events and Opportunities Relevant to Large Contractors Operating in Underdeveloped Regions

Theme	Risk/Opportunity	Commercial (C)	Reputation (R)	Compliance (S)
Risk Events				
Tendering	Terms of contract shifts social risk management responsibility to parties least effective (eg. client or sub-contractors)	✓	✓	
	Project specification does not include bid costs for social performance	✓	✓	
Design	Costly design modifications required during project implementation caused by community activism against siting/routing	✓	✓	
	Deficient environmental and social assessment studies and related management plans prepared by client			✓
Labour Camps and workers	Local community hostility and related site access delays due to unacceptable behaviour of worker and residents of labour camps towards local communities, eg. consumption of alcohol and drugs; STDs and local prostitution; disrespect for cultural norms etc.	✓	✓	✓
	Labourer wage levels in excess of market norms leading to 'labour drain' and indirect reduction in maintenance and investment in staple industries of region (agriculture, livestock, tourism etc.) or risks related to high inward labour migration		✓	
Site operations	Site access problems and related project delays due to community activism over late or insufficient compensation or loss of livelihood-critical natural resources (water supplies, forest products, fisheries etc.)	✓		
	Unreliable and low quality local suppliers and sub-contractors	✓		
	Ineffective or under-resourced internal or client-based community liaison staff	✓	✓	
	Site access problems and related project delays due to community activism over construction activities depleting infrastructure capacity of local communities, eg. deterioration in quality or usability of roads and navigable waterways from overuse; reduced capacity of utilities due to high demand (water supply, sanitation, telecoms, power, waste treatment and disposal); 'drain' on local health care facilities and rising user costs etc.	✓	✓	
Controls/Opportunities				
Post Award Discussions with client	Request of client that accepted (cost recoverable) 'Variations to Contract' includes circumstances where the complexities of involving the main contractors in achieving effective social risk control or enhancing local social or economic benefits have been substantially underestimated			
	Contractor's dedicated community liaison officer and other relevant managers (eg. HSE, sub-contracts, competency development) discuss with client ideas on design that maximise social performance (eg. local content, community projects and training etc.)			
	Request client to allow appropriate penalties to be incorporated into contracts of suppliers and sub-contractors to prevent their insensitive fuelling of community grievances			
HSE and Quality	Unilaterally adopt international standards for quality, local environmental and social impact management, eg. World Bank/IFC, ISO 9001, 14001, SA8000			
Community Liaison	Dedicated stakeholder liaison officers working at both the community and municipal/provincial levels, and who maintain continuous dialogue with the social performance, HSE, and external affairs managers of the client/customer	✓	✓	✓
	Continuous community liaison to monitor and mitigate impact of workers on communities	✓	✓	✓
Community Infra-structure	Align temporary civil works (eg. access roads, bridge strengthening, and water abstraction) with infrastructure priorities of affected communities and with the economic development plans of local municipalities and provinces	✓	✓	
	Implementation of local infrastructure projects of community-wide benefit and linked to physical (ie. visible) presence of construction workers and plant, eg. bridge strengthening, road widening etc.	✓	✓	

Theme	Risk/Opportunity	Commercial (C)	Reputation (R)	Compliance (S)
	Roll-out community infrastructure benefits through leverage of community-wide compensation fund and/or local government resources	✓	✓	
	Contribute engineering and construction management skills to local authorities in alignment with various institutional strengthening/ decentralisation programmes and local/municipal development plans	✓	✓	
Labour camps and workers	Integration of STD prevention facilities with local public health centre programmes, and alignment of infrastructure for worker camps with government public services		✓	
	Labour camps separated from communities		✓	
	Bulk purchase of safety equipment to safety standards, with fair HP terms for sub-contractors	✓		
Employment	Direct employment of individuals from the project area, either on-site or at main office	✓	✓	✓
	Preference for sub-contractors or suppliers who employ a proportion of their staff/workers from project-affected communities	✓	✓	✓
Training/ Skills Development	Develop understanding and capacity of core project staff and sub-contractors to identify and manage relevant social risks and opportunities of both contractor and client	✓	✓	✓
	On-the-job competency development programmes, with skills utilised on the immediate contract	✓		
	Extend on-the-job competency development programmes to wider range of people, and assist in job placement	✓		
	Off-the-job competency development programmes, eg. contractors deploying their competency transition expertise to enhance employment prospects for project affected communities		✓	
	Collaborate with training accreditation institution to broaden market for community suppliers/sub-contractors beyond project life		✓	
Sourcing/ Suppliers	Preference for sourcing of raw materials (aggregates, produce etc.) from micro-enterprises resident in the project area, eg. for construction worker camps		✓	
	Collaborate with community development NGO and/or local authorities to develop community sourcing opportunities into viable micro-enterprises		✓	
	Preference for sourcing either from suppliers resident in the province/municipality of operations, or who themselves source from land owned by residents living in the project area		✓	
Sub-Contractors	Develop combined local supplier/ sub-contractor data-base with national independent institute, eg. govt manpower department	✓	✓	
	Support micro-enterprises in affected communities, eg. through the provision or underwriting of working capital or through various business facilitation services, such as business plans, market surveys, regulation navigation, company registration, legal advice, technical or business management training or technology transfer	✓	✓	
	Support sub-contractors and suppliers – for example with HSE and quality management systems and cost efficiency improvements – to improve their overall competitiveness in the market place		✓	
	Enter into dialogue with national and regional government to inform industrial and development policy that supports SME development and promotes local suppliers manufacturing to meet necessary quality and reliability standards, eg. tax free zones, low rate enterprise development loans etc.		✓	
Post Tender Contract Award Discussion	Appropriate penalties incorporated into contracts of suppliers and sub-contractors to prevent insensitive fuelling of community grievances	✓		✓
	Unilaterally adopt international standards for local environmental and social impact management, eg. World Bank/IFC		✓	

3.5 Risk Categories

The Balfour Beatty Framework offers a choice of 'categories' under which to record in digital form the results of the opportunities and risk analysis. At present these are: operations; commercial; political; legal; HSE; quality; personnel; and financial.

The software supporting the tool allows for new risk categories to be added by the user without the need to revise the base-code. A simple modification would therefore be to include in the general guidance given to users of the tool, the suggestion that for projects in developing or low-income regions the option to add new 'social performance' category should be considered. This guidance could be incorporated either into the current user 'manual' for the tool or into the terms of reference of the facilitators used to run risk analysis workshops.

At a minimum, this change would encourage users to focus, for at least a short period, exclusively on the topic of social performance. This in turn might prompt additions to the usual configuration of staff brought together to brainstorm risk events and opportunities, for example, HSE management, way-leave officers or external relations staff with experience in social risk management and community development. A dedicated social performance category might also incentivise the brainstorming part of risk analysis refer to specific checklists on known social risks and controls/opportunities.

3.6 External Stakeholders and Key Informants

Perhaps more so than either occupational health, safety, environmental or engineering risks, local social risks tend to be peculiar to project location. This tendency is exacerbated for projects taking place in undeveloped, complex and unpredictable socio-cultural-political environments. In such situations, local community vulnerabilities, different cultures and behaviour, different economic capabilities and the wide range of different stakeholder interests,¹⁴ mean that it is unusual for internal staff members to be sufficiently expert on all potential local social and economic matters. Achieving a comprehensive and accurate identification of risk events, controls and opportunities with respect to social performance will therefore likely be enhanced by the assistance of individuals who either represent, or are able to articulate the interests and knowledge of, external stakeholder groups. This might include: formal community leaders (eg. village chairman), respected and informed community members (eg. school teachers, doctors), non-politicised representatives of district or municipal authorities (eg. long-standing, senior civil servants), and local, independent environmental or social consultants (eg. from a university).

¹⁴ See Section 9 later on the role of stakeholder analysis in identifying risk events.

Involving stakeholder representatives and key informants in this way is aligned with the idea put forward earlier of expanding project 'partnering' beyond the conventional client-contractor relationship to include non-traditional partners from civil society and the public sector.

In project partnering a joint risk assessment is but part of the overall suite of 'partnering' activities. However, it is arguably core to the 'shared risk' principle of effective partnering. A joint risk analysis with external stakeholders can also act as a starting point for building better external relations and 'good neighbour' relationships in the project area, as well as providing an entry-point for a more committed and longer-term multi-sectoral partnering processes around key topics such as skills training, community infrastructure and local business development.

3.7 Dedicated Checklists

As with other risk analysis procedures, under the Balfour Beatty Opportunities and Risk Framework it is conventional to brainstorm issues without prompts, ie. in isolation of checklists on known risk events/causes, controls and opportunities. The implicit assumption here is that knowledge regarding potential risks and opportunities is either already present in the minds of the participants (usually internal staff members covering different responsibilities), or able to be discovered through the synergy of creative, joint, brainstorming.

As argued above, this approach may be workable for projects undertaken in the wealthier regions of the world, where the issues of engineering, health, safety and environment dominate and are well understood within the company. The approach may work less well for projects in undeveloped socio-cultural-political areas, where social and local economic issues are not only a key feature of the overall risk profile of the project, but are also highly complex and unpredictable. In such cases input from knowledgeable external key informants may help in identifying the most pressing social risks and opportunities.

In cases of commercial sensitivity (eg. at the bid formulation stage), where it may not be practicable for such external stakeholders to be present during the process of risk analysis, an alternative source of knowledge on potential social and local economic risks and opportunities could be introduced in the form of dedicated, region- or country-specific 'checklists'. These would provide an inventory of known or anticipated social risks events associated with engineering service contracts for projects in similar regions.

The level of detail in the design of these checklists may vary. Looking at both the project portfolio of Balfour Beatty and beyond to contractors working in other underdeveloped regions, the design of such checklist could be disaggregated, inter alia, as follows:

- by their relevance to Group, operational company/business centre or project level;
- by the main types of project: buildings and complex structures, hospitals, power generation, water supply and management, waste management, telecommunications, power transmission, oil and gas development, pipelines, processing and distribution, road, rail etc.;
- by the type of location, such as different lists for:
 - *high income regions*: enforced regulatory framework; influential external stakeholders (NIMBY);
 - *middle-low income regions*: 'pockets' of poverty; political expediency; strong regulation framework but weak enforcement;
 - *low income regions*: majority of population in poverty; ineffective regulatory systems; corruption and poor governance; inter-community tensions; many issues highly politicised; and
 - *regions in crisis*: political insecurity; violence; endemic corruption; widespread and chronic poverty.
- by different topics of social performance (similar to *Table 2*)
- by different components of opportunities and risk analysis, eg. risk cause; risk event; risk consequence; controls, residual risks; opportunities; and benefits.

Simple lists may be just as effective as complex ones, not least because effective brainstorming usually requires a minimum of intervention so as to allow for creative thinking.

3.8 Risk and Opportunities Classification and Rating

The generic checklist in *Table 2*, does not fit neatly into the three classifications for risk 'consequence' or opportunities 'benefit' provided by the Balfour Beatty framework. These classifications are: 'compliance', 'reputation', 'commercial' (refer back to *Figure 2*). This is understandable, at least with regard to risks. First, there are obvious social 'compliance' risks, driven, for example, by the possibility of the contractor failing to fully deliver either:

- the conditions and terms required under the contract by the client (or by project investors via the client);
- the contractor's own internal ethical policies and practices, for example, on worker safety; or

- in-country legal or regulatory requirements, for example, those pertaining to Environmental Impact Assessment and Management, such as meaningful and continuous community consultation.

Second, there are also clear social 'reputational' risks, particularly for brand sensitive multi-national engineering companies, if for example, the media begin to print hostile coverage in response to local community objections (justified or otherwise) to a particular project or construction practice. The consequences of such risk events might include greater scrutiny by future clients of bids by the contractor for new contracts, or ethical institutional investors modifying the weightings in their portfolio for listed companies across the engineering and building sector.

Third, and perhaps most significant as short-term social risks, the blockade of construction sites, threats of violence to staff, or worker strikes fuelled by local political opposition, can lead to project delays, resulting in additional mobilisation or penalty costs for the contractor. Even where such delays are contractually not the responsibility of contractor (for example, if such events fall under an allowable 'extension to time' clause) the risk of commercial loss may still remain given that filing such claims carries the residual risk of protracted, and costly negotiations, not least in management time.

These observations suggest that the criteria used to rate the severity of different risks should include references to social issues under *each* of the three types of consequence: commercial, compliance and reputation. In the case of the Balfour Beatty framework, this is already the case. Not only do the risk severity ratings criteria for the three types of consequence include social issues, with an emphasis on maintaining *both* client and stakeholder relationships, but these criteria appear well up the hierarchy of risk ratings, suggesting that social risks are being taken seriously as a source of substantial adverse consequences for a project or the business.

On the opportunities side, likewise within the Balfour Beatty framework social issues are spread across the full hierarchy of criteria for rating benefits, with a focus on best practices in health, safety and environment, good neighbour considerations and client relationship.

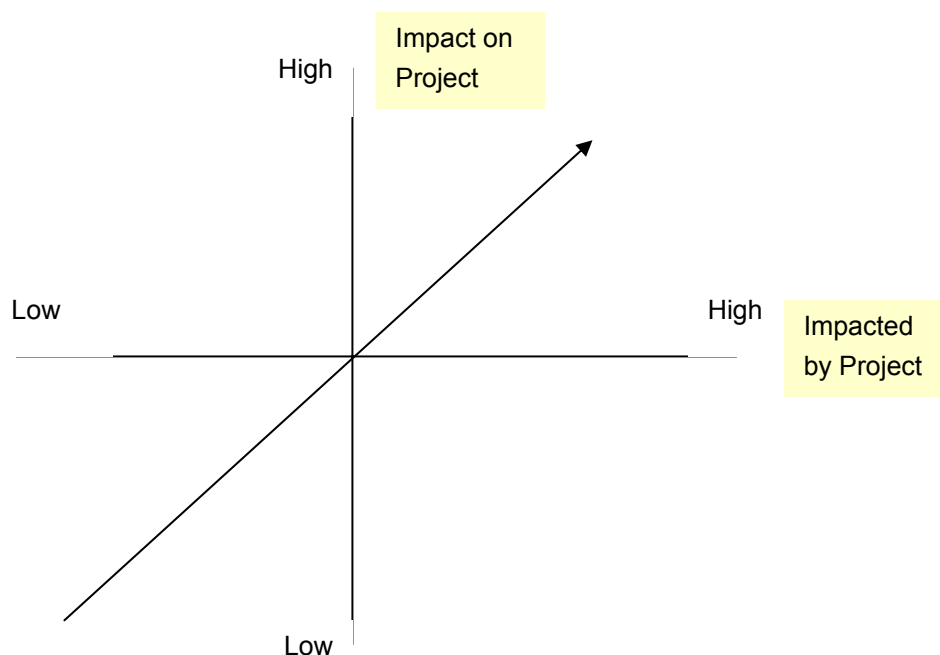
3.9 Stakeholder Analysis

Beyond inviting stakeholder representatives and other third-parties to help brainstorm risks and opportunities or introducing checklists of known risks and controls/opportunities, there is another way in which a risk analysis process can take account of the socio-complexities of projects taking place in developing regions. This is to introduce into the risk and opportunities brainstorming sessions a detailed 'stakeholder analysis'. Certain types of stakeholder analysis are already a feature of major engineering projects, for example, as a means for the environmental consultants contracted by the

client to identify parties negatively impacted by the project, or for supply-chain managers to identify potential sub-contractors and suppliers. What may be missing in general at present is a stakeholder analysis designed to aid risk analysis in relation to social performance.

Application of the Balfour Beatty opportunities and risk management framework does occasionally incorporate use of a standardised form of stakeholder analysis, for example on PFI¹⁵ projects. Here potential stakeholders are of two types, positioned along two axes: those who might 'impact' the project, and those who might 'be impacted' (ie. affected) by the project (see *Figure 4a*).

Figure 4a Project-level Stakeholder Analysis within Balfour Beatty's Risk Analysis



Applied to social and local economic issues for projects in underdeveloped areas, this division offers an alternative place to start for identifying social risks. Stakeholder groups such as local suppliers and local communities, clearly have the potential to 'impact upon' projects through, for example, their reliability of delivery, or capability to blockade construction sites, respectively, and such impacts carry obvious commercial and reputational risks for both the contractor and client.

Likewise, identifying those who might be 'impacted by' the project – either adversely, such as community members having lost land or those unable to secure employment on the project, or positively, such as those who benefit from improvements in local infrastructure consequence of temporary site access works (bridge strengthening, road widening, water abstraction etc.) – is useful

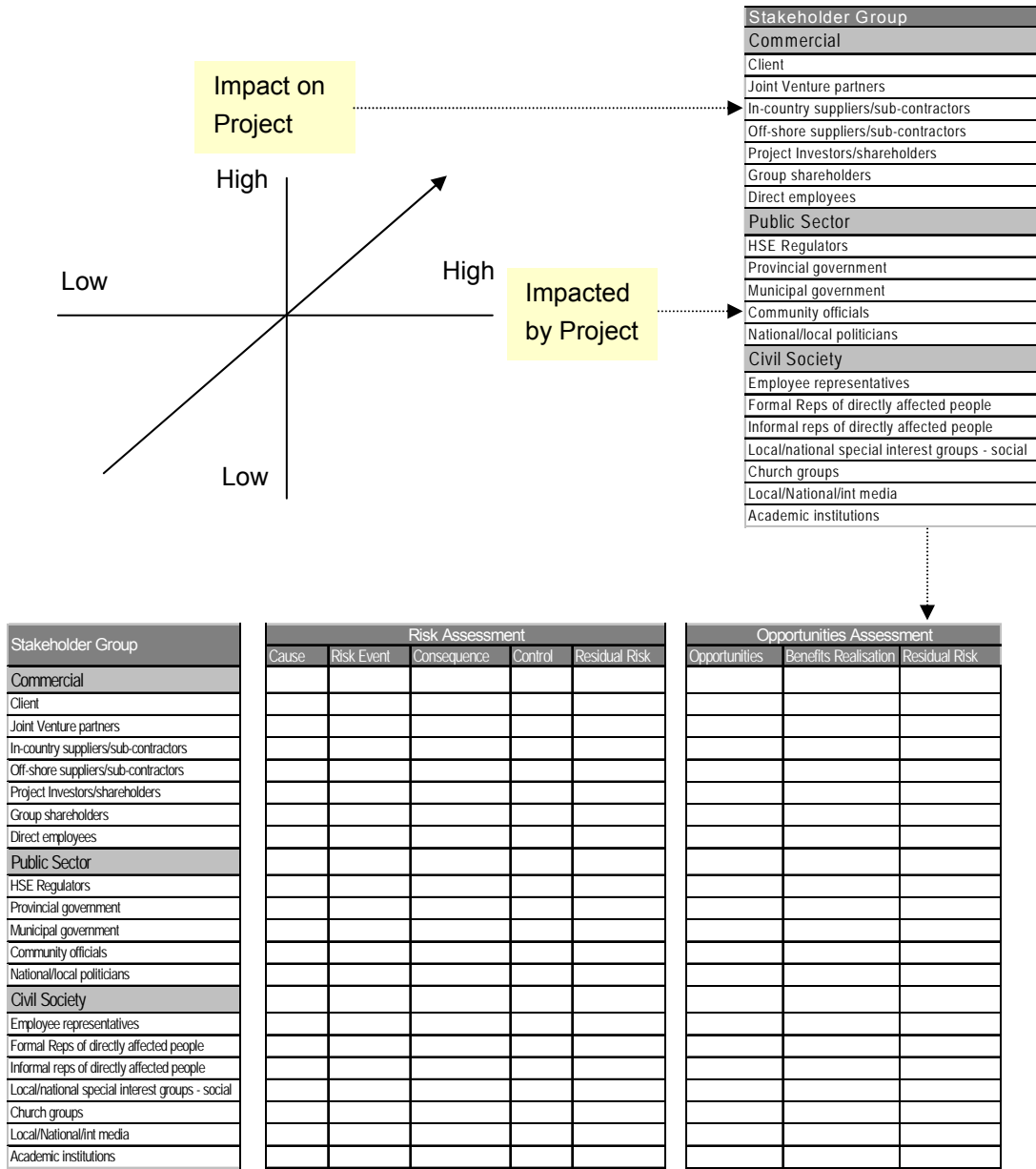
¹⁵ Private Finance Initiative

for revealing where the causes of project risks might lie, or where there are opportunities to exploit for commercial, reputational or compliance advantage.

Expanding this idea in the context of projects in poor, socio-cultural-economically complex, regions, the above stakeholder analysis could be modified further to prompt a detailed subdivision of different stakeholder groups into the sub-components of the opportunities and risk analysis itself. *Figure 4b* shows how an initial identification of stakeholders on the basis of 'impact on the project', might be augmented with a deeper exploration of the relationship of stakeholder groups to either the risk cause, risk event, risk consequence, risk control and residual risk, or to social opportunities, benefits and related residual risks.

The presence of social development experts with local knowledge would greatly enhance the value of this type of modification, which in turn lends weight to the earlier proposition of inviting third-parties to the internal brainstorming sessions that are so fundamental to an effective opportunities and risk analysis.

Figure 4b Project-level Stakeholder Analysis, Modified to Support Social Risk and Opportunities Analysis in Underdeveloped Regions



4. CONCLUSIONS

The Balfour Beatty Opportunities and Risk Management Framework is a sophisticated, software-driven, tool for identifying, tracking and managing social risks. The tool can contribute significantly to delivering improvements in social risk management and enhanced local economic benefits during construction work, not least due to the inclusion of specific criteria for rating social risks and benefits, and because the tool is integrated within the core of the company, from Group level to the management of individual construction projects. Further, the tool can be rapidly adapted to promote the use of a new risk category of 'social performance', and thus has potential utility in informing bids, or managing construction or service contracts, in the context of engineering projects undertaken in poor and underdeveloped regions.

A review of the Balfour Beatty framework and lessons from its practical application to the construction of a high voltage transmission line in Indonesia, allows some generalised conclusions to be reached on the role of opportunities and risk analysis in enhancing the social performance of major engineering service contractors in developing countries. These include the following:

- Encourage those undertaking or facilitating processes of risk analysis to focus, for at least a short period, exclusively on social risks and opportunities.
- When brainstorming social risks and opportunities, distinguish between their relevance to the social performance objectives of the client and of the contractor.
- With regard to the preparation of bids, some prior priming of customers may be needed to raise their awareness of the value-adding role that contractors can play in meeting the client's social performance objectives.
- Integrate within the risk-analysis process a detailed stakeholder analysis, with a focus on how different stakeholders relate to different sub-components of the process, ie. cause, risk event, consequence, controls/opportunities, residual risks.
- Where practicable, involve external local stakeholders and social development specialists in brainstorming social risk events and opportunities.
- With regard to the post-contract-award period, engagement of non-traditional external stakeholders and/or other key informants in brainstorming social risk events and opportunities

should be viewed as an opportunity to widen the range of stakeholders who could possibly be involved in project partnering.

- Introduce into the process of risk analysis, checklists dedicated to social risk events and controls/opportunities, disaggregated according to their commercial, reputation or compliance relevance.
- Consider augmenting the criteria used to rate social risk severity and benefits to be more relevant to the social issues prevalent in the region of operations.
- For periodic risk analysis undertaken during the life of a contract, market the process of identifying social risks and opportunities as a positive factor in securing contract extensions or renewal.

Further work is needed to weigh the merits of above suggestions, and pilot and track those that carry the most potential.

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